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The ODOT Maintenance Environmental Management System (EMS) Program represents a commitment by the ODOT Maintenance and Operations Branch (MOB) to provide consistent direction for the storage, handling, and disposal of materials typically found at Maintenance yards.

The EMS program continues to be overseen by a technical team representing a cross section of ODOT, including Maintenance crews, Bridge crews, Traffic Line crews, Employee Safety and Wellness, Facilities Management, HazMat, and the MOB (including Fleet Services). Technical regulatory support is provided by representatives from the Oregon Department of Environmental Quality (DEQ).

This 2019 Policy and Procedures Manual is the fourth iteration of the Manual since the EMS program was created in 2004. The entire EMS Manual was reviewed in 2018 and the technical team determined that the term "recommend" was used inconsistently; in this 2019 version, the term "recommended" has been replaced with "should" or has been eliminated. The technical team made significant updates to the drainage and roadwaste sections of the manual to better align with DEQ beneficial use determinations and water quality permits. The BMPs for solid salt from the Winter Ops Notice have been incorporated into appropriate sections. Since the EMS program has been fully implemented at Maintenance yards, the paperwork for monthly onsite inspections has been updated to better assess the performance of established practices and track routine activities.

The technical team will consider the value of another full review of the Manual in 3 – 6 years, as appropriate, in order to ensure that the program remains valuable and pertinent to the management of ODOT Maintenance yards.

The EMS Program is the cornerstone of Maintenance's commitment to the ODOT Sustainability Plan and the Manual is an integral part of Maintenance's Stormwater Management Program. ODOT Program audits and random inspections by regulatory agencies demonstrate that environmental awareness and compliance have improved statewide. Maintenance crews have done an extraordinary job of seamlessly integrating the program into day-to-day standard operating procedures. Since its inception in 2004, implementation of the EMS program has resulted in cleaner maintenance yards, reduced waste generation, improved protection of natural resources, and increased environmental awareness.

As the State Maintenance and Operations Engineer, I am proud of the incredible strides Maintenance has made to identify opportunities and make appropriate changes in how we do business. The success of the EMS program has exceeded all expectations.

Lucinda M Moore, P.E.
State Maintenance and Operations Engineer

Table of Contents

POLICY **1**

INTRODUCTION **1**

PROGRAM COMPONENTS 2

Policy 2

Policy and Procedures Manual 2

Employee Handbook 3

EMS AUDITS 3

Monthly Field Audit 3

Regional Audit 4

Statewide Review 4

SUSTAINABLITY 6

MAINTENANCE YARD STORMWATER MANAGEMENT PLAN 6

ACKNOWLEDGEMENTS 7

1 GOOD HOUSEKEEPING **1**

1.1 STORAGE 1

1.2 MATERIAL HANDLING 3

1.3 WASTES 4

1.4 EMPTY CONTAINERS 5

1.5 ABSORBENTS AND SPILLS 5

1.6 SECONDARY CONTAINMENT 6

1.7 DOCUMENTATION 10

2 LABELS AND SIGNS **1**

2.1 GENERAL INFORMATION ABOUT IDENTIFICATION LABELS 1

2.2 GENERAL INFORMATION ABOUT HAZARD WARNING 1

2.3 SIGNS ON STORAGE AREAS 3

2.4 SIGNS AND POSTINGS AT ODOT FUELING STATIONS 4

2.5 LABELS ON CONTAINERS AND TANKS 5

2.5.1 Labels on Primary and Secondary Containers 5

2.5.2 Labels on Tanks 6
2.5.3 Labels on Piping 6
2.5.4 Labels on Containers of Non-Hazardous and Excluded Wastes 7
2.5.5 Labels on Containers of Hazardous and Potentially Hazardous Waste 8
2.5.6 Labels on Containers of Universal Waste 8

3 TANKS 1

3.1 STATIONARY (FIXED LOCATION) TANKS 1

3.1.1 Aboveground Bulk Fuel Tanks (1000 gallons or greater) 1

3.1.1.1 Purchasing, Renting, or Temporarily Siting 1

3.1.1.2 Siting and Installation including relocation 2

3.1.1.3 Operational Permits and Plans 2

3.1.1.4 Routine Maintenance 2
3.1.1.4.1 Area Upkeep 2
3.1.1.4.2 Integrity Tests 3
3.1.1.4.3 Emergency Equipment 3
3.1.1.4.4 Tank Maintenance 4

3.1.1.5 Removal from Service and Disposal 4

3.1.2 Stationary Metal Tanks 5

3.1.2.1 Purchasing 5

3.1.2.2 Siting and Installation 6

3.1.2.3 Secondary Containment 7

3.1.2.4 Routine Maintenance 7

3.1.2.5 Removal from Service and Disposal 8

3.1.3 Underground Fuel Storage Tanks (USTs) 9

3.1.3.1 Purchasing 9

3.1.3.2 Siting and Installation 9

3.1.3.3 Underground Storage Tank Permits 10

3.1.3.4 Personnel Training at Facilities with Fuel USTs 10

3.1.3.5 Secondary Containment 10

3.1.3.6 Routine Maintenance 11

3.1.3.7 Removal from Service and Disposal of USTs 11

3.1.4 Propane and Other LPG Tanks 12

3.1.4.1 Purchasing or Renting Stationary Propane Tanks 12

3.1.4.2 Siting and Installation of Stationary Propane Tanks 12

3.1.4.3 Routine Maintenance of Stationary Propane Tanks 12
3.1.4.3.1 Area Upkeep 12

3.1.4.3.2 Leak Tests for Propane Tanks 13
3.1.4.3.3 Propane Tank Maintenance and Repairs 13
3.1.4.4 Removal from Service and Disposal of Stationary Propane Tanks 13
3.1.5 Septic Tanks 13
3.1.6 Stationary Poly Tanks 14
3.1.6.1 Purchasing 14
3.1.6.2 Siting and Installation 14
3.1.6.3 Secondary Containment of Stationary Poly Tanks (if present) 15
3.1.6.4 Routine Maintenance and Inspection 16
3.1.6.5 Removal from Service and Disposal 16
3.2 MOBILE TANKS 17
3.2.1 Poly Transport Tanks (skid or truck mounted tanks) 17
3.2.1.1 Purchasing and Installation 17
3.2.1.2 Routine Maintenance 17
3.2.1.3 Removal from Service and Disposal 18
3.2.2 Asphalt Tanks, Slip-Ins, and Trailer Mounted Tanks 18
3.2.3 Totes and Bulk Containers (typically 140 to 800 gallons) 18
4 DRAINAGE AND WATER QUALITY 1
4.1 STORMWATER 1
4.1.1 Catch Basins, Inlets, and Sumps 3
4.1.2 Ditches 3
4.1.3 Stormwater Outlets 3
4.1.4 Swales, Ponds, and Other Water Quality Features 3
4.1.5 Underground Injection Control (UIC) 4
4.2 SEPTIC SYSTEMS 5
4.3 WASTEWATER DISCHARGES 6
4.4 WATER TREATMENT 7
5 EMS MATERIAL SPECIFIC PROCEDURES 1
5.1 AEROSOL CANS 1
5.1.1 Purpose 1
5.1.2 Regulating Agencies 1
5.1.3 Alternatives and Pollution Prevention 1
5.1.4 Aerosol Cans – Best Management Practices 1

5.1.4.1 Storage of Aerosol Cans 1
5.1.4.2 Handling and Use of Aerosol Cans 2
5.1.4.3 Disposal of Aerosol Cans 2
5.1.4.3.1 Full, Partially Full, and Spent Aerosol Cans (not punctured) 2
5.1.4.3.2 Operation and Maintenance of Puncture Systems (can poppers) 3
5.1.4.3.3 Puncture System (can popper) Wastes 4
5.1.4.3.4 Empty Aerosol Cans (punctured) 4
5.1.5 Documentation 4
5.2 ASPHALT PAVING PRODUCTS 1
5.2.1 Purpose 1
5.2.2 Regulating Agencies 1
5.2.3 Alternatives And Pollution Prevention 1
5.2.4 Asphalt Paving Products - Best Management Practices 1
5.2.4.1 Storage of Asphalt Paving Products 2
5.2.4.1.1 Tanks and Large Containers (emulsion and release agents) 2
5.2.4.1.2 Storage of Cold Mix Asphalt that is Not Packaged 3
5.2.4.1.3 Packaged Asphalt Products 3
5.2.4.2 Handling and Use of Asphalt Paving Products and Equipment 4
5.2.4.2.1 In-Use Containers and Fluid Transfers 4
5.2.4.2.2 Parking Paving Equipment During the Paving Season 4
5.2.4.2.3 Routine and Seasonal Cleaning of Paving Equipment 4
5.2.4.2.4 Waste Asphalt/Tack Emulsion Storage 5
5.2.4.3 Disposal of Asphalt Paving Wastes 5
5.2.4.3.1 Waste Asphalt Emulsion (liquid or semi-solid) 5
5.2.4.3.2 Asphalt Coated Absorbent 5
5.2.4.3.3 Asphalt and Asphalt Grindings 5
5.2.4.3.4 Empty Containers 5
5.2.5 Documentation 5
5.3 AUTOMOTIVE FLUIDS AND PARTS 1
5.3.1 Purpose 1
5.3.2 Regulating Agencies 1
5.3.3 Alternatives And Pollution Prevention 1
5.3.4 Automotive Fluids and Parts - Best Management Practices 2
5.3.4.1 Storage of Automotive Fluid and Parts 2
5.3.4.1.1 Storage of Large Containers (30 gallons – 55 gallons) 2
5.3.4.1.2 Storage of Small Containers (less than 30 gallons) 3
5.3.4.1.3 Storage of Parts 4
5.3.4.2 Handling and Use of Automotive Fluids and Parts 5
5.3.4.2.1 In-use Containers and Fluid Transfers 5
5.3.4.2.2 Changing Coolant, Oil, and Fuel Filters 5
5.3.4.2.3 Servicing Air Conditioning Systems 5
5.3.4.2.4 Brake and Clutch Repairs 6
5.3.4.2.5 Cleaning Parts 6
5.3.4.2.6 Storage of Used Automotive Fluids and Filters 6

5.3.4.3 Disposal of Automotive Fluids and Parts 6
5.3.4.3.1 Disposal of Used Filters 6
5.3.4.3.2 Disposal of Brake Pads and Clutch Pads 7
5.3.4.3.3 Disposal of Metal Grindings 7
5.3.4.3.4 Disposal of Used Brake Fluid and Other Petroleum-Based Fluids 7
5.3.4.3.5 Disposal of Used Coolant 8
5.3.4.3.6 Management of Used Automotive Parts 8
5.3.4.3.7 Disposal of Used Absorbents 8
5.3.4.3.8 Empty Drums and Containers 8
5.3.5 Documentation 8
5.4 BATTERIES 1
5.4.1 Purpose 1
5.4.2 Regulating Agencies 1
5.4.3 Alternatives And Pollution Prevention 1
5.4.4 Batteries – Best Management Practices 2
5.4.4.1 Storage of New Batteries 2
5.4.4.2 Handling and Use of Batteries 2
5.4.4.2.1 *Recharge Dry Cell Batteries*(e.g. nickel metal hydride and lithium-ion) 2
5.4.4.2.2 Storage of Used Wet Batteries (e.g. lead-acid) 3
5.4.4.2.3 Storage of Used Dry Cell Batteries (e.g. alkaline, carbon-zinc, nickel-cadmium, nickel metal hydride, and lithium-ion) 3
5.4.4.2.4 Storage of Broken or Leaking Batteries 3
5.4.4.3 Disposal of Batteries 4
5.4.5 Documentation 5
5.5 CLEANING PRODUCTS 1
5.5.1 Purpose 1
5.5.2 Regulating Agencies 1
5.5.3 Alternatives And Pollution Prevention 1
5.5.4 Cleaning Products – Best Management Practices 2
5.5.4.1 Storage of Cleaning Products 2
5.5.4.1.1 Storage of Large Containers (30 gallons – 55 gallons) 2
5.5.4.2 Handling and Use of Cleaning Products 3
5.5.4.3 Disposal of Cleaning Products 3
5.5.5 Documentation 4
5.6 COMPRESSED GAS 1
5.6.1 Purpose 1
5.6.2 Regulating Agencies 1
5.6.3 Alternatives And Pollution Prevention 1
5.6.4 Compressed Gas – Best Management Practices 1
5.6.4.1 Storage of Compressed Gas 1

5.6.4.2 Handling and Use of Compressed Gas 3
5.6.4.3 Disposal of Compressed Gas 4
5.6.5 Documentation 4
5.7 ELECTRONIC EQUIPMENT AND COMPUTERS 1
5.7.1 Purpose 1
5.7.2 Regulating Agencies 1
5.7.3 Alternatives And Pollution Prevention 1
5.7.4 Electronic Equipment And Computers - Best Management Practices 1
5.7.4.1 Storage of Electronic Equipment and Computers 1
5.7.4.2 Handling and Use of Electronic Equipment and Computers 1
5.7.4.3 Disposal of Electronic Equipment and Computers 2
5.7.5 Documentation 2
5.8 EPOXY 1
5.8.1 Purpose 1
5.8.2 Regulating Agencies 1
5.8.3 Alternatives And Pollution Prevention 1
5.8.4 Epoxy - Best Management Practices 1
5.8.4.1 Storage of New Epoxy 2
5.8.4.1.1 Storage of Large Containers (30 gallons – 55 gallons) 2
5.8.4.1.2 Storage of Small Containers (less than 30 gallons) 4
5.8.4.1.3 Storage of Dry and/or Granular Products 4
5.8.4.2 Handling and Use of Epoxy 4
5.8.4.2.1 In-use Containers and Fluid Transfers 4
5.8.4.2.2 Mixing and Loading 5
5.8.4.2.3 Cleaning Epoxy Applicators and Tools 5
5.8.4.3 Disposal of Epoxy 5
5.8.4.3.1 Disposal of Waste Epoxy 5
5.8.4.3.2 Empty Containers 6
5.8.5 Documentation 6
5.9 EQUIPMENT AND FLEET 1
5.9.1 Purpose 1
5.9.2 Regulating Agencies 1
5.9.3 Alternatives And Pollution Prevention 1
5.9.4 Equipment And Fleet – Best Management Practices 2
5.9.4.1 Storage of Equipment and Fleet 2
5.9.4.1.1 Parking of Operational Equipment and Fleet (daily use) 2
5.9.4.1.2 Seasonal Storage of Equipment and Fleet 2
5.9.4.1.3 Storage of Damaged Vehicles (including OSP impounds) 2
5.9.4.1.4 Storage of Power Tools (e.g. chain saw or push mower) 3

5.9.4.2 Handling and Use of Equipment and Fleet 3
5.9.4.2.1 Preventative Maintenance 3
5.9.4.2.2 Handling of Power Tools 3
5.9.4.2.3 Routine Maintenance and In-House Repairs 3
5.9.4.2.4 Storage of Used Tires from ODOT Fleet 4
5.9.4.2.5 Fleet and Equipment Washing 4
5.9.4.2.6 Rinsing Dirt and Debris (Not an Engineered Wash Rack) 6
5.9.4.2.7 Vehicle-Mounted Tanks 7

5.9.4.3 Disposal of Equipment and Fleet 7
5.9.4.3.1 Equipment and Fleet Disposal 7
5.9.4.3.2 Disposal of Whole Tires 7
5.9.4.3.3 Disposal of Solids from Washing and Wash Rack Sumps 7
5.9.4.3.4 Disposal of Power Tools 7

5.9.5 Documentation 8

5.10 FERTILIZER AND LIME 1

5.11 FUEL 1

5.11.1 Purpose 1

5.11.2 Regulating Agencies 1

5.11.3 Alternatives And Pollution Prevention 1

5.11.4 Fuel - Best Management Practices 2

5.11.4.1 Storage of Fuel 2
5.11.4.1.1 Storage in Stationary Aboveground Storage Tanks (ASTs) 2
5.11.4.1.2 Storage in Underground Storage Tanks (UST) – Not Heating Oil Tanks 4
5.11.4.1.3 Underground Heating Oil Tanks 5
5.11.4.1.4 Storage of Fuel in Portable Tanks (e.g. pack tanks or transfer tanks) 5
5.11.4.1.5 Storage in Large Containers (30 gallons – 55 gallons) 5
5.11.4.1.6 Storage of Small Containers (e.g. gas cans and pre-mix fuel less than 30 gallons) 6
5.11.4.1.7 Storage of Diesel Exhaust Fluid (DEF) 7

5.11.4.2 Handling and Use of Fuel 7
5.11.4.2.1 Permits and Plans for Fuel Stations 7
5.11.4.2.2 Training at Facilities that Store Fuel in Underground Storage Tanks 8
5.11.4.2.3 Fuel Stations and Fuel Dispensing (Including Dispensing from Pack Tanks) 8
5.11.4.2.4 Routine Fuel Tank Maintenance 10
5.11.4.2.5 In-Use Containers of Fuel or Diesel Exhaust Fluid (DEF) 10

5.11.4.3 Disposal of Fuel 10
5.11.4.3.1 Disposal of Unusable Fuel 10
5.11.4.3.2 Disposal of Fuel Saturated Absorbent 11
5.11.4.3.3 Disposal of Diesel Exhaust Fluid (DEF) 11
5.11.4.3.4 Disposal of Portable Fuel Tanks and Other Empty Fuel Containers 11

5.11.5 Documentation 12

5.12 LIGHTING AND FLARES 1

5.12.1 Purpose 1

5.12.2 Regulating Agencies 1

5.12.3 Alternatives And Pollution Prevention 1

5.12.4 Lighting – Best Management Practices 2

5.12.4.1 Storage of New Lighting Products 2
5.12.4.1.1 Storage of New Lamps 2
5.12.4.1.2 Storage of Road Flares 2
5.12.4.2 Handling and Use of Lighting Products 3
5.12.4.2.1 Storage of Used High-Mercury Lamps and Low-Mercury Lamps that will be Recycled 3
5.12.4.2.2 Cleanup of Broken Mercury-Containing Lamps 3
5.12.4.2.3 Removal and Storage of Waste Light Ballasts 3
5.12.4.3 Disposal of Lighting Products 4
5.12.4.3.1 No-Mercury and Low-Mercury Lamp Disposal 4
High- 4
5.12.4.3.2 Mercury Lamp Disposal (e.g. standard fluorescent tubes) 4
5.12.4.3.3 Disposal of Broken Lamps 5
5.12.4.3.4 Ballast Disposal 5
5.12.4.3.5 Disposal of Road Flares and Other Light Sticks 5
5.12.5 Documentation 5
5.13 OIL 1
5.13.1 Purpose 1
5.13.2 Regulating Agencies 1
5.13.3 Alternatives And Pollution Prevention 1
5.13.4 Oil - Best Management Practices 1
5.13.4.1 Storage of New Oil 2
5.13.4.1.1 Storage in Aboveground Tanks and Large Containers (≥30 gallons) 2
5.13.4.1.2 Storage of Small Containers (less than 30 gallons) 4
5.13.4.2 Handling and Use of Oil 4
5.13.4.2.1 In-use Containers and Fluid Transfers 4
5.13.4.2.2 Used Oil Storage 5
5.13.4.3 Disposal of Oil 5
5.13.4.3.1 Disposal of Used Oil 5
5.13.4.3.2 Reuse of Used Oil as Space Heater Fuel (onsite) 5
5.13.4.3.3 Transporting Used Oil to Another ODOT Site 6
5.13.4.3.4 Empty Oil Containers 6
5.13.5 Documentation 6
5.14 PAINT AND COATINGS 1
5.14.1 Purpose 1
5.14.2 Regulating Agencies 1
5.14.3 Alternatives And Pollution Prevention 1
5.14.4 Paint – Best Management Practices 2
5.14.4.1 Storage of Paint 2
5.14.4.2 Handling and Use of Paint 4
5.14.4.2.1 In-use Containers and Fluid Transfers 4
5.14.4.2.2 Tool and Equipment Cleaning 5
5.14.4.2.3 Wet Blasting and Media Blasting (e.g. bead blasting or sandblasting) 5

5.14.4.3 Disposal of Paint 6
5.14.4.3.1 Disposal of Paint 6
5.14.4.3.2 Disposal of Non-Reusable Accessories (e.g. strainers or forms) 7
5.14.4.3.3 Disposal of Waste from Cleaning Paint Tools 7
5.14.4.3.4 Disposal of Paint Booth Filters 8
5.14.4.3.5 Disposal of Blasting Waste Mixed with Paint Chips 8
5.14.4.3.6 Disposal of Empty Containers 8
5.14.5 Documentation 9
5.15 PAVEMENT MARKING 1
5.15.1 Purpose 1
5.15.2 Regulating Agencies 1
5.15.3 Alternatives And Pollution Prevention 1
5.15.4 Pavement Marking Products – Best Management Practices 1
5.15.4.1 Storage of Pavement Marking Products 2
5.15.4.1.1 Paints (e.g. waterborne paint and low VOC paint) 2
5.15.4.1.2 Dry Products (e.g. thermoplastics) 2
5.15.4.1.3 Hard Goods and Durable Markers (e.g. glass beads, legends, and Dura-stripe) 3
5.15.4.1.4 Construction Paints and Survey Markers 3
5.15.4.2 Handling and Use of Pavement Marking Products and Equipment 3
5.15.4.2.1 In-use Containers and Fluid Transfers 3
5.15.4.2.2 Mixing and Loading Areas 3
5.15.4.2.3 Equipment Cleaning 3
5.15.4.2.4 Off-Season Storage of Pavement Marking Products 4
5.15.4.3 Disposal of Pavement Marking Products 4
5.15.4.3.1 Disposal of Unusable Products 4
5.15.4.3.2 Disposal of Equipment Cleaning Waste 4
5.15.4.3.3 Disposal of Non-Reusable Accessories (e.g. forms) 5
5.15.4.3.4 Disposal of Paint Grindings 5
5.15.4.3.5 Disposal of Empty Containers 5
5.15.5 Documentation 5
5.16 PESTICIDE 1
5.16.1 Purpose 1
5.16.2 Regulating Agencies 1
5.16.3 Alternatives And Pollution Prevention 1
5.16.4 Pesticide – Best Management Practices 2
5.16.4.1 Storage of Pesticide 3
5.16.4.1.1 Dry and Liquid Product Storage (all sizes) 3
5.16.4.1.2 Aerosol Can Storage 4
5.16.4.2 Handling and Use of Pesticide 4
5.16.4.2.1 In-Use Containers (i.e. opened containers) 4
5.16.4.2.2 Mixing and Loading 5
5.16.4.2.3 Onsite Use of Pesticides 5
5.16.4.2.4 Truck-Mounted Storage Tanks 5
5.16.4.2.5 Equipment Cleaning and Rinsate 6
5.16.4.2.6 Off-Season Storage 6

5.16.4.2.7 Storage of Waste Pesticide 6
5.16.4.3 Disposal of Pesticide 7
5.16.4.3.1 Disposal of Waste Pesticides 7
5.16.4.3.2 Disposal of Wastes not Registered as Pesticides 7
5.16.4.3.3 Disposal of Empty Pesticide Containers 8
5.16.5 Documentation 9
5.17 PROPANE 1
5.17.1 Purpose 1
5.17.2 Regulating Agencies 1
5.17.3 Alternatives And Pollution Prevention 1
5.17.4 Propane – Best Management Practices 1
5.17.4.1 Storage of Propane 1
5.17.4.1.1 Large Tanks in a Fixed Location 1
5.17.4.1.2 Refillable Portable Cylinders (2 to 420 pound capacity) 2
5.17.4.1.3 Disposable (non-refillable) Portable Containers (1 pound capacity) 3
5.17.4.2 Handling and Use of Propane 3
5.17.4.2.1 Handling Propane 3
5.17.4.2.2 Leak Tests, Repairs, and Certification 3
5.17.4.2.3 Handling Propane Tanks if there is a Fire Evacuation of the Facility 4
5.17.4.2.4 Removal from Service and Disposal of Stationary Propane Tanks 4
5.17.4.3 Disposal of Propane Cylinders and Tanks (stationary and portable) 4
5.17.5 Documentation 5
5.18 ROADWASTE 1
5.18.1 Purpose 1
5.18.2 Regulating Agencies 1
5.18.3 Alternatives And Pollution Prevention 1
5.18.4 Roadwaste - Best Management Practices 2
5.18.4.1 Storage of Roadwaste 2
5.18.4.1.1 Storage of Materials that are Intended for Disposal or Recycling (e.g. litter, scrap metal, rubber, or woody debris) 2
5.18.4.1.2 Storage of Materials that are Intended for Future Use (e.g. shoulder soil or asphalt) 2
5.18.4.1.3 Storage of Personal Property 3
5.18.4.2 Handling and Use of Roadwaste 3
5.18.4.2.1 Active Management for Recycling or Future Use 3
5.18.4.2.2 Transfer Ownership of Fill to Private Landowner 4
5.18.4.3 Disposal of Roadwaste 5
5.18.4.3.1 Litter and Personal Property Including Abandoned Hazardous Waste 5
5.18.4.3.2 Highway Shoulder Soil 6
5.18.4.3.3 Street Sweepings and Recovered Abrasives (material picked up from the pavement) 7
5.18.4.3.4 Catch Basin, Sump, and Culvert Cleanings 8
5.18.4.3.5 Slide Material 9
5.18.4.3.6 Stripe Grindings 9
5.18.4.3.7 Asphalt Grindings 9
5.18.4.3.8 Brush and Landscape Debris (green waste) 10

5.18.4.3.9 Road Kill (organic waste) 10
5.18.5 Documentation 11
5.19 SOLVENT 1
5.19.1 Purpose 1
5.19.2 Regulating Agencies 1
5.19.3 Alternatives And Pollution Prevention 1
5.19.4 Solvent - Best Management Practices 2
5.19.4.1 Storage of New Solvent 2
5.19.4.1.1 Storage of Large Containers (30 – 55 gallons) 2
5.19.4.1.2 Storage of Small Containers (less than 30 gallons) 4
5.19.4.2 Handling and Use of Solvent 5
5.19.4.2.1 In-use Containers and Fluid Transfers 5
5.19.4.2.2 Pre-Cleaning and Part Washers 5
5.19.4.2.3 Storage of Used Solvents and Solvent Containing Waste 6
5.19.4.3 Disposal of Solvent 7
5.19.4.3.1 Disposal of Solvent and Solvent-Containing Wastes 7
5.19.4.3.2 Empty Containers 7
5.19.5 Documentation 7
5.20 TREATED TIMBER 1
5.20.1 Purpose 1
5.20.2 Regulating Agencies 1
5.20.3 Alternatives And Pollution Prevention 1
5.20.4 Treated Timber – Best Management Practices 1
5.20.4.1 Storage of Treated Timber (new and Used) 1
5.20.4.2 Handling and Use of Treated Timber 2
5.20.4.3 Disposal of Treated Timber 2
5.20.5 Documentation 2
5.21 WINTER MAINTENANCE 1
5.21.1 Purpose 1
5.21.2 Regulating Agencies 1
5.21.3 Alternatives And Pollution Prevention 1
5.21.4 Winter Maintenance – Best Management Practices 1
5.21.4.1 Storage of Winter Maintenance Materials 2
5.21.4.1.1 Stationary Aboveground Storage Tanks 2
5.21.4.1.2 Storage of Dry Bagged Product -all sizes 3
5.21.4.1.3 Storage of Dry Bulk Product 4
5.21.4.1.4 Storage of Abrasives 4
5.21.4.1.5 Secondary Containment of Winter Maintenance Chemical Tanks 5
5.21.4.2 Handling and Use of Winter Maintenance Materials 5

5.21.4.2.1 Truck-Mounted Liquid Storage Tanks 5
5.21.4.2.2 Storage of Salt Application Equipment 6
5.21.4.2.3 Loading and Unloading Liquid Winter Maintenance Chemicals 6
5.21.4.2.4 Loading and Unloading Dry Product 6
5.21.4.2.5 Routine Maintenance and Inspection Tanks 6
5.21.4.2.6 Removing Poly Tanks from Service 7
5.21.4.2.7 Routine Maintenance and Inspection of Salt Storage Structures 7
5.21.4.2.8 Cleaning Application Equipment 7
5.21.4.3 Disposal of Winter Maintenance Materials 8
5.21.4.3.1 Disposal of Recovered and Residual Liquid Product (including recovered spills and tank residue) 8
5.21.4.3.2 Disposal of Dry Product 8
5.21.4.3.3 Disposal of Tanks 8
5.21.4.3.4 Disposal or Reuse of Recovered Abrasives 8
5.21.5 Documentation 9

ACRONYMS 1

DEFINITION OF TERMS 1

CROSS REFERENCE 1

APPENDIX A - LEGAL CITATIONS 1

APPENDIX B - BLANK EMS DOCUMENTS 1

APPENDIX C - MAINTENANCE EMS MONTHLY AUDIT 1

APPENDIX D - WASTE LOGS AND WASTE CHARACTERIZATION 1

APPENDIX E - WASTE CHEAT SHEET 1

APPENDIX F - ODOT HAZARD COMMUNICATION 1

APPENDIX G - CHEMICAL COMPATIBILITY 1

APPENDIX H - SPILLS 1

APPENDIX I - DEQ FACT SHEETS AND POLICY SHEETS 1

APPENDIX J - PERMITTED LANDFILLS 1

APPENDIX K - SPILL PREVENTION CONTROL AND COUNTERMEASURES 1

APPENDIX L - POLY TANKS 1

APPENDIX M - ROADWASTE 1

APPENDIX N - OREGON STATE FIRE MARSHAL 1

APPENDIX O - BRAKE AND CLUTCH WORK 2

APPENDIX P - FUELING..... 1

APPENDIX Q - USED OIL TRANSFERS 1

APPENDIX R - PESTICIDE CONTAINERS..... 1

Section Divider

Section Divider

Oregon Department of Transportation **POLICY**	NUMBER MAI 31	SUPERSEDES 01/23/08
	EFFECTIVE DATE 02/25/2013	PAGE NUMBER 01 OF 03
	VALIDATION DATE 10/12/2017	
	REFERENCE ODOT Sustainability Plan; Executive Order 06-02	
SUBJECT **ENVIRONMENTAL MANAGEMENT AND OPERATIONS OF MAINTENANCE COMPOUNDS**	APPROVED SIGNATURE Signature on file in Business Services	

PURPOSE

The Oregon Department of Transportation (Department) is committed to safe and healthy workplaces but also recognize the potential impact of maintenance compounds and maintenance activities on the environment. This policy sets up principles that shall guide the management of, and activities at, Department highway maintenance compounds toward improvements in environmental stewardship, sustainability, and compliance with state and federal waste management laws. This policy supports both the Executive Order 06-02 on sustainability and the Department Sustainability Plan.

POLICY

The Department recognizes that operations at highway maintenance compounds may affect soils, surface water, ground water, air, land, natural resources, and ecological systems.

The Department Maintenance crews, Fleet Services employees, and those Facilities Management crews that support or work out of or are housed at maintenance compounds shall conduct all operations in a manner that provides for protection of the environment, conservation of natural resources, and compliance with state and federal waste laws as directed through the Environmental Management System Policy and Procedures Manual.

The Department Maintenance and Operations Leadership Team (MLT), in conjunction with the Facilities Management Branch Manager, shall periodically evaluate the environmental aspects and risks of compound operation and activities, and name priorities for management action, and update the EMS Policy and Procedures Manual as needed.

GUIDELINES

This policy extends to all maintenance compounds, whether staffed or unstaffed, that include buildings or structures that carry a facilities identification number. This policy extends to all crews that work out of or are housed at maintenance compounds. This policy does not extend to Safety Rest Areas or areas along the roadway that are not specifically for maintenance activities.

This policy, as well as the Environmental Management System (EMS) Policy and Procedures Manual, is developed with the following assumptions:

- Safety of the employee is an overarching consideration and is to be considered at all times. The Department Safety and Health Manual is referenced throughout the EMS procedures.
- All procedures and directives shall apply to all situations, regardless of location (along the road where maintenance activities occur, at stockpile sites, and so on).
- Emergency situations may present themselves that are outside the EMS procedures and would need review and coordination with the Department Emergency Operations Plan.

RESPONSIBILITY	**ACTION**
State Maintenance and Operations Engineer, Maintenance and Operations Leadership Team (MLT), Facilities Management Branch Manager	MLT, in conjunction with the Facilities Management Branch Manager, shall establish objectives and targets for priority procedures that demonstrate continuous improvement in overall environmental stewardship. Develop and periodically review proper environmental management systems that are suitable for protecting the environment and for achieving specific environmental objectives and targets for priority procedures that shall be set by MLT in conjunction with the Facilities Management Branch Manager Establish and maintain practices and procedures to prevent or reduce impact on the environment. Ensure compliance with applicable environmental laws and regulations. Continuously evaluate and update the procedures as needed. Encourage use of methods and materials that reduce burdens on the environment, or by modifying certain activities which may not be environmentally sustainable or which may risk undue harm to the environment. Provide appropriate training to Maintenance employees, Facilities Management employees, and other employees that are required to follow this policy to allow them to perform their jobs according to safe, established procedures, and to be aware of opportunities to reduce environmental impact. Communicate the environmental operational directives and procedures where applicable to contractors and work with Central Services to incorporate environmental concerns into maintenance contracts. Maintain emergency preparedness and response plans where required by law or where appropriate to safeguard the health and safety of Department employees.

	Communicate with interested stakeholders including Department management, employees, and other state and local governments to inform them of the environmental programs, goals and progress.
Department Maintenance Staff, Statewide, and Regional Representatives	Conduct periodic audits to determine the effectiveness of the EMS and ability to comply with laws and regulations. Department Maintenance staff, in conjunction with Statewide or Regional representatives will conduct these audits. The audit will include structured, scheduled reviews and assessments of the implementation effectiveness and compliance to the EMS procedures.
Managers and Supervisors	Be responsible and accountable for work performance. Foster a positive attitude toward worker protection, environmental stewardship, and sustainability. Implement procedures developed for environmental management. Communicate and coordinate results of reviews, audits and any required procedural updates with MLT and the EMS Steering Team. Ensure training is available and attended by employees to implement the policy.
All Employees at Maintenance Compounds	Utilize and follow Department environmental policies, procedures and management best practices developed for maintenance compounds. Set a positive example, coordinate and contribute toward the overall success of the EMS program. Identify and report areas of noncompliance and correct as appropriate. Participate in program discussions to identify environmental risks or noncompliance issues at maintenance compounds. Report all environmental concerns to supervisor.

Section Divider

Section Divider

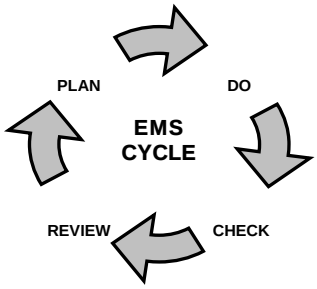
INTRODUCTION

Since 2004, Oregon Department of Transportation (ODOT) Maintenance employees have been successfully implementing the Environmental Management System (EMS) for ODOT Maintenance Yards. The EMS program provides guidance on managing materials used in the day-to-day maintenance of the highway system. The success of the EMS program has exceeded all expectations.

The EMS program for *maintenance yards* was developed in response to the Governor's Executive Order on Sustainability. The program was initially created by a technical team comprised of representatives from ODOT Fleet, Facilities, Safety, HazMat, Environmental, and Maintenance plus a representative from the Oregon Department of Environmental Quality (DEQ) and the Governor's liaison.

The EMS program is one of several statewide environmental programs overseen by the Maintenance and Operations Branch (MOB) that provide consistent guidance and direction to ODOT Maintenance employees. The EMS program complements and references other agency manuals such as the ODOT Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices (Blue Book), the ODOT Emergency Operations Plan, and the ODOT Employee Health and Safety Manual.

The ODOT program is based on the four (4) basic EMS principles: plan, do, check, and review.



- Plan- development of the program
- Do- put the program on the ground
- Check- evaluate the progress of the program
- Review- amend the program where necessary

ODOT Maintenance employees are creative, innovative, and resourceful. The EMS program encourages improvement, discussion, and 'thinking outside the box.' Employees are encouraged to "reduce, reuse, recycle" where practical.

ODOT's EMS program translates regulatory requirements and agency expectations into straightforward best management practices (BMPs) and guidance for the storage, handling, and disposal of materials typically found at ODOT maintenance facilities. The EMS program was developed with the following assumptions:

- Safety of the employee is an overarching priority and is to be considered at all times. The EMS program focuses on identification and minimization of impacts to natural resources. The ODOT Safety and Health Manual is the guiding document for specific information relating to employee health or personal protective equipment.
- The EMS program is intended to be implemented at maintenance facilities where materials are typically stored. Maintenance facilities are manned or unmanned locations that have been assigned a facility number. Maintenance facilities have been grouped into three categories (maintenance yards, winter maintenance sites, and dry storage facilities) to differentiate assessment expectations. A table describing the three types of facilities is located on page 5 of this Introduction. BMPs are expected to be implemented where appropriate regardless of the category of the location.
- Emergency situations are outside the scope of this program. Employees should review the ODOT Emergency Operations Plan for guidance and direction.

PROGRAM COMPONENTS

The EMS program consists of three components contained in two distinct document. The ODOT Maintenance Yard Environmental Management Systems Policy and Procedures Manual (Manual) contains a copy of the Policy (MAI 31) and describes the EMS program in detail. A full copy of the Manual has been distributed to each maintenance yard. The Manual is also available online at https://www.oregon.gov/ODOT/Maintenance/Pages/Environmental-Programs.aspx. The Employee Handbook, a quick reference of common practices, is intended for field level staff.

Policy

ODOT Policy MAI 31 (Environmental Management of ODOT Maintenance Facilities) outlines principles that guide the management of maintenance facilities toward improvements in environmental stewardship, sustainability, and compliance with state and federal laws. The Policy recognizes the potential impact of *maintenance yards* on the environment.

Policy and Procedures Manual

The Manual details information to successfully implement the EMS program. The Manual includes best practices for material management, outlines the documentation requirements of the program, and contains supplemental information (e.g. technical references, legal citations, and fact sheets).

The Manual covers a broad spectrum of materials used in the operation and maintenance of the highway, including materials used in fleet and facilities management. Developing BMPs that cover every situation and product is an impossible task. Significant effort was made to include as much information as possible creating a single reference for material management questions.

The EMS Manual is divided into three major sections delineated by colored tabs:

- **White tabs** are overarching program information. White tabs include the Policy, this Introduction, Acronyms, Definition of Terms, and a Cross Reference for finding best practices for materials that may not be easily located by reviewing the heading on the brown tabs. Words included in the Definition of Terms have been *italicized* throughout the Manual.
- **Brown Tabs** are specific management practices. The brown tabs are a critical component in implementing the EMS program. Overarching BMPs are provided in the first four sections. Material specific BMPs, or procedures, are provided in section 5. These procedures represent the variety of materials typically stored at *maintenance yards*. Throughout the brown tabs two key words (must and should) are used to differentiate BMPs.
    - — **Must**- Practices that reflect a legal requirement or an ODOT directive are presented with the word 'must.' The word 'must' has been underlined throughout the Manual for emphasis.
    - — **Should**- Practices that the EMS technical team believes reflect good stewardship and ought to be implemented where appropriate are presented with the word 'should.'

    In previous versions of this document a third key word "recommend" was used for suggestions and good ideas. A review of the Manual in 2018 determined the "recommend" key word was used infrequently and inconsistently. "Recommend" BMPs in previous versions of this Manual have been either eliminated or changed to a "should" throughout this document.

    - **Yellow Tabs** are supplemental information and instructions. Information in the yellow tabs includes samples of completed forms, DEQ fact sheets, and others items that could assist Maintenance staff in implementing the EMS program.

Each of the material specific procedures in Section 5 is a stand-alone document containing a purpose; a list of regulating agencies; alternatives and pollution prevention practices; BMPs for storage, handling, and disposal; and documentation requirements.

- **Purpose**- a description of what the procedure covers and the intent.
- **Regulating agencies**- a list of agencies that regulate the storage, handling, or disposal of the material. Appropriate references or legal citations are located in Appendix A.
- **Alternatives and Pollution Prevention**- suggestions for increasing sustainable material management including alternative products, waste minimization, and hazard reduction. The ideas listed in this section are examples to encourage brainstorming, discussion, and 'thinking outside the box.' ODOT encourages employees to "reduce, reuse, and recycle."
- **Best Management Practices**- discussion on the storage, handling, and disposal of the materials. Best management practices are the critical element of the procedures and the EMS program as a whole.
- **Documentation**- requirements of the program or typical documentation required by other agencies (e.g. Fire Marshal), as appropriate, for the material. Blank copies of all program documentation forms are located in Appendix B.

Employee Handbook

The Employee Handbook summarizes key BMPs from the brown tabs providing crew level employees with need-to-know information. The Employee Handbook has simplified information on labels, tanks, and drainage; an A to Z list of materials typically found at yards; general information on spill management; and a list of other resources. BMPs are not weighted; the key words "must" and "should" are not used in this document. The Manual is expected to be referenced for detailed information.

EMS AUDITS

A successful EMS program includes structured, regularly scheduled assessment. ODOT's EMS program includes three levels of assessment.

Monthly Field Audit

The Monthly Field Audit is a formal, monthly inspection of each *maintenance yard* that takes a critical look at current condition with the intent of identifying things that need to be corrected. Items discovered during the Monthly Field Audit that cannot be resolved with the audit in-hand are recorded on the Corrective Action sheet. Cursory observations, items that can be correct while conducting the Monthly Field Audit, and issues discovered during routine activities are not documented.

Corrective actions that require significant resources are prioritized and addressed as resources are available. Minor corrective actions (e.g. label) are completed by the local maintenance crews as soon as practical. Corrections that are outside the scope of the local maintenance crews' expertise or budget are 'rolled up' to the District office or other appropriate management teams for resolution.

In addition to the Monthly Field Audit, informal visual inspections are completed by Maintenance crews during routine activities. In general, *winter maintenance sites* and *dry storage facilities* have minimal material storage and less risk to natural resources; therefore visual inspections are not documented. BMPs are expected to be implemented where applicable.

Regional Audit

The intent of this level of review is to take a critical look at site specific implementation of the program and to identify where additional assistance is needed. In order to accommodate winter maintenance activities Regional Audits are performed between March and November.

The District Manager (or Assistant District Manager), a representative for the yard, and a technical assistance representative from either HazMat or MOB participate in the Regional Audits. Additional technical assistance representatives from other ODOT departments (e.g. Safety, Facilities Management, or GeoEnvironmental) may be invited at the discretion of the District Manager.

In 2009 seven procedures were identified as indicators of EMS program implementation. Starting in the 2020 an additional procedure will be used as an indicator. Implementation of these eight *priority procedures* and a selection of other procedures are reviewed during each Regional Audit.

Winter maintenance sites and *dry storage facilities* are audited in coordination with the Regional Audit of the *maintenance yard* that supervises the site. A selection of pertinent procedures is audited at *winter maintenance* sites by the District Manager (or Assistant District Manager). Visual inspections of *dry storage facilities* are completed by the local maintenance manager or coordinator.

Regional Audits are conducted on a three-year evaluation cycle. MOB has developed a rotation and schedule to ensure that *maintenance yards*, *winter maintenance sites*, and *dry storage facilities* are visited at least once in each three-year cycle. In addition, each year all the Section 5 procedures and the section on drainage are evaluated at least once in each ODOT Region.

MOB periodically sends audit packets to the District Managers. The packets include forms for the Regional Audit at the *maintenance yard* and additional forms for *winter maintenance sites* and *dry storage facilities* that are operated by Maintenance in cooperation with the *maintenance yard.*

Statewide Review

A statewide technical team, led by the MOB, typically meets biannually. The team is comprised of representatives from Maintenance including Fleet, Bridge, Traffic Line plus representatives from ODOT HazMat, ODOT GeoEnvironmental, ODOT Employee Safety, and DEQ. This team evaluates systemic issues, changes in regulations, and concerns from crews that were brought to their EMS representative. The team works together to develop appropriate solutions and disseminate the 'lessons learned' back to the field. Programmatic changes are approved by the Maintenance Leadership Team.

In addition, the EMS technical team periodically reviews and revisits the Policy and Procedures Manual for necessary updates and continued appropriateness. This is the fourth iteration of the Manual since the EMS program was created in 2004. The program is working extremely well and changes during this evaluation cycle were minimal, therefore future revisions to the Manual will be at the discretion of the EMS technical team. Updates and regulatory adjustments will continue to be made as needed.

Table 1: Maintenance facility descriptions and onsite audit expectations.

Maintenance facilities are manned or unmanned locations that have been assigned a facility number. Maintenance facilities have been grouped into three categories (maintenance yards, winter maintenance sites, and dry storage facilities) to differentiate assessment expectations.

Type	Description	Monthly Audit	Regional Audit		
			Forms	Site Visit	Who
Maintenance yard	Any facility with a year-round maintenance or specialty crew. Any facility where bulk fuel is stored onsite. Any seasonally staffed or unstaffed facility with at least one building intended for crew occupancy **IF** bulk deicers (liquid or solid) are stored onsite.	Yes	Regional Audit 8 priority procedures plus a selection of other procedure audits	yes	Team DM or ADM plus local and technical assistance
Winter maintenance site	A remote location for bulk deicer storage (liquid or solid). The facility could have one or more structures that are not intended for crew occupancy.	No Informal inspection during routine work	Modified Audit Secondary Maintenance Facility Audit plus the Winter Maintenance procedure audit.	yes	DM or ADM
Dry storage facility	An unstaffed location with at least one structure (with a facility number) that is primarily used for storage of dry materials needed for maintenance operations (e.g. sand or timbers). Small quantities of oil, fuel, or other liquid products may be stored indoors onsite. Bulk fuel or bulk deicers are not stored onsite. The structure may or may not be intended for crew occupancy. A single non-maintenance occupant (e.g. IR or field mechanic) could be based at this facility.	No Informal inspection during routine work	Modified Audit Secondary Maintenance Facility Audit - One page form to document observed site conditions	yes	Local

SUSTAINABLITY

Environmental stewardship is expected of all ODOT employees. In 2004 the MOB was directed by the Maintenance Leadership Team to develop and implement an EMS program for Maintenance to support the Governor's Executive Order on sustainability.

Volume 2 of the ODOT Sustainability Plan sets goals, strategies, and performance measures for internal operations. The goals established in the plan represent the roadmap to implementing sustainability across the agency. Goals are specific to the focus areas and represent both long and short-term objectives. The plan is updated every three years.

Two short-run goals were associated with the EMS Program in 2018:

1. Maintain a 95 percent statewide average implementation (or greater) of the "must" BMPs in the EMS seven priority procedures.
2. Continue to track the amount of hazardous waste generated at each maintenance yard and truck shop, with the goal of maintaining conditionally exempt status under federal laws.

These goals had corresponding performance measures:

1. Percentage measure of maintenance yards following the "must" BMPs in the seven priority procedures of EMS Program.
2. Track the amount of hazardous waste generated at each maintenance yard and truck shop.

As of the writing of this Manual, Volume 2 sustainability goals and performance measures for 2019-2022 cycle have not been set. We anticipate future goals to be similar.

Since 2009, seven procedures have been selected as indicators of EMS program implementation: drainage and water quality; aerosol cans; fuel; lighting; oil; pesticide; and winter maintenance. Starting in 2020, equipment and fleet will be added as an indicator. These *priority procedures* were selected because of the type of wastes, the significance of laws, continued confusion in implementing the BMPs, and potential to impact natural resources. All *priority procedures* are evaluated at each *maintenance yard* during the yard's scheduled Regional Audit.

Hazardous waste generation is tracked by Maintenance crews and compiled by the MOB. Maintenance and Fleet have taken significant steps to reduce hazardous waste generation since the EMS program began. Hazardous waste generation by Maintenance and Fleet through routine activities is minimal. A significant decrease in hazardous waste generation is not expected.

MOB reports annually on Maintenance's progress in meeting sustainability performance measures.

MAINTENANCE YARD STORMWATER MANAGEMENT PLAN

As environmental awareness increases the focus on water quality and stormwater management also increases. Stormwater discharges for ODOT maintenance facilities are covered under a statewide National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Discharge Permit (NPDES-MS4) issued by DEQ. The NPDES-MS4 permit includes provisions for pollution source identification, stormwater monitoring, and implementation of (structural and non-structural) BMPs to reduce discharge of pollutants to the maximum extent practicable. This permit is expired but has been administratively extended by DEQ.

This Manual, including this Introduction, is ODOT's written stormwater management plan for the *maintenance yards*. The EMS program provides methods for pollutant source identification plus consistent, practical, BMPs for source control and pollutant removal. All ODOT *maintenance yards* participate in the EMS program.

Utilizing the BMPs in the Manual provides Maintenance employees the flexibility necessary to implement site-specific solutions and allows for adaptive management to address changing operational needs, local regulations, and varied climates. The Manual includes BMPs that address primary stormwater concerns: secondary containment, covering, sediment control, housekeeping, activity siting, and routine inspections. In addition, the BMPs encourage ownership, awareness, and creativity.

In addition to the EMS program, approximately 25% of the yards participate in ODOT's Spill Prevention Control and Countermeasure (SPCC) program. The SPCC program meets Federal Oil Pollution Act requirements. Site-specific SPCC Plans have been written for ODOT facilities that have aggregate storage of more than 1,320 gallons of oil or fuel in containers that are 55 gallons or larger, provided the facility is sited where a potential spill could impact navigable water. SPCC Plans describe site-specific procedures that have been implemented to prevent oil from reaching nearby waterbodies if a spill occurs.

To compliment these two programs ODOT *Maintenance yards* have been prioritized for potential risk to stormwater. Risk is based on a point ranked system that considers fixed location characteristics (e.g. precipitation, nearby surface water, and natural resources) and site-specific choices (e.g. impervious area, bulk storage, and washing activities). Risk ranking does not include secondary containment and water treatment measures. BMPs for containment and water treatment are listed in the Manual and implemented where appropriate and practical to mitigate and minimize potential risks.

The auditing component of the EMS program provides a mechanism for the identification and installation of water treatment where appropriate. Stormwater at many yards is infiltrated onsite or naturally flows to vegetated areas providing inherent water treatment. Water treatment systems have been, and will continue to be installed, at *maintenance yards* in critical areas (e.g. near water wells, riparian areas, or fish streams) where source control measures have been determined unable to adequately address site-specific concerns. The existing programs allow for continued assessment of site conditions to determine where and when additional controls may be necessary.

MOB is systematically creating site-specific handbooks for *maintenance yards*. The handbooks summarize key environmental concerns at the facility (e.g. permit requirements, fuel tanks, and wellhead protection zones) and reference this Manual (or other documents) for additional details. The site-specific handbooks include maps and drawings that show the location of onsite bulk storage, site drainage, stormwater treatment, and secondary containment structures. If waterbodies are located near the *maintenance yard,* known fish and water quality concerns are listed on the map. Handbooks for maintenance yards with high potential risk were completed in 2014. Handbooks for moderate priority maintenance yards in NPDES Phase I and Phase II communities were completed in 2018.

ODOT is aware that stormwater quality has the potential to be affected by products and activities on maintenance yards. Collecting water quality samples for each maintenance yard is impractical both fiscally and physically. Stormwater runoff from representative ODOT Maintenance yards was collected 2002-04. Analysis determined untreated stormwater runoff from ODOT Maintenance yards typically has pollutant concentrations below DEQ's 2012 1200Z benchmarks. Vehicle wash water samples were collected from representative Maintenance yards in 2012-13. Samples show untreated wash water typically contains levels of contaminants greater than DEQ benchmarks for various permits. However, when routinely maintained most treatment methods were shown to reduce pollutants below permit benchmarks. The MOB will coordinate the collection of additional representative samples if required by future permits.

ACKNOWLEDGEMENTS

Since its inception in 2004, implementation of the EMS program has resulted in cleaner maintenance yards, reduced waste generation, improved protection of natural resources, and increased environmental awareness. The EMS program allows ODOT Maintenance personnel to effectively manage and continually improve the way materials are stored, handled, and disposed. Regional Audits and random inspections demonstrate environmental awareness and compliance have improved statewide.

The commitment and input from the Maintenance personnel is greatly appreciated. Each and every Maintenance employee plays a role in the success of this program.

The EMS Technical Team deserves special recognition. The dedication of the EMS Technical has been fundamental in maintaining Program objectives. The Technical Team has worked hard to transform complex regulations into straightforward practices and ensure the program remains as simple as possible. The Team diligently resolves issues and enthusiastically supports the cultural changes occurring in the field.

Section Divider

Section Divider

1 GOOD HOUSEKEEPING

Housekeeping is often a rough, visual indicator of a facility's degree of compliance with environmental, health, and safety regulations. Good housekeeping does not just happen. Good housekeeping is well planned, scheduled, and supported by management.

Guidance in material specific sections may be more restrictive than the best practices in this section. Follow the material specific guidance where available.

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

1.1 STORAGE

- **Original and *secondary containers* must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.10.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **Flammable/combustible liquids must be kept in a *flammables cabinet* where appropriate.** The maximum storage quantities are listed in Table 1 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. **A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 1.**

  Secondary containment may be required for flammable/combustible materials below the storage limits. Flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment.

  The temporary storage of liquids used for building maintenance, painting, or other similar infrequent maintenance purposes is allowed in amounts exceeding the maximum IF the amount does not exceed a 10-day supply at anticipated use rates.

Table 1: Storage Chart for Flammable/combustible Materials		MAXIMUM STORAGE ALLOWED		
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]	Outdoors
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	10 gallons (liquids used for the maintenance or operation of equipment) 25 gallons (other flammable/combustible liquids)	60 gallons	No limit 1,100 gallons adjacent to a building
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*	10 gallons (liquids used for the maintenance or operation of equipment) 120 gallons (other flammable/combustible liquids)	240 gallons	No Limit 1,100 gallons adjacent to a building
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	120 gallons	660 gallons	No Limit 1,100 gallons adjacent to a building

Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Containers should be stored so that damage is avoided. Liquids should be stored away from floor drains, stormwater conveyances, and waterbodies where practical based on site constraints.
- **Product specific storage, use, and disposal guidance should be followed where appropriate.** The label and/or the *SDS* should be consulted for product specific information. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).
- **Containers and equipment should be stored in secure areas or in a manner that discourages vandalism and tampering by unauthorized persons** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Where appropriate, products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).

- **Containers should be stored indoors where practical** based on site constraints When containers are stored outdoors efforts should be made to prevent stormwater contact with the container. Refer to the EMS Procedures for product specific BMPs.
- **Dry products (e.g. powder or granular) should be stored away from liquids**. Fertilizer and other ignitable dry products should be stored away from open flame, excessive heat, and sparks.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.
- ***Secondary containment* must be provided for flammable/combustible liquids when required.** A flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment.
    a) Containers with a storage capacity up to 60 gallons
        i. If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a flammables cabinet.
        ii. Containers of Category 1, 2, 3, or 4 liquids (any liquid with a flashpoint less 200°F) if stored outdoors and the aggregate liquid storage is more than1,000 gallons.
    b) Containers with a storage capacity 60 -660 gallons
        i. Containers of Category 1, 2, 3, or 4 liquids (any liquid with a flashpoint less 200°F) in containers greater than 60 gallons (larger than a barrel) that are stored indoors.
        ii. Aggregate liquid storage is 1,000 gallons or less
- **Containers, erodible products, vehicles, and equipment should be stored away from stormdrains and waterbodies where practical based on site constraints.** If siting away from stormdrains or waterbodies is not practical, appropriate source control or water treatment measures should be implemented. Refer to the ODOT Erosion Control Manual for additional guidance. Refer to the EMS Procedures for product specific BMPs.
- **Storage areas should be within the boundaries of ODOT owned properties or at other locations with written permission of the owner (i.e. lease or other written agreement).**

1.2 MATERIAL HANDLING

- **Materials and equipment must be handled by properly trained personnel.** Job specific training should be completed based on position responsibilities and requirements of the job. Prior to using hazardous chemicals employees must have completed the ODOT Hazard Communications Training (Course Code: SA001022).
- **Products must be used in accordance with the conditions listed on the label** and/or provided by the manufacturer. If applicable Maintenance activities that occur at a facility must follow application guidelines in the ODOT Routine Road Maintenance Guide (*Blue Book*), the District IVM Plan, and/or from the vendor.
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **The use of *chlorinated products* should be reduced or eliminated.** Refer to the definition section of this Manual for assistance identifying chlorinated products. The *SDS* or vendor should be consulted for product specific information.

- **In-use containers and fluid transfers from one container to another should be handled in a manner that prevents spills.** Absorbent pads, drip pans, drain boards, or drying racks should be used, where appropriate, to collect liquids or direct fluids to holding tanks. Containers, including bags, should be handled carefully so that spills, tears, bursts, and punctures are minimized.
- **Containers must be closed when materials are not being added or removed.** Process containers (e.g. drain pans) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater. Containers with valves or pumps (e.g. aerosol cans) are considered closed when product cannot escape the container without operating the mechanism.
- **Drip trays and other collection tools should be emptied periodically** to ensure sufficient collection capacity. Collections tools (e.g. drain boards) may be kept open if the container is actively in use.
- **Mixing and loading areas should be sited away from stormdrains and waterbodies**, where practical based on site constraints. Areas should be operated so that spills, overfills, and leaks stay out of nearby waterbodies, stormdrains, soil, or adjacent properties.

1.3 WASTES

- **Where practical products should be used until the container is empty.**
- **Wastes, outdated products, and unwanted products must be properly managed.** Refer to the EMS Procedures for product specific BMPs. Reduce the amount of waste by using the material, transferring the material to another crew, or using the surplus property process. Examples of properly managed are bulleted below.
  - **Significant quantities of unwanted (but still usable) products should be transferred to another ODOT Maintenance Yard or ODOT Surplus Property where practical.** Coordination and communication with the receiving party should occur before the property is transferred.
  - **Wastes should be reused or recycled where opportunities are available and practical.** For example, old concrete barrier can be used to delineate storage areas or protect tanks from vehicular damage. Where practical, the DEQ waste prevention priorities (reduce, reuse, recycle) should be used to determine the preferred disposal option.
  - **Surplus aluminum signs should be reused or recycled** (e.g. sent to ODOT Surplus Property).
  - **Damaged or unusable construction wastes and hard goods (e.g. barrier, lumber, or guardrail), that are not recycled, should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.
- **Potentially hazardous wastes (e.g. fertilizer or lime) must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.** Hydrated lime (calcium hydroxide) is frequently a *hazardous waste* because of corrosivity. Quick lime (calcium oxide and calcium magnesium oxide) may be *hazardous waste* because of corrosivity or reactivity.
- **If characterization demonstrates the waste is hazardous one of the following disposal options must be used.**
  1. Picked up by a licensed *hazardous waste* management company, OR
  2. Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes that aren't generated by households. This option is ONLY available if the yard is a CEG.

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.

- **If characterization demonstrates the waste is non-hazardous the waste should be managed as *solid waste* (i.e. trash).** Landfills will not take liquids and semi-solids unless the waste is inside a closed container. A list of permitted municipal landfills and transfer stations is located in Appendix J.

1.4 EMPTY CONTAINERS

- **If an *empty container* will be reused the original label should be removed.** The container should be relabeled with the intended contents, such as "trash" or "metal parts."
- **Empty drums should be stored in a manner that indicates the drum is empty.** Examples of ways to show the drum is empty include storing the drum sideways with the bungs horizontal, labeling the drum "empty," or keeping the drum in an area signed “empty drums” or similar wording. Refrain from storing drums that previously contained liquids upside-down.

Figure 1-1: Examples of ways to store a drum that indicate the drum is empty.

Sideways with bungs horizontal

Label container “empty”

Label storage area

- ***Empty container*s should be recycled where opportunities are available.** Recycling includes returning empty drums to the vendor for reconditioning. Contact local recyclers for availability and requirements. Where recycling is not available the containers should be managed as *solid waste* (i.e. trash). Plastic drums should be cut into two separate pieces prior to disposal. A list of permitted municipal landfills and transfer stations is located in Appendix J. Contact the local landfill for specific requirements.

1.5 ABSORBENTS AND SPILLS

Absorbents include anything used to soak up, pick up, or cleanup a spill, leak, or drip (e.g. rag, terry towel, grease sweep, or boom). Oregon regulations for spill cleanup, disposal, and reporting are located in Appendix H.

- **Absorbent materials and/or spill kits should be stored in areas where spills are likely to occur** such as where liquids are stored and handled. Absorbent materials should be protected from the weather. Spill kits should contain materials appropriate for the product. Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.
- **Free liquids should be wrung from reusable shop rags into the appropriate waste container** (e.g. used oil or used antifreeze).
- **Oily shop rags should be stored in a labeled, fire resistant, container.** The label should identify contents (e.g. "dirty rags"). The container should have a tight fitting lid. The container should be stored away from sources of ignition.
- **The lid on the oil rag container must be kept closed unless adding or removing rags.**
- **Reusable shop rags should be either laundered onsite or sent to a commercial laundry facility.** Additional information on laundering of shop rags is available on the DEQ Policy Clarification – Contaminated Rags Destined for Laundering, located in Appendix I.
- **Absorbent used to cleanup oil and fuel spills should be managed as *solid waste* (i.e. trash).** Absorbent should be applied generously. Absorbents can be saturated but not dripping. Wastes from cleaning petroleum spills should be taken to a permitted municipal landfill or transfer station. A list of permitted municipal landfills and transfer stations is located in Appendix J.
- **Absorbent used to cleanup non-hazardous spills (e.g. coolant) should be managed as *solid waste* (i.e. trash).** Absorbents can be saturated but not dripping.
- **Absorbent used to clean up hazardous products or *hazardous waste* (e.g. grease sweep with chlorinated solvent or pesticide) must be managed as *hazardous waste*** unless the testing verifies the waste is non-hazardous. Hazardous spill debris must be stored in separate labeled containers. The containers must be kept closed unless adding more waste. Refer the EMS Procedure for additional information.
- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

1.6 SECONDARY CONTAINMENT

Secondary containment is any device or structure that prevents liquid migration when the primary container fails. Secondary containment is designed and constructed to intercept and hold spills preventing runoff into the environment. Examples of secondary containment include containment pallets, dikes, curbing, and double-walled tanks.

The intent of secondary containment is to temporarily hold a spill until appropriate response actions can be taken. Response actions include stopping the source of the spill and removing the accumulated material.

General secondary containment is intended to address the most likely spill. *Size-specific secondary containment* is intended to address a major container failure (the entire contents of the container).

Active containment measures require action by personnel. *Active containment measures* are pre-established and readily accessible. The measures may be set up either before or in reaction to a spill. *Passive containment measures* remain in place and do not require action by facility personnel to hold a spill.

Table 1-3: Example methods of secondary containment listed in §112.7(c). (SPCC Guidance for Regional Inspectors, 12/16/2013, Chapter 4)	
Secondary Containment Method	**Description of Examples**
Dikes, berms, or retaining walls sufficiently impervious to contain oil	Types of permanent engineered barriers, such as raised earth embankments or concrete containment walls, designed to hold oil. Normally used in areas with potential for large discharges, such as single or multiple aboveground storage tanks and certain piping. Temporary dikes and berms may be constructed after a discharge is discovered as an active containment measure (or a countermeasure) so long as they can be implemented in time to prevent the spilled oil from reaching surface waters. Please see *Section 4.4.1*, *Passive versus Active Measures of Secondary Containment*.
Curbing	Typically consists of a permanent reinforced concrete or an asphalt apron surrounded by a concrete curb. Can also be of a uniform, rectangular cross-section or combined with mountable curb sections to allow access to loading/unloading vehicles and materials handling equipment. Can be used where only small spills are expected and also used to direct spills to drains or catchment areas. Temporary curbing may be constructed after a discharge is discovered as an active containment measure (or a countermeasure) so long as it can be implemented in time to prevent the spilled oil from reaching surface waters. Please see *Section 4.4.1*, *Passive versus Active Measures of Secondary Containment*.
Culverting, gutters, or other drainage systems	Types of permanent drainage systems designed to direct spills to remote containment or treatment areas. Ideal for situations where spill containment structures cannot or should not be located immediately adjacent to the potential spill source.
Weirs	Dam-like structures with a notch through which oil may flow to be collected. Generally used in combination with skimmers to remove oil from the surface of water.
Booms	Form a continuous barrier placed as a precautionary measure to contain/collect oil. Typically used for the containment, exclusion, or deflection of oil floating on water, and is usually associated with an oil spill contingency or facility response plan to address oil spills that have reached surface waters. Beach booms are designed to work in shallow or tidal areas. Sorbent-filled booms can be used for land-based spills. There are very limited applications for use of booms for land-based containment of discharged oil.

Table 1-3: Example methods of secondary containment listed in §112.7(c). (SPCC Guidance for Regional Inspectors, 12/16/2013, Chapter 4)	
Secondary Containment Method	**Description of Examples**
Barriers	Spill mats, storm drain covers, and dams used to block or prevent the flow of oil. Temporary barriers may be put in place prior to a discharge or after a discharge is discovered. These are all considered effective active containment measures (or countermeasures) as long as they can be implemented in time to prevent the spilled oil from reaching navigable waters and adjoining shorelines. Please see *Section 4.4.1*, *Passive versus Active Measures of Secondary Containment*.
Spill diversion ponds and retention ponds	Designed for long-term or permanent containment of storm water, but also capable of capturing and holding oil or runoff and preventing it from entering surface water bodies. Temporary spill diversion ponds and retention ponds may be constructed after a discharge is discovered as an active containment measure (or countermeasure) as long as they can be implemented in time to prevent the spilled oil from reaching navigable waters and adjoining shorelines. There are very limited applications for use of temporary spill diversion and retention ponds for land-based containment of discharged oil due to the timely availability of the appropriate excavation equipment required to rapidly construct the ponds. Please see *Section 4.4.1*, *Passive versus Active Measures of Secondary Containment*.
Sorbent materials	Insoluble materials or mixtures of materials (packaged in forms such as spill pads, pillows, socks, and mats) used to recover liquids through the mechanisms of absorption, adsorption, or both. Materials include clay, vermiculite, diatomaceous earth, and man-made materials. Used to isolate and contain small drips or leaks until the source of the leak is repaired. Commonly used with material handling equipment, such as valves and pumps. Also used as an active containment measure (or countermeasure) to contain and collect small-volume discharges before they reach waterways. Proper use of these materials may require a properly equipped and trained spill response team specifically trained to contain an oil discharge *prior to* reaching navigable waters or adjoining shorelines Please see *Section 4.4.1*, *Passive versus Active Measures of Secondary Containment*.
Drip pans	Used to isolate and contain small drips or leaks until the source of the leak is repaired. Drip pans are commonly used with product dispensing containers (usually drums), when uncoupling hoses during bulk transfer operations, and for pumps, valves, and fittings.
Sumps and collection systems	A permanent pit or reservoir and its associated troughs/trenches that collect oil.

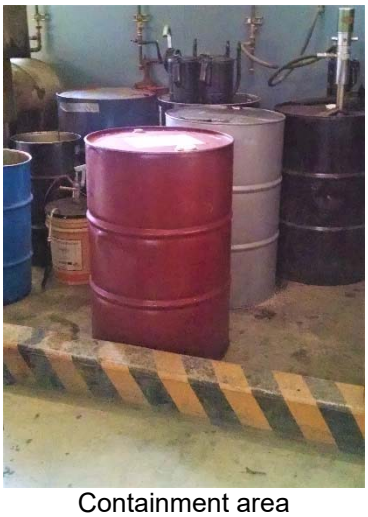
Secondary containment provides a physical barrier between a primary container (e.g. tank or drum) and the surrounding area. Containment structures include systems that are purchased from a vendor (e.g. spill pallets) or systems constructed onsite (e.g. bunkers). The installation of permanent containment structures is the joint responsibility of ODOT Facilities and yard management.

The following BMPs provide guidelines for secondary containment systems. To determine if secondary containment is required refer to the Procedure section for that product.

- **Secondary containment structures must conform to ODOT design standards where standards have been developed.** Design standards or guidelines have been established for bulk fuel loading areas at yards with *Spill Prevention Control and Countermeasure (SPCC) plan*s. *Secondary containment* without design standards should follow the BMPs in this section.
- **An engineer must be contacted prior to making modifications to engineer-designed containment systems.** Maintenance and repairs may be conducted without consultation.
- ***Secondary containment* must be capable of holding a spill until the product can be promptly removed.**
- **Uncovered *secondary containment* structures that are located outdoors should have a manual method for releasing clean rainwater** stored inside the structure (e.g. pump or drain).
- **Valves that control the release of rainwater from containment structures, if present, must be manually operated.**
- **Pooled water inside containment should be inspected for the presence of pollutants before opening drain valves or pumping water out of containment systems.**
- **The release of clean water should be logged.** The log should document the water was free of product and the date of the release. If water was not free of product the cause of the deicer in the containment and what was done to resolve the issue should be included.
- ***Size specific secondary containment* must be able to hold the entire capacity of the largest container within the boundary of the containment plus *sufficient freeboard* to contain precipitation.** See Figure 1-2 for examples.
- ***Secondary containment* structures should be routinely cleaned and maintained to ensure sufficient capacity and comply with Operations and Maintenance (O&M) Manual or manufacturer recommendations.** Accumulation of product, sediment, water, and debris inside *secondary containment* structures reduces the available capacity. Copies of O&M Manuals for containment systems at SPCC yards may be obtained from the MOB or Facilities Management. *Secondary containment* structures that are designed by Maintenance or that do not have an O&M Manual should be checked annually to ensure the system is watertight. Refer to the EMS Procedures for BMPs on managing waste removed from containment systems.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of secondary containment structures.** Visual inspections should look for leaks, product accumulation, and damage to the structure. In addition, valve (if present) should be checked to ensure the system is functioning. A blank copy of the Field Audit is located in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or cleaning) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. A blank copy of the Corrective Action Sheet is located in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **If a spill occurs within the containment structure, the structure should be cleaned and inspected before being returned to service.** Engineer designed containment structures for bulk fuel loading have cleanout procedure listed in the O&M Manual. HazMat should be contacted with spill and spill disposal questions.

Figure 1-2: These containment systems are intended to hold barrels. The capacity of the largest container within the boundary of the containment is 55-gallons. Each system must be able to hold at least 55 gallons to be considered size specific secondary containment. Systems with a smaller capacity could be used as general secondary containment or good housekeeping.

Individual containment sump



Containment area

Multi-container pallet

1.7 DOCUMENTATION

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage and handling areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **Waste fertilizer and lime and other potentially hazardous wastes must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal. The method and result of the characterization must be documented.** If the waste is determined to be hazardous, waste generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs. Additional information on waste characterizing and the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.

Section Divider

Section Divider

2 LABELS and SIGNS

The Section describes the various types of signs and labels refer to in this Manual.

A label is any written or printed matter accompanying a container or material that furnishes identification or other information to ensure proper handling and management. Labels are required by OSHA, Fire Marshal, DEQ regulations, and by the ODOT Safety Program. A copy of the ODOT Hazard Communication Program is located in Appendix F.

2.1 GENERAL INFORMATION ABOUT IDENTIFICATION LABELS

At a minimum labels identify the contents of a container.

Typically, original (or primary) containers are adequately labeled and do not require additional labeling. Original vendor labels that are damaged or missing need to be replaced. Replacement labels may be obtained from the vendor or the product information may be transferred to a blank label.

*Secondary container*s (or workplace containers) are used to hold products and wastes not stored in the original containers. *Secondary container*s include, but are not limited to, tanks, portable gas cans, and squirt bottles. *Secondary container*s are not usually pre-labeled and require a label that identifies the material inside the container.

Labeling *secondary container*s increases employee safety and reduces the creation of 'mystery' wastes.

Some manufacturers provide labels for secondary containers. Many safety companies sell a selection of waste identification labels. Using pre-made labels is not required, but help identify when a container is properly labeled. Pre-made labels are color coded to increase ease of identification. Many pre-made labels combine material identification with general hazard information.

Figure 2-1: Examples of waste identification labels that can be purchased from safety companies.

Purple | Yellow | Red | Green | Blue

2.2 GENERAL INFORMATION ABOUT HAZARD WARNING

The label created and used by the manufacturer or vendor is called the shipping label. Special precautions and health risks are noted on original container labels (shipping labels). The (federal) Hazard Communication Standard requires shipping labels for hazardous materials to include pictograms and a signal word in addition to previously required information.

Secondary containers (also called workplace containers) are required to be labeled with either

1. The same label as shipped containers; OR
2. Product identifier and words, pictures, or symbols (or combination thereof) that provide general information regarding the hazards which if used in conjunction with other information immediately available to employees provides the employees with the same information required on the shipping label.

Frequently a generic warning is sufficient to communicate the hazard (e.g. flammable or *corrosive*) on secondary container labels. However, standardized label systems such as Globally Harmonized System (*GHS*), Hazardous Materials Identification System (*HMIS*®) or National Fire Protection Association (*NFPA*) 704 system are intended to provide consistency and reduce confusion.

GHS is preferred. If using an alternative label (i.e. *HMIS* or *NFPA 704*) the information must be consistent with the SDS (i.e. no conflicting hazard warnings or pictograms) and communicate the information as effectively as the *GHS* label.

There are nine standard *GHS* pictograms.

FLAME  Flammables Pyrophorics Self-heating Emits flammable gas Self reactives Organic peroxides	FLAME OVER CIRCLE  Oxidizers	EXPLODING BOMB  Explosives Self reactives Organic peroxides
SKULL AND CROSSBONES  Acute toxicity (fatal or toxic)	CORROSION  Skin corrosives / burns Eye damage Corrosive to metal	GAS CYLINDER  Gases under pressure
HEALTH HAZARD  Carcinogen Mutagenicity Reproductive toxicity Respiratory sensitizer Target organ toxicity Aspiration toxicity	ENVIRONMENT  Aquatic toxicity	EXCLAMATION MARK  Irritant Skin sensitizer Acute toxicity (harmful) Narcotic effects Respiratory tract irritation Hazardous to ozone layer

GHS uses two signal words to indicate the relative degree of severity a hazard: "Danger" for the more severe hazards and "Warning" for the less severe hazards. Some lower level hazard categories do not use signal words. Only one signal word (corresponding to the most severe hazard) should be used on a label. Refer to the SDS for the appropriate signal word.

*NFPA 704 diamond*s are designed for emergencies when information about the effects of short exposure is needed. The intent is to quickly relay hazard information to fire fighters and other emergency responders. *NFPA 704 diamond*s are typically used to identify the dangers associated with a storage area or tank.

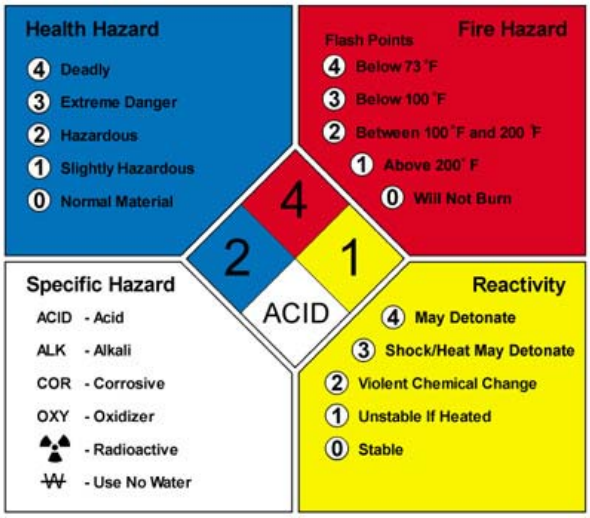
Colors represent the type of hazard.

Red = fire hazard

Blue = health hazard,

Yellow = reactivity, and

White = special hazards or personal protection equipment.



Numbers indicate the severity of the hazard. The higher the number the greater the danger.

0 = no unusual hazard,

1 = minor hazard,

2 = moderate hazard,

3 = severe hazard, and

4 = extreme hazard.

The hazard ratings (or numbers) are located typically on the *SDS*. In areas or containers where several different materials are stored, the hazard rating on the label or sign must identify the highest hazard.

HMIS® labels are typically used on secondary containers or as replacement labels. The label is not intended for emergencies, but to convey broader health warning information. The top section of HMIS® labels has space to identify the product or waste.

The four bars are color coded, with blue indicating the level of health hazard, red for flammability, orange for a physical hazard, and white for personal protection. The number ratings range from 0-4 in the same order of severity as the NFPA ratings.

The hazard ranking in GHS and NPFA are reversed. In GHS, 1 is the highest hazard and 4 is the lowest hazard.

Warning signs may also be specified by the Oregon Fire Code. These warning signs provide general precautionary statements (e.g. "No Smoking" or "Danger – Flammable Storage") and do not have product specific hazard ratings.

2.3 SIGNS ON STORAGE AREAS

- **Areas where *flammable liquid*s are stored or used must have warning signs that include the following statement "DANGER—*FLAMMABLE LIQUIDS*."** The signs must have white lettering on a red background. Purchasing pre-made signs is recommended.
- **Buildings, rooms, and cargo containers that are used to store *hazardous materials* must be labeled with *NFPA 704 diamond*s** or other hazard warning signs. The sign must state the fire and health ratings for the most hazardous material stored with the area.

- **Cabinets used to store *flammable/combustible liquid*s must be conspicuously labeled in red letters with a contrasting background with the following statement:**

  Flammable – Keep Fire Away

- **If a welding or hot work area is accessible to personnel other than the equipment operator, a conspicuous sign must be posted to warn others before entering the area. The sign must state the following warning:**

  CAUTION

  HOT WORK IN PROGRESS

  STAY CLEAR

- **Rooms that contain compressed gas must be conspicuously labeled "Compressed Gas."**
- **Areas or rooms where flammable/combustible materials are stored, dispensed, or used must have a sign that states "No Smoking."**
- **Areas used to store durable goods, durable waste (e.g. signs or scrap tires), and construction materials (e.g. barrier) should be signed as necessary to assist identification.**
- **The content of cargo containers should be identified on the outside of the container** (e.g. glass bead storage or signs).

2.4 SIGNS AND POSTINGS AT ODOT FUELING STATIONS

- **The following signs must be posted at ODOT Maintenance fuel stations.** Signs should be visible and readable from a distance of 10 feet from the dispensing pump. Standard signs are available from many safety supply or sign companies.
  - "Driver Must Remain At Vehicle While Fueling."
  - "No Smoking" or other sign prohibiting smoking.
  - "Stop Your Engine" or other sign requiring vehicle engines to be stopped during fueling.
  - Sign marking the location of the emergency shutoff.
  - Sign marking the location of the fire extinguisher.
- **If the station has unleaded fuel, a "Don't top off" sign must be posted in a location visible to the fueler.** Oregon law prohibits topping off fuel tanks; the sign is a reminder.
- **In addition the signs listed above, if the fuel station is used by personnel from non-state agencies (e.g. city agencies or county agencies) the following signs must be posted in a conspicuous location.**
  - "In Case Of Fire, Spill, or Release

    1. Use Emergency Pump Shutoff
    2. Report The Accident!

    Fire Department Telephone No._____

    Facility Address _____"
  - "Discharge Static Electricity Before Fueling

    Do Not Reenter Your Vehicle While Fueling

    If A Fire Starts, Remove the Nozzle; Use the Emergency Shutoff"
  - Sign prohibiting dispensing into unapproved containers.
  - "Portable containers must be removed from the vehicle and placed on the ground before filling"

- "It is a violation of law, subject to penalty, to dispense flammable liquids without first receiving the training required by the rules."
- "It is a violation of law, subject to penalty, to dispense flammable liquids for personal use or into vehicles or containers not owned or used by a business, government, non-profit or charitable organization."
- The phone number of the owner or operator.
- Instructions for operating the dispenser.

- **If fuel is stored in underground storage tanks, the annual DEQ Operational Permit must be displayed in a conspicuous location that is visible by the fuel delivery driver.** Regulations prohibit filling an UST unless the Operational Permit is visible.

2.5 LABELS ON CONTAINERS AND TANKS

- **Containers must be labeled.** Labels must identify the contents and appropriate hazard warnings. Original, vendor labels are sufficient provided the label is intact and legible. Re-label containers with damaged or missing labels.
- **Containers with missing, inaccurate, or damaged labels must be re-labeled.** If the container cannot be re-labeled the contents must be managed as waste.
- **If the containers are stored outdoors the labels should be weather resistant.**
- **Labels must be intact, visible, and legible.** Labels should be readable at a reasonable distance. Placing the container so the label is easily visible is recommended (e.g. turning the container so the label is visible from the room; not turned toward the wall). Placing the label on the side (rather than the top) of the container increases visibility and reduces potential for damage.

2.5.1 Labels on Primary and Secondary Containers

Pesticide containers have additional rules. Refer to Section 5.16 – Pesticide for labeling requirements.

- **Containers of new products should be checked to make sure each container has an original vendor label.** Re-label containers with damaged or missing labels. The product name and hazard information should match the information from the original container and/or the *SDS*.
- ***Secondary containers* must be labeled** unless the product is intended for immediate use (typically defined as by the end of the shift) and under the direct control of the employee. Labels must be intact, visible, and legible.
- ***Secondary containers* must be labeled with either**
    1. **The same label as shipped containers; OR**
    2. **A workplace label that identifies the product and includes words, pictures, or symbols (or combination thereof) that provide general information about the hazards.**

  A workplace label must provide the same information as the original label. Use of *GHS* pictograms and signal words is recommended. Refer to the HazCom or the Definition of Terms for additional information.

2.5.2 Labels on Tanks

- **Labels on tanks must identify the contents** (e.g. used oil) **and include words, pictures, or symbols (or combination thereof) that provide general information about the hazards** (if any)**.** Use of *GHS* pictograms and signal words is recommended. Refer to the HazCom or the Definition of Terms for additional information.
- **Stationary aboveground tanks with a storage capacity greater than 100 gallons that are used to store flammable/combustible products or wastes must be labeled with a *NFPA 704 diamond*.** Products and wastes with a *flashpoint* of 200°F or higher do not require a NFPA 704 signing. Heating oil tanks with a 300-gallon capacity or less and mobile tanks (all sizes) are excluded from this requirement. In some fire districts winter maintenance chemical tanks require a *NFPA 704 diamond*. Contact the local Fire Marshal office regarding local deicer tank label requirements.

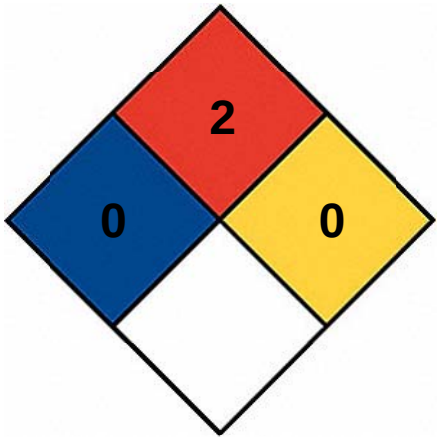


Figure 2-2: Example of NFPA 704 signing for a diesel tank.

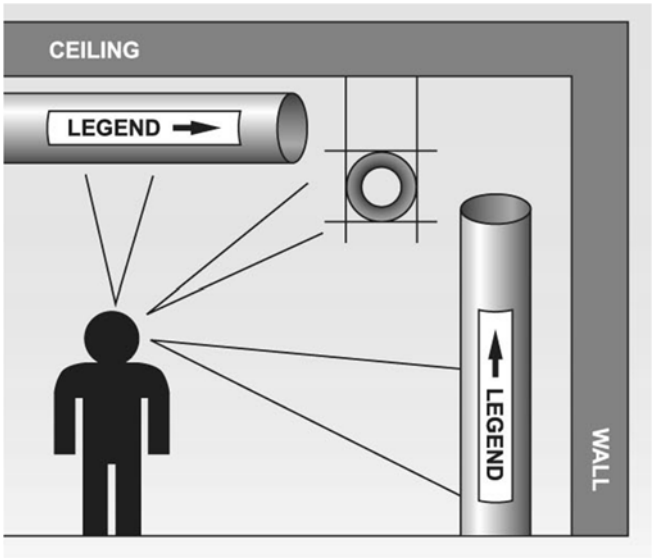
- **Stationary propane tanks must be labeled with the name of the product if more than one gas is stored in the same area.** All stationary propane tanks should be labeled.
- **"No Smoking" signs must be posted near stationary propane tanks.** Smoking is not allowed within 25 feet of a point of transfer while filling operations are occurring.

2.5.3 Labels on Piping

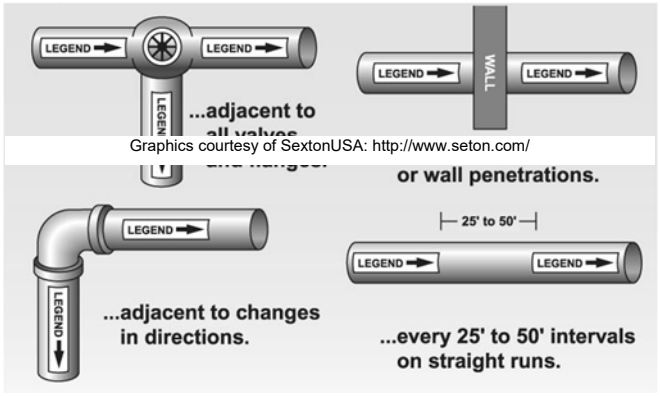
- **Pipes that contain hazardous products must be labeled** with contents (e.g. propane) and the direction of flow. A hazard warning (e.g. hot or high pressure) should be included where appropriate. The standard color combinations listed below should be used as a secondary method of identification.

ANSI / ASME A13.1-2007 Standard	
Fluid Service	**Color Scheme**
Fire Quenching Fluids	**WHITE ON RED**
Toxic and Corrosive Fluids	**BLACK ON ORANGE**
Flammable Fluids	**BLACK ON YELLOW**
Combustible Fluids	**WHITE ON BROWN**
Potable, Cooling, Boiler Feed and other water	**WHITE ON GREEN**
Compressed Air	**WHITE ON BLUE**

- **Pipe labels should be positioned so that the label can be easily seen from the normal angle of approach** (i.e. below the centerline of the pipe if the pipe is overhead, upper side of the pipe if the pipe is below the line of sight, and above the centerline if the pipe is below eye level.



- **Pipe labels should be applied at the beginning and end of continuous runs and wherever confusion may occur** (e.g. adjacent to valves and flanges; directional changes; or both side of wall and floor penetrations). On straight runs 50' is the acceptable maximum spacing, but closer spacing is prudent where appropriate for easy identification.



Graphics courtesy of SextonUSA: http://www.seton.com/

- **If piping has been wrapped in *asbestos-containing* materials (ACM) and the ACM has not been coated with a binder that prevents airborne release, labels or signs must be posted to warn employees of the hazard.** Contact Facilities Management for assistance identifying building materials that contain asbestos. If pipes are wrapped or coated in ACM the label or sign must be clearly noticeable and label must include the following statement:

DANGER CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

2.5.4 Labels on Containers of Non-Hazardous and Excluded Wastes

- **Labels on containers of excluded and non-hazardous waste must state the contents of the container** (e.g. used oil or used anti-freeze).

2.5.5 Labels on Containers of Hazardous and Potentially Hazardous Waste

- **Labels on containers of *hazardous waste* and potentially *hazardous waste* must state the contents of the container** or a description of the waste (e.g. used solvent or mixed aerosol waste).
- **Labels on containers of *hazardous waste* (e.g. waste solvent drum) must state the waste is "Hazardous Waste."**
- **Labels on containers of potentially *hazardous waste* (e.g. epoxy slurry that will not set) should state "Waste Pending Analysis"** until the waste has been characterized.
- **If *hazardous waste* is collected over time (e.g. a can popper residue drum) the container must be labeled with an *accumulation start date*.**

Figure 2-3: Example of *hazardous waste* label.

- **Labels on containers of *hazardous waste* must state the hazard associated with the waste.** A generic hazard warning (e.g. flammable) may be used. If a standard label is used (i.e. GHS or HMIS) the rating must represent the greatest hazard.

2.5.6 Labels on Containers of Universal Waste

- **Labels on containers of *universal waste* must state that the waste is "Universal Waste" and identify the contents of the container** (e.g. used batteries).
- **Containers of *universal waste* batteries must be clearly marked with one of the following phrases:**
  - "Universal Waste-Batteries"
  - "Waste Batteries"
  - "Used Batteries"
- **Containers of *universal waste* lamps must be clearly marked with one of the following phrases:**
  - "Universal Waste-Lamps"
  - "Waste Lamps"
  - "Used Lamps"
- **Containers of *universal waste* pesticides must be clearly marked with all of the following items:**
  - The original product label or DOT equivalent
  - "Waste Pesticides"

Figure 2-4: Example of universal waste label.

- **Containers of *universal waste* must be labeled with an *accumulation start date*.**

Section Divider

Section Divider

3 TANKS

3.1 STATIONARY (FIXED LOCATION) TANKS

3.1.1 Aboveground Bulk Fuel Tanks (1000 gallons or greater)

This section provides information on aboveground bulk fuel tanks and tank management.

Bulk fuel tanks are equipped with remote volume monitoring sensors. The ODOT Fuels Division monitors and coordinates the maintenance of these sensors. Contact Fuels with questions about fuel monitoring systems or installation requirements for temporary fuel tanks,

📖 Guidelines for storage, handling, and disposal of fuel are in Section 5.11 – Fuel.

3.1.1.1 PURCHASING, RENTING, OR TEMPORARILY SITING

- **The decision to purchase, rent, or temporarily install a fuel tank must be coordinated with Facilities Management and the MOB.** The purchase of a fuel tank must comply with current ODOT policies and procedures.
- **Fuel tanks must comply with current Oregon Fire Code design, fabrication, and construction standards.** Contact Facilities Management or Fuels Management for current standards.
- **Fuel tanks must be double-walled construction.**
- **A method of leak detection must be available to determine if the primary tank has failed.** The leak detection may be either manual (e.g. gauge) or electronic (e.g. tank monitoring system).
- **An overfill prevention system must be provided on tanks used to store fuel.** The system must prevent the tank from being filled in excess of 95% capacity. Previous rules allowed the use of a single method. Existing fuel tanks are being systematically upgraded to meet this requirement. ODOT is moving toward having audible, visual, and mechanical means of preventing fuel tank overfill events. The overfill prevention system on new fuel tanks must meet both of the following conditions.
  1. Provide a means of notifying the person filling the tank that the fluid level has reached 90% capacity (examples are listed below);
     - an audible or visual alarm
     - a tank level gauge marked at 90% capacity
     - a method for determining available capacity before filling *(being phased out)*
  2. Automatically shut off the flow of liquid into the tank when the volume reaches 95% of the capacity of the tank (examples are listed below).
     - A float valve
     - A preset meter on the fill line
     - A low head pump that is incapable of producing overflow

- **The purchase of fire-protected tanks should be considered if the new tank will be located in a remote area that has a high potential for damage by fire.** Fire-protected tanks have an inner liner that provides extended fire resistance. Some fire-protected tanks also provide increased protection from vandalism.

3.1.1.2 SITING AND INSTALLATION INCLUDING RELOCATION

- **Siting and installation must comply with the current Oregon Fire Code and other applicable Federal, State, and local regulations** including minimum separation requirements between fuel tanks, buildings, right-of-way, and lot lines. The installation of fuel tanks must be coordinated with Facilities to ensure compliance with local ordinances, building codes, fire codes, and ODOT policies.
- **Where possible fuel tanks should be sited in a manner that reduces the potential for fuel spills to reach a waterbody.**
- **Outdoor fuel tanks must be protected from vehicular damage by using one of the following methods.** Protection must be at least 3 feet from the tank unless a waiver is given by the local Fire Marshal.
  - Steel posts (bollards). Posts must be at least 4" inches in diameter and filled with concrete. and must be set at least 3 feet below ground and 3 feet above ground. There must be no more than 4 feet between the posts (center to center).
  - Other physical barrier approved by the local Fire Marshal.

  Pipes, valves, and fittings must also be protected.

3.1.1.3 OPERATIONAL PERMITS AND PLANS

- **A *Spill Prevention Control and Countermeasure (SPCC) plan* must be written and implemented for ODOT Maintenance Yards that store more than 1,320 gallons of oil or fuel** (total aggregate quantity) **in aboveground containers if the facility is located where a release could impact navigable water.** Contact the MOB or refer to site specific SPCC Plans for program details. Copies of SPCC Plans for ODOT Maintenance Yard that meet the criteria is located on the MOB website.
- **An Air Contaminant Discharge Permit must be maintained for tanks that store gasoline and have a throughput of 10,000 gallons or more per month.** As of the printing of this document no sites have a throughput requiring this permit. ODOT's Fuels Management Group reviews the fuel usage monthly and will notify MOB, the TMM, and Facilities Management if the limit is exceeded.
- **A Non-Retail Facility License (or Cardlock Permit) must be maintained for ODOT Maintenance Yards that provide gasoline to non-State agencies (e.g. city or county agencies).** Additional information is listed in Section 5.11 - Fuel of this document. Contact ODOT's Fuels Management Group for assistance.

3.1.1.4 ROUTINE MAINTENANCE

3.1.1.4.1 Area Upkeep

- **Vehicle impact protection must be maintained.** Protection should be provided by physical barriers that comply with the Oregon Fire Code (OFC) spacing and installation standards. The local Fire Marshal must approve impact prevention methods that are not described in the OFC.
- **Vegetation, trash, and other combustible materials must be kept away from fuel tanks.** A *defensible space* should be maintained around fuel tanks to aid in fire protection. Contact an ODOT Forester or the local Fire Marshal for assistance or additional information on defensible fire spaces.

3.1.1.4.2 Integrity Tests

- **A weather resistant tag should be attached to each tank that lists the structural integrity test dates.** Facilities Management provides the tags and arranges for structural integrity testing.
- **Documentation of tank integrity testing should be maintained onsite.** ODOT Facilities Management schedules non-destructive shell testing (SP001 compliant tank tightness testing) for fixed bulk fuel tanks as part of routine building inspections. Integrity tests are conducted 15 years after installation and every 5 years thereafter. If excessive corrosion is discovered the testing frequency is increased or the tank is replaced.

3.1.1.4.3 Emergency Equipment

- **The emergency fuel shutoff should be tested annually.** Push the shut-off button or flip the switch to test. Confirm the power to the pumps has shut off. Push the button back in or flip the switch to restore power.
- **The overfill alarm, if installed, should be checked monthly during the Monthly Maintenance EMS Field Audit.** The alarm panel typically has a "test" button that initiates an audible or visual signal. Refer to the equipment manual for specific testing methods.
- **The leak detection alarm or gauge, if installed, should be checked monthly during the Monthly Maintenance EMS Field Audit.**
- **If the tank is not equipped with a leak detection alarm or gauge the space between the tank walls (the interstial space) should be checked monthly for leaks.** ODOT Fuels includes annual inspection third party inspection of interstial space with of fuel condition monitoring.

Examples of Emeregency Equipment

			
Fuel shut-off Cuts off the power to the pump	Overfill alarm Audible warning when the level of fuel in the tank if too high	Leak detection gauge Visual warning there is fluid between the walls of double-walled tank	Monitoring system Typically checks fuel level and fluid between the walls of double-walled tank

3.1.1.4.4 Tank Maintenance

ODOT Fuel Management manages a contract for periodic maintenance of bulk fuel tanks for fuel quality. Periodic interior cleaning is necessary to ensure the fuel is free of contaminants. Facilities Management manages a contract for inspection of the tanks for structural integrity. The following BMPs are in addition to these contracted services.

- **Overfill indicators, overfill protection, and vapor recovery equipment (if installed) must be maintained on fuel tanks.** Faulty indicators and equipment discovered should be repaired or replaced as soon as practical.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of the exterior surfaces of tanks and piping for leaks, spills, and deterioration.** Spills and leaks must be cleaned up. The cause of the release (e.g. loose fittings, worn gaskets, or punctured hoses) must be managed or repaired. Faulty system components discovered by Maintenance personnel during routine inspections should be reported to the Region Facilities Coordinator for repair.
- **Repairs to resolve problems discovered during inspections should be completed as soon as practical.**
- **HazMat and the MOB must be notified of problems that are reported to DEQ or other agencies**. Corrective action for situations that involve DEQ (e.g. fuel spills 42 gallons or greater to the ground) or other agencies should be initiated before the end of the next business day.
- **Fuel tanks must be labeled with product (i.e. diesel or unleaded) and hazard information (e.g. combustible).** Labels should be readable at a reasonable distance.
- **Stationary bulk fuel tanks with a storage capacity greater than 100 gallons must be labeled with a *NFPA 704 diamond*.** Refer to Section 2 - Labels and Signs or the ODOT Safety & Health Manual for questions on tank labels.
- **Pipes that hold fuel must be labeled with the name of the product (i.e. diesel or unleaded) and a hazard warning (e.g. flammable).** Refer to Section 2 - Labels and Signs or the ODOT Safety & Health Manual for questions on fuel pipe labels.

3.1.1.5 REMOVAL FROM SERVICE AND DISPOSAL

- **If a leak is discovered actions must be taken to stop or control the leak.** Actions should be initiated as soon as possible to repair or replace the damaged component. Appropriate interim measures will vary with each situation but may include removing fuel from the tank, taking the tank out of service, or installing temporary containment.
- **Fuel tanks that are in good condition but are no longer needed to meet Agency objectives should be taken out of service or moved to another location.** Agency needs and relocation options should be coordinated with the MOB. Fuel tank relocation, including transport and installation, should be coordinated with Facilities Management and the Fuel Management Group.
- **If a bulk fuel tank is voluntarily taken out-of-service (i.e. tank is in good condition but fuel is not needed at this location) for 90 days or longer the following safeguards must be implemented**.
  - Fuel must be removed.
  - All piping, including fill line, gauge opening, vapor return, and pump connection, must be capped or plugged and secured from tampering
  - Vents must be opened.

- **If a fuel tank fails a structural integrity test additional inspections should occur as soon as possible to determine the cause of the problem. Tanks with correctable issues may be returned to service after repairs are completed.** Interim measure should be implemented to address possible fuel spills. Appropriate interim measures will vary with each situation, but may include removing fuel from the tank or installing a temporary containment system
- **Damaged tanks (i.e. leaking or failed an integrity test) that cannot be repaired (or repairs are not cost effective) should be replaced (taken out of service).** Coordinate with Facilities Management on the purchase of replacement fuel tanks.
- **Fuel must be removed from the tank before the tank is picked up for disposal.** The tank should be cleaned by a fuel vendor prior to disposal. Contact Facilities Management for assistance with fuel tank disposal. BMPs for the disposal of fuel are located in Section 5.11 - Fuel.
- **Fuel tanks should be recycled as scrap metal where practical and available.** Fuel tanks that cannot be recycled should be taken to a landfill.
- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

3.1.2 Stationary Metal Tanks

This section provides best practices for aboveground fixed location tanks that are used to store materials other than bulk fuel intended for ODOT fleet regardless of size (e.g. deicer in fixed location metal tanks, generator fuel tanks, or oil tanks).

📖 Guidelines for storage, handling, and disposal of fuel including diesel fueled back-up generators are in Section 5.11 – Fuel.

📖 Guidelines for storage, handling, and disposal of new and used oil are in Section 5.13 – Oil.

📖 Guidelines for storage, handling, and disposal of winter maintenance chemicals are in Section 5.1 – Winter Maintenance.

3.1.2.1 PURCHASING

- ***Secondary containment* must be provided for permanent tanks (greater than 55 gallons) that are intended to hold flammable/combustible liquids (e.g. diesel).**
- **Double-walled tanks should be purchased where possible.** Double walled tanks should have a method for determining if product has been released from the primary tank (into the *secondary containment*). A visual indicator or leak-detection gauge is recommended.
- **Tanks that hold flammable/combustible liquids should have a fixed plate that states construction meets UL142 standards.** Tank should be equipped with normal and emergency vents and should have sufficient ports for attaching equipment and accessories.

- **An overfill prevention system must be provided on outdoor tanks with a storage capacity greater than 1,320 gallons used to store flammable/combustible liquids.** The overfill prevention system on existing tanks must meet one of the following conditions. New tanks must meet both requirements.

  1. Provide a means of notifying the person filling the tank that the fluid level has reached 90% capacity (examples are listed below);
     - an audible or visual alarm
     - a tank level gauge marked at 90% capacity
     - a method for determining available capacity before filling (being phased out)
  2. Automatically shut off the flow of liquid into the tank when the volume reaches 95% of the capacity of the tank (examples are listed below).
     - A float valve
     - A preset meter on the fill line
     - A low head pump that is incapable of producing overflow

- **Overfill prevention should be provided for outdoor storage tanks with a capacity of 1,320 gallons or less** (e.g. visual indicator or gauge that displays the level of product in the tank).

3.1.2.2 SITING AND INSTALLATION

- **MOB should be notified of installation of fixed location tanks.**
- **Metal tanks that store flammable/combustible liquids must be grounded.**
- **Metal tanks should be installed in a manner that prevents direct contact of the tank shell with the ground** (e.g. mounted on skids, installed on a concrete pad, or placed indoors). Contact with the ground increases potential corrosion and decreases the potential to observe leaks.
- **Metal tanks that are installed outdoors should be covered or constructed with a rounded top that prevents precipitation from collecting on top.**
- **Outdoor tanks that are used to store flammable/combustible materials must be protected from vehicular damage by using one of the following methods.** Protection must be at least 3 feet from the tank unless a waiver is given by the local Fire Marshal.

  — Steel posts (bollards). Posts must be at least 4” inches in diameter and filled with concrete. and must be set at least 3 feet below ground and 3 feet above ground. There must be no more than 4 feet between the posts (center to center).

  — Other physical barrier approved by the local Fire Marshal.

  Pipes, valves, and fittings must also be protected.

- **Indoor tanks and outdoor tanks that are used to store non-combustible materials should be protected from vehicular damage.** Vehicle impact protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the tank away from heavy traffic area (e.g. inside grease pit bay), as appropriate.

3.1.2.3 SECONDARY CONTAINMENT

Secondary containment **requirements vary by product. Refer to storage BMPs in the product specific tabs to determine when secondary containment is appropriate.**

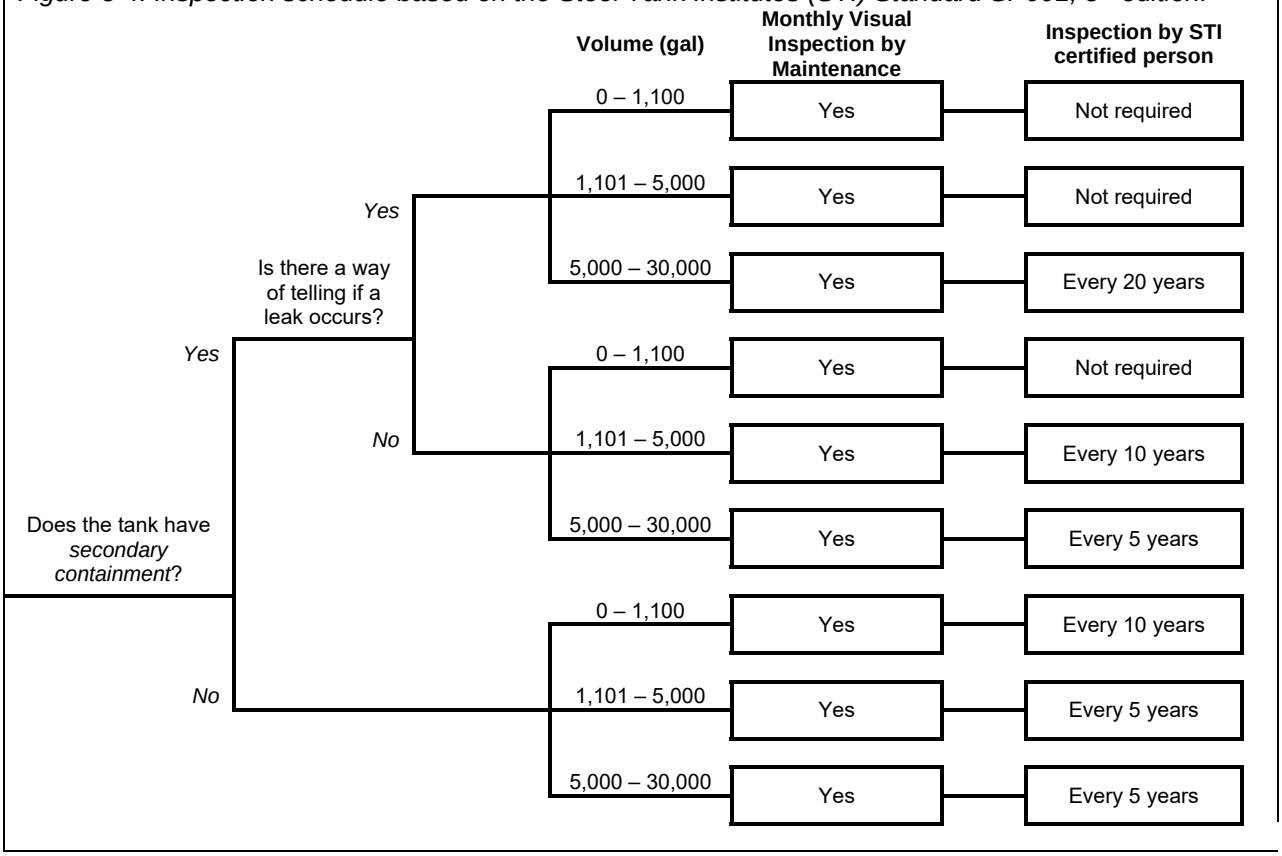
- **Secondary containment, if installed, must be able to hold at least the entire capacity of the largest tank within the containment boundary plus sufficient freeboard to contain precipitation.** A double-walled tank provides secondary containment and does not require additional capacity for precipitation.

3.1.2.4 ROUTINE MAINTENANCE

- **Labels on tanks must identify the contents** (e.g. used oil) **and include words, pictures, or symbols (or combination thereof) that provide general information about the hazards** (if any)**.** Use of *GHS* pictograms and signal words is recommended. The label should be legible and readable from a distance. Additional information on labeling is located in Section 2 - Labels and Signs.
- **Stationary aboveground tanks with a storage capacity greater than 100 gallons that are used to store flammable/combustible products or wastes must be labeled with a *NFPA 704 diamond*** (in addition to other labels)**.** Products and wastes with a *flashpoint* of 200°F or higher do not require a NFPA 704 signing. Heating oil tanks with a 300-gallon capacity (or less) are excluded from this requirement. Additional information on labeling is located in Section 2 - Labels and Signs
- **Vehicular damage protection must be maintained for outdoor tanks that store *flammable/combustible products* or wastes.** Vehicular damage protection should be maintained for tanks that store non-combustible products or wastes. See Section 3.1.2.2 – Siting and Installation for information on appropriate types of vehicular damage protection.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of tank and piping for leaks, spills, and signs of deterioration.**
- **Repairs to resolve problems discovered during routine inspections should be completed as soon as possible.** Corrective action for situations that involve DEQ (e.g. diesel spill 42 gallons ore greater to the ground) or other agencies should be initiated before the end of the next business day. HazMat and the MOB should be notified of problems that are reported to DEQ or other agencies.

- **Tanks should be inspected for structural integrity** according the schedule listed in Figure 3-4. Contact Facilities Management for vendors that perform structural integrity testing (STI certified). Facilities Management may be able to coordinate inspections with bulk fuel tank inspections.

Figure 3-4: Inspection schedule based on the Steel Tank Institutes (STI) Standard SP001, 5th edition.



3.1.2.5 REMOVAL FROM SERVICE AND DISPOSAL

- **If a leak is discovered, actions must be taken to stop or control the leak.** Actions should be initiated as soon as possible to repair or replace the damaged component. Appropriate interim measures will vary with each situation, but may include removing fuel from the tank, shutting down the system, or installing temporary containment.
- **Metal tanks that are no longer needed to meet District or yard objectives should be taken out of service or moved to another location.** The MOB should be informed when a tank is removed from service or relocated to a different facility.
- **If a tank used to store flammable/combustible materials or wastes is voluntarily taken out-of-service for 90 days or longer (e.g. the tank is in good condition but no longer needed), the following safeguards must be implemented.** Tanks that are connected to heating units that are used seasonally are excluded from these requirements.
  - Flammable/combustible materials or wastes must be removed.
  - All piping, including fill line, gauge opening, vapor return, and pump connection, must be capped or plugged and secured from tampering
  - Vents must be opened.

- **If a tank fails a structural integrity test additional inspections should occur as soon as possible to determine the cause of the problem.** Interim measures should be implemented to address possible fuel spills. Appropriate interim measures will vary with each situation, but may include removing fuel from the tank or installing a temporary containment system
- **Damaged tanks (e.g. leaking or failed an integrity test) that cannot be repaired (or repairs are not cost effective) should be replaced or taken out of service.**
- **Flammable/combustible materials or wastes must be removed from the tank prior to disposal.** The tank must be purged of vapors and the opening capped or plugged. BMPs for the disposal of un-useable products and wastes are located in the disposal section of the 'brown tab' for the product (e.g. used oil is found in Section 5.13.4.3 – Disposal of Oil).
- **Products or wastes, that are not flammable or combustible, should be removed from the tank before the tank is picked up for disposal.** Disposal BMPs are located in the disposal section of the 'brown tab' for the product (e.g. deicer is found in Section 5.21.4.3 – Disposal of Winter Maintenance Chemical).
- **Metal tanks should be recycled as scrap metal where possible.** Metal tanks that cannot be recycled should be taken to a landfill.
- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

3.1.3 Underground Fuel Storage Tanks (USTs)

This section provides information on underground bulk fuel tanks and tank management. Underground heating oil tanks are uncommon at ODOT Maintenance yards. DEQ operating permit and personnel training are not required for underground heating oil tanks. Information about heating oil tanks and fuel management (e.g. fuel storage, fuel dispensing, and fuel disposal) is located in Section 5.11 - Fuel.

Only five ODOT Maintenance Yards store bulk fuel in underground storage tanks. Detailed information on managing a UST system is located in the Guidance for Underground Fuel Tanks at ODOT Maintenance Yards (March 2006). Contact the MOB for a copy of the guidance document.

Underground tanks used to store liquids other than bulk fuel or heating oil should be decommissioned when discovered. Contact the Region Hazmat Coordinator and Facilities Project Coordinator decommissioning and replacement assistance.

Currently installed bulk fuel tanks are equipped with remote volume monitoring sensors. The ODOT Fuels Division monitors and coordinates the maintenance of these sensors. Contact Fuels with question about current systems or installation requirements for temporary fuel tanks,

📖 Guidelines for fuel are located in Section 5.11 – Fuel.

3.1.3.1 Purchasing

- **The decision to purchase an underground fuel tank must be coordinated with Facilities Management and the MOB.** The purchase of an underground tank must comply with current ODOT policies and procedures.

3.1.3.2 Siting and Installation

- **Underground storage tanks (USTs) and underground piping must comply with current DEQ regulation.** Contact Facilities Management for current standards.

3.1.3.3 UNDERGROUND STORAGE TANK PERMITS

- **Underground fuel tanks must be registered with DEQ.** Heating oil tanks are exempted from the registration requirement.
- **The DEQ Operational Permit must be renewed annually.** Facilities Management is responsible for renewing operational permits and distributing copies of the permits to the TMM responsible for the tank. A copy of the permit can be obtained from DEQ's website.
- **The annual DEQ Operational Permit must be displayed in a conspicuous location that is visible by the fuel delivery driver.** Regulations prohibit filling an UST unless the Operational Permit is visible.
- **An Air Contaminant Discharge Permit must be maintained for tanks that store gasoline and have a throughput of 10,000 gallons or more per month.** As of the printing of this document, no sites have a throughput requiring this permit. ODOT's Fuels Management Group reviews the fuel usage monthly and will notify MOB, the TMM, and Facilities Management if the limit is exceeded.
- **A Non-Retail Facility License (or Cardlock Permit) must be maintained for ODOT Maintenance Yards that provide gasoline to non-State agencies (e.g. city or county agencies).** Additional information is listed in Section 5.11 - Fuel of this document.

3.1.3.4 PERSONNEL TRAINING AT FACILITIES WITH FUEL USTS

An individual previously trained as an UST System Operator may be designated as either a Class A or a Class B Operator (or both). A list of companies that are certified to provide UST Operator Training courses is available on the DEQ web site.

- **Each *UST* facility must have a Class A Operator.** The Class A Operator is responsible for regulatory requirements related to operating and maintaining the *UST* system. The operator must complete a training course from a DEQ certified vendor or pass an equivalent certification program.
- **Each *UST* facility must have a Class B Operator.** The Class B Operator is responsible for field inspections and the day-to-day operation and maintenance of the *UST* system. The operator must complete a training course from a DEQ certified vendor or pass an equivalent certification program.
- **Any person who dispenses fuel from the *UST* system or may be a first responder to fuel spill from the *UST* system must be trained as a Class C Operator.** Class C Operators must receive training from either a Class A or Class B Operator, that consists of written instruction (i.e. reading the Safe Fueling Guidelines) and posted signs. See Section 5.11.4.2.4 for additional information.
- **Class A and Class B Operators must complete training within 90 days of being designated. Class C Operators must be trained before dispensing fuel.** Individuals may be designated in more than one classification provided the training requirements have been completed.
- **Written verification of the training of each operator must be maintained permanently.** The records must be available for DEQ review (preferably onsite).

3.1.3.5 SECONDARY CONTAINMENT

- **New *USTs*, replacement *USTs,* and connected piping must have *secondary containment*.** The *secondary containment* must use interstitial leak monitoring. *Secondary containment* is not required if current *USTs* and piping are being repaired, but not replaced.
- ***Secondary containment* must be installed under the fuel dispenser if the dispenser is moved or replaced.** *Secondary containment* is not required if the dispenser is repaired, but not replaced.

3.1.3.6 ROUTINE MAINTENANCE

- **Tanks and underground piping must be actively monitored for leaks.** Electronic monitoring systems are used as the primary leak detection method for ODOT fuel *UST* systems. Automatic line leak detectors must be installed on pressurized underground piping. Refer to the equipment specific operating manuals or the Guidance for *USTs* at ODOT Maintenance Yards for documentation and testing requirements.
- **Spill equipment must be maintained near the tank.** The equipment must have sufficient capacity to contain a release from the bulk transfer hose when the hose is detached from the tank fill pipe. Spill equipment may consist of absorbent materials or a *spill bucket*. Absorbent should be kept in a weatherproof container, where appropriate. Spill response materials should be replenished if used.
- **Overfill prevention equipment must be maintained.** There must be some method to demonstrate the overfill protection equipment is functional. Methods may include visual verification or documented inspections by a licensed *UST* service provider. Visual inspections should be completed according to the equipment's operating manual.
- **Copies of the inspection results must be kept onsite.** Annual inspections of the *UST* system should be completed by a licensed *UST* service provider**.** Annual inspections ensure all tank components are in good working order.
- **Corrosion protection must be maintained as appropriate**. Nonmetallic tanks (e.g. fiberglass or reinforced plastic) are non-*corrosive*. No additional protection is needed. If the *UST* is not fiberglass, contact Facilities Management to schedule a corrosion protection inspection with the annual *UST* inspection.
- **Repairs, modification, or replacement of the tank or tank components must be completed as necessary to correct, detect, or prevent releases.** A licensed *UST* service provider must perform all repairs, modifications, or replacements. Repairs, modification, or replacement should be coordinated with Facilities Management. Repair records must be maintained at the yard as well as with Facilities Management.
- **DEQ must be notified in writing 30 days prior to any *UST* retrofits or upgrades.** An additional notification must be submitted 3-days before work begins. Upgrades include the installation of underground piping, leak detection equipment, or monitoring wells. Notification is not required for the maintenance (repair or replacement) of existing components or the installation of aboveground piping. The *UST* service provider may submit paperwork on ODOT behalf (or ODOT may submit the paperwork).
- **Investigation and/or corrective action associated with possible leaks or overfills must be completed as necessary.** The Region Facilities Coordinator must be notified of suspected structural and/or functional failures. Faulty *UST* components discovered by Maintenance personnel during routine inspections should be reported to the Region Facilities Coordinator by the next business day.
- **Spills, leaks, overfills, corrosion protection failures, and confirmed releases must be reported to DEQ.** Notify the Region HazMat Coordinator of all issues reported to DEQ. Oversight for cleanup and remediation actions should be provided by the Region HazMat Coordinator. The Region HazMat Coordinator should inform the TMM, the MOB, and Facilities Management of the status of cleanup and remediation actions. The Region HazMat Coordinator should provide copies of "No Further Action" letters and/or other paperwork to the TMM responsible for the *UST*, the MOB, and Facilities Management once cleanup and remediation are complete.

3.1.3.7 REMOVAL FROM SERVICE AND DISPOSAL OF USTS

- **Decommissioning must be conducted in accordance DEQ's *UST* decommissioning regulations.** DEQ notifications must be filed prior to decommissioning. The Region HazMat Coordinator must be contacted prior to decommissioning. Decommissioning must be performed by a licensed *UST* service provider. In-place closures must be pre-approved by DEQ.

- **The Region HazMat Coordinator should be contacted to oversee *UST* decommissioning or temporary closures.** Copies of decommissioning and closure paperwork should be provided to Facilities Management. The Supply Operations Manager should be notified when *UST* are taken out of service.
- ***USTs* that are taken out of service should be permanently decommissioned.** Depending on site-specific conditions, tank decommissioning may consist of tank removal or in-place closure.
- **Temporary closure certificates must be obtained from DEQ for *USTs* that are out-of-service but will not be permanently decommissioned.** Temporary closure certificates expire one year after issuance, but extensions may be requested. DEQ may request a site assessment for temporary closures that last longer than one year. Contact the Region HazMat Coordinator for assistance, if necessary.

3.1.4 Propane and Other LPG Tanks

Stationary propane tanks are primarily used to store fuel for heating buildings. Propane tanks may be owned by ODOT or leased from propane vendors. This section provides information on stationary propane tanks and tank management.

📖 Guidelines for propane management (e.g. propane dispensing) is located in Section 5.17 - Propane.

3.1.4.1 Purchasing or Renting Stationary Propane Tanks

- **The decision to buy or rent stationary propane tanks should be made by District management** following District and ODOT policies.

3.1.4.2 Siting and Installation of Stationary Propane Tanks

- **Siting and installation must comply with the current Oregon Fire Code and other applicable regulations** including minimum separation requirements between propane tanks and flammable fuel tank, buildings, right-of-way, and lot lines. The installation of stationary propane tanks should be coordinated with Facilities Management to ensure compliance with current building codes, fire codes, and ODOT policies.
- **A licensed propane company should be used to ensure the propane tank is properly installed.** Stationary propane tanks should be moved by a licensed propane company.
- **If the propane tank is installed in an area routinely occupied by the public the tank should be protected from tampering.** The primary concern is damage to the service line that may result in leaks at connections along the line.

3.1.4.3 Routine Maintenance of Stationary Propane Tanks

3.1.4.3.1 Area Upkeep

- **Vegetation, trash, and other combustible materials must be kept at least 10 feet away from propane tanks.** A *defensible space* should be maintained around propane tanks to aid in fire protection. Contact an ODOT Forester or the local Fire Marshal for assistance or additional information on *defensible space* .
- **Impact protection should be maintained to protect the tank from potential vehicle contact.** In high traffic areas, vehicle impact protection should be provided by a physical barrier (e.g. concrete barrier or guardrail).

3.1.4.3.2 Leak Tests for Propane Tanks

- **A leak test must be conducted by a licensed propane company any time there is an interruption of service.** An interruption in service occurs whenever the flow of gas is stopped for any reason (e.g. ran out of propane).
- **If a leak is suspected the propane tank should be checked for leaks by a licensed propane company.** Stationary propane tanks are certified when constructed. Routine recertification of stationary propane tanks is not required.

3.1.4.3.3 Propane Tank Maintenance and Repairs

- **The tank, tank supports, and hoses must be visually inspected during the Monthly Maintenance EMS Field Audit for signs of deterioration or leaks.** Stationary propane tanks do not have to be recertified after being placed in service. Rented tanks should be maintained by the propane company that owns the tank.
- **Stationary propane tanks and supports should be in good condition** (e.g. free of harmful external corrosion and other damage). A licensed propane company should be used to determine if corrosion or damage has harmed the tank. Coatings should be routinely maintained to prevent corrosion. The coating should be highly resistant to abrasion, corrosion, and external weathering (e.g. polyurethane). Coatings should be a heat reflective color (e.g. white). Loose or flaking material should be kept off the ground where practical.
- **Stationary propane tanks must have a visible nameplate that identifies tank specific thresholds and design information.** The nameplate must be attached in a manner that minimizes corrosion. The nameplate should be kept clean and free of rust. **The nameplate must be attached and readable for continued propane service** (i.e. regulations prohibit filling a tank without a nameplate). **If the nameplate is missing, the stationary propane tank must be removed from service.**
- **A protective cap should be kept on the fill valve of a stationary propane tank** to prevent water and debris from entering the valve.
- **Repairs and replacement (including connection and disconnection) of propane tanks, piping, and appliances must be completed by a licensed propane fitter.**
- **Stationary propane tanks must be labeled with the name of the supplier (e.g. Amerigas or Suburban Propane) or product identification (e.g. propane).**
- **Hoses, pipes, and distribution lines subject to pressure must be marked "LP – Gas," "LPG," or "propane" at least every 10 feet.**
- **"No Smoking" signs must be posted near stationary propane tanks.** Smoking is not allowed within 25 feet of a point of transfer while filling operations are occurring.

3.1.4.4 Removal from Service and Disposal of Stationary Propane Tanks

- **If a licensed propane company determines the stationary propane tank is unsafe or leaking the tank must be removed from service.**
- **Stationary propane tank removal and disposal should be conducted by a licensed propane company.** Propane companies have the proper equipment to remove propane remaining in the tank and haul the tank away.

3.1.5 Septic Tanks

Best management practices for septic tanks and septic systems are located in the Drainage Section of this Manual - Section 4.2 – Septic Systems.

3.1.6 Stationary Poly Tanks

Stationary poly tanks are primarily used for the storage of winter maintenance chemicals. Guidance for fixed location poly tanks used to store potable and non-potable water is also covered in this section. This section provides information on stationary poly tanks and tank management.

- 🕮 Information about winter maintenance chemical management (e.g. sampling and loading) is located in Section 5.21 – Winter Maintenance.
- 🕮 Guidance for portable poly tanks such as mini-bulks and IBCs for DEF, pesticides, and oil are located in Section 3.2.3 of this Section

3.1.6.1 PURCHASING

- **Vertical storage tanks (with a flat bottom) should be used for stationary storage.** Horizontal tanks (transport tanks) may be used for stationary storage; however, vertical, flat-bottom tanks should not be used for transporting products.
- **If the tank will be used to hold winter maintenance chemical the tank must** have a *specific gravity* rating of at least 1.5. If any of the following conditions apply the tank should have a specific gravity of 1.7 or 1.9:
  - The tank will remain outdoors (with exposure to sun) year-round
  - The tank will be refilled frequently
  - The tank will be placed next to a waterbody
  - Secondary containment will not be provided
- **The history of a used tank should be obtained before acquiring if possible.** The history should include age, type of product previously stored, exposure to elements, and prior damage. Typically stationary polyethylene tanks have a useful life of 10 to 15 years; however, an assessment of tank condition should be based on a physical inspection rather than the age of the tank.
- **Tanks must be vented** to avoid pressurization while loading or unloading product. Tank venting is built into most tanks (e.g. an opening built into the top lid). The tank lid should be temporarily removed or an extra vent installed if excessive swelling or contraction is observed during loading or unloading.
- **Gaskets and hoses must be compatible with the product stored in the tank.**

3.1.6.2 SITING AND INSTALLATION

- **Prior to the installation of tanks used to store winter maintenance chemicals, the location must be assessed to determine if *secondary containment* is required.** A Risk Assessment for Deicer Tank Locations form is located in Appendix L and additional information on managing winter maintenance chemicals is located in Section 5.21 – Winter Maintenance of this document.
  - If tanks are sited in a high-risk location *secondary containment* must be installed.
  - If tanks are sited in a moderate risk location *secondary containment* should be installed.
  - If tanks are sited in a low risk location *secondary containment* is not required.

  Regardless of the level of risk, ways to keep winter maintenance chemicals onsite in the event of a total tank failure should be investigated. Spills should be contained within the confines of the yard, kept out of stormdrains, and kept away from waterbodies.
- **If multiple tanks are located onsite, the tanks must be plumbed to ensure that the complete failure of one tank will not drain all the tanks in the system** (tank operations must be isolated). Tank isolation may be achieved by placing valves between the tanks, installing separate pumping systems, or any other method that keeps the contents of one tank from unintentionally flowing into another tank.

- **Tank locations should be secured from theft and vandalism.** Examples of security measures are listed below.
  - — Keep tank valves closed and locked when not in use.
  - — Locate so that the tank is not visible from road or highway.
  - — Light the area or use motion sensitive lighting.
  - — Use fences or gates.
  - — Regularly inspect the area and equipment for tampering.
- **Prior to installation tanks should be inspected for shipping damage and obvious manufacturer defects.** Tanks should be inspected for physical damage and stress cracks before installing or using**.** The Stationary Poly Tank Inspection Form located in Appendix B of this document should be used to inspect used tanks. Additional information on how to inspect poly tanks is located in Appendix L – Poly Tanks.
- **Tanks should be located on a solid, level base.** Large poly tanks (8,000 gallons or greater) should be installed on a concrete or asphalt pad. Smaller tanks that are not installed on a concrete or asphalt pad should be installed on compacted soil, sand, or pea gravel. The base should be at least 4 inches thick. Loose fill should be framed (e.g. with guardrail) to keep the base from eroding.
- **Tanks should be protected against flood, wind, and seismic activities**, where appropriate. Tank locations should be well drained and not subject to flooding. Tanks should be secured using tie-downs, where appropriate.
- **The tank should be filled with water before filling with product to check for unsecured fittings and other defects.** Tanks should be tested for at least five hours.
- **Tanks, valves, and piping should be protected from impact.** Vehicle impact protection should be provided by physical barrier (e.g. concrete barrier, guardrail, or shed). In some areas, piping should be protected from impact due to ice melt.
- **Fittings and pipes should be supported to reduce the stress on tank.** Fittings and connections should be as short, lightweight, and flexible as possible. Flexible connections are recommended.
- **Tank should be protected from sunlight where practical.** Tank locations should minimize exposure to the sun, especially during the summer months, when temperatures are the highest (e.g. locate tanks on the north or east side of buildings). Shaded areas and covered storage (e.g. roof or building) will lessen the damaging effects from UV rays, but are not required.

3.1.6.3 SECONDARY CONTAINMENT OF STATIONARY POLY TANKS (IF PRESENT)

- ***Size specific secondary containment* must be able to hold the entire capacity of the largest container within the boundary of the containment plus *sufficient freeboard* to contain precipitation.** Preferably, spills should be controlled immediately adjacent to the tank. However, if containment near the tank is not possible due to site constraints, then spills may be directed to a remote containment. Examples of secondary containment are provided in Section 1.6 of this Manual.
- **Pooled water inside *secondary containment* should be inspected for the presence of product before opening drain** valves or pumping water out of containment systems. Winter maintenance chemical is typically darker than water (e.g. brown or yellow brown) and appears thicker than water. Winter maintenance chemical may foam when agitated. Records of the release of clean water from containment systems should be logged.
- **Drain valves on *secondary containment* systems must be kept closed whenever there is product in the tank** (unless draining rainwater or snowmelt). Containment is not provided when drains are open.
- **Drain valves on *secondary containment* systems must be manually operated** (i.e. not automatic). Valves (rather than caps) are recommended to close drains.

- **The integrity of *secondary containment* systems should be checked annually**. Integrity tests typically consist of allowing the containment system to fill with water and checking that the water level remains constant over time. Ensure tanks are full or secure before filling containment structures with water.

3.1.6.4 ROUTINE MAINTENANCE AND INSPECTION

- **Mixing winter maintenance chemical and the residues of other chemicals should be avoided**. Refer to the Disposal Section of the material for guidelines on the management of tank residue.
- **Efforts should be made to reduce spills and drips that occur while loading/unloading.** Efforts may include using a bucket to collect product from hoses, using a valve, placing hoses in a trench, or using drip-less nozzles.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of the exterior of stationary tanks for obvious defects.** Deep cracks, irregular deformations, and texture variations (e.g. soft or brittle) should be checked frequently for changes.
- **A Stationary Poly Tank Inspection Form must be completed at least annually for each stationary poly tank to document the detailed inspection of the tanks, fittings, and pipes.** Detailed tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. Annual inspections should occur before the winter maintenance season. Elevated temperatures can accelerate deterioration and weaknesses. A blank copy of the Stationary Poly Tank Inspection Form is located in Appendix B. Additional information is located in Appendix L – Poly Tanks.

  The absence of stress cracks or other damage does not guarantee the tank is structurally sound. Stress cracks should not be ignored. Adding metal banding at the bottom of the tank will not control deterioration. Additional inspections (e.g. acoustic emission testing or ultrasonic testing) can be performed by professional testing companies.
- **Stationary poly tanks are classified as a confined space and confined space hazards must be assessed before entering the tank (e.g. for washing or repair).** Refer to the ODOT Permit Required Confined Space Program or contact ODOT Safety for Confined Space Awareness Training.

3.1.6.5 REMOVAL FROM SERVICE AND DISPOSAL

- **If any of the following critical conditions are observed the poly tank must be taken out of service.** Additional information on inspecting poly tanks is located in Appendix L – Poly Tanks. The "baseball bat test" may be used on empty tanks to confirm suspected tank failure.
  - Significant stress cracking, OR
  - A deep crack at least 2” long in a stress point, OR
  - A deep crack at least 4” long in a non-stress point, OR
  - Significant brittleness or softness in stress points.
- **Tanks with developing conditions should be replaced as soon as practical. Developing conditions could include: minor stress cracks, minor or moderate damage, short or shallow cracks, some brittleness but still flexible, or shallow cuts.** If a poly tank with developing conditions cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor the status.
- **Poly tanks that are no longer needed, but are still in good condition, should be transferred to another ODOT crew or disposed in accordance with ODOT’s Surplus Property Policy.** Copies of available tank information (tank history including type of tank, purchase date, usage, and damage) should be transferred with the tank. **Poly tanks that are not relocated or are in poor condition should be broken into smaller pieces and recycled, where available.** Poly tanks that are not recycled should be managed as *solid waste* (i.e. trash).

3.2 MOBILE TANKS

3.2.1 Poly Transport Tanks (skid or truck mounted tanks)

3.2.1.1 PURCHASING AND INSTALLATION

- **The purchase, replacement, and inspection of tanks, with equipment numbers, must be coordinated with Fleet Services**. Refer to the Fleet Manual for additional information.
- **The tank must be designed for placement on trucks, trailers, or field sprayers (i.e. a horizontal tank).** Vertical, flat-bottom, tanks cannot be used for mobile storage.
- **The vehicle equipped with poly transport tank must be capable of handling the increased weight** (e.g. adequate axles, tires, and brakes).
- **If the tank will be used to hold winter maintenance chemical or pesticides the tank must be manufactured to hold products that are denser than water.** Tanks that are mounted on a truck, trailer, or ATV should have a *specific gravity* rating of at least 1.5. Tanks with a 1.7 or 1.9 *specific gravity* rating are recommended if available.
- **Tanks should be inspected for physical damage and stress cracks before acquiring.** The Poly Transport Tank Inspection Form located in Appendix B of this document should be used to inspect used tanks.
- **The history of a used tank should be obtained before acquiring, if possible.** The history should include age, type of product previously stored, exposure to elements, and prior damage. Stationary polyethylene tanks have a typical useful life of 10 to 15 years; however, mobile tanks frequently have a shorter service life. The remaining service life of a used mobile tank should be based on physical condition rather than age.
- **A thin rubber or foam padding should be used, where appropriate, to stabilize the tank and prevent the metal bands from damaging the tank.**
- **Large capacity horizontal tanks (e.g. greater than 1,000 gallons) should be equipped with internal baffles.** Where possible, baffles should consist of walls that are molded or mounted to the interior of the tank.
- **Baffle balls should be used to reduce liquid surging in large capacity tanks that do not have internal baffles.** The size of the lid opening on the tanks should be used to determine the size of baffle balls purchased for the tank. The use of baffles balls limits in-tank mixing.
- **Tanks must be vented** to avoid pressurization while loading or unloading product. Tank venting is built into most tanks (e.g. an opening built into the top lid). The tank lid should be temporarily removed if excessive swelling or contraction is observed during loading.

3.2.1.2 ROUTINE MAINTENANCE

- **Tanks should be thoroughly cleaned before changing products.** Avoid mixing winter maintenance chemical with residues of other chemicals.
- **A detailed inspection must be conducted at least annually on poly transport tanks.** Detailed tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. ODOT Fleet is responsible for conducting annual inspections in conjunction with equipment inspections. FIMS is used to document equipment inspections.
- **Mobile tanks are classified as a confined space and confined space hazards must be assessed before entering the tank (e.g. for washing or repair).** Refer to the ODOT Permit Required Confined Space Program or contact ODOT Safety for Confined Space Awareness Training.

3.2.1.3 REMOVAL FROM SERVICE AND DISPOSAL

- **Transport tanks that are taken out of service should be coordinated with Fleet.**
- **If any of the following critical conditions are observed the poly tank must be taken out of service.** Additional information on inspecting poly tanks is located in Appendix L – Poly Tanks. Use the 'baseball bat test' on empty tanks to confirm suspected tank failure.
  - Significant stress cracking, OR
  - A deep crack at least 2" long in a stress point, OR
  - A deep crack at least 4" long in a non-stress point, OR
  - Significant brittleness or softness in stress points.
- **Tanks with developing conditions should be replaced as soon as practical.** Developing conditions could include: minor stress cracks; minor or moderate damage; short or shallow cracks; some brittleness but still flexible; or shallow cuts. If a poly tank with developing conditions cannot be replaced quickly, the tank should be frequently inspected to monitor the status.
- **Poly tanks that are no longer needed, but are still in good condition, should be transferred to another ODOT crew or disposed in accordance with ODOT's Surplus Property Policy.** Copies of available tank information (a tank history) should be transferred with the tank.
- **Poly tanks that are not relocated or are in poor condition should be broken into smaller pieces and recycled, where available.** Poly tanks that are not recycled should be managed as *solid waste*.

3.2.2 Asphalt Tanks, Slip-Ins, and Trailer Mounted Tanks

- **The purchase, replacement, installation, and inspection of tanks with equipment numbers must be coordinated with Fleet Services**. Refer to the Fleet Manual for additional information.
- **The tank should be manufactured to meet or exceed industry standards.**
- **Tanks must be labeled with product and hazard information.** Refer to Section 2 - Labels and Signs for guidance on labeling. When labeling the tank is impractical (e.g. asphalt kettle), the *SDS* for the product should be kept with the equipment.
- **Asphalt kettles must be equipped with a tight-fitting cover.**
- **Portable tanks that are no longer needed should be transferred to Fleet or another ODOT crew.** Refer to the Fleet Equipment Transfer System for procedures. Copies of available tank information (a tank history) should be transferred with the tank.
- **If damaged portable tanks should be inspected by Fleet Services before being returned to service.** The mechanic should determine if the tank should be taken out-of-service or replaced.

3.2.3 Totes and Bulk Containers (typically 140 to 800 gallons)

Refer to Table 1-2: Secondary Containment Chart for Flammable/combustible Materials (in Section 1.1 - Storage) or the material specific section of this Manual (e.g. Winter Maintenance Chemicals) to determine if *secondary containment* is required.

- **The container should be manufactured to meet or exceed industry standards.**
- **The exterior of the container must be visually inspected for leaks and obvious defects during the Monthly Maintenance EMS Field Audit.** Deep cracks, irregular deformations, and texture variations (e.g. soft or brittle) should be checked frequently for changes.
- **Empty totes and other vendor-owned bulk containers should be returned to the vendor.** The vendor is responsible for maintenance and upkeep of the tote.
- **Totes and bulk containers must be stored one container high**; do not stack containers.

Section Divider

Section Divider

4 DRAINAGE and WATER QUALITY

The Best Management Practices (BMPs) in Sections 4.1 – Stormwater, 4.2 – Septic Systems, and 4.3 – Wastewater Discharges apply to all *Maintenance yard*s (if the drainage feature is installed at the yard). Some items, such as water quality features and stormwater underground injection control (UIC) systems, are installed infrequently at *Maintenance yard*s.

Pollutant removal is not warranted at all maintenance facilities. Representative sampling has determined that untreated stormwater runoff from ODOT *Maintenance yards* contains very little contamination. However, ODOT is aware that stormwater quality has the potential to be affected by maintenance products and activities.

The installation of drains, drainage systems, and permanent water treatment equipment (e.g. oil/water separators) is the responsibility of ODOT Facilities Management. The maintenance and upkeep of drainage systems and equipment is the responsibility of the yard management.

Other relevant procedures include:

🕮 Guidelines for washing equipment and fleet are located in Section 5.9 – Equipment and Fleet.

🕮 Guidelines for managing sump deposits are located in Section 5.18 – Roadwaste.

4.1 STORMWATER

Stormwater discharges from ODOT Maintenance Yards are permitted under a statewide National Pollutant Discharge Elimination System (NPDES) Municipal Separated Storm Sewer System (MS4) permit issued by DEQ. The permit has been administratively extended. Stormwater discharges are surface runoff resulting from snowmelt and rainwater.

Sheet flow off a paved surface and onsite infiltration are common methods of stormwater management at facilities utilized by Maintenance. Oregon has a diverse climate and a significant number of *maintenance yards* (a little less than half) are located in areas with little precipitation. About a third of the *maintenance yards* have piped stormwater systems. If installed, these stormwater conveyances vary by site. Stormwater conveyances include anything used to move stormwater from one location to another (e.g. culverts, drains, and ditches).

- **Efforts must be made to minimize pollutants entering stormwater runoff.** Potential pollutants may include wastewater (e.g. vehicle wash water); oil and grease from equipment and product storage; sediment; and residual products from application equipment (e.g. pesticides, winter maintenance chemicals, and striping paints).

  Methods for minimizing pollutants entering stormwater include but are not limited to:

  — Limit exposure of products and wastes to rainfall (e.g. keep covered or store indoors).

  — Check equipment regularly for leaks.

  — Cleanup spills promptly.

  — Divert stormwater away from outdoor storage areas.

  — Use sediment/erosion control or treat wastewater to remove potential pollutants.

  — Site storage areas, equipment repair areas, and washing activities away from stormwater drains.

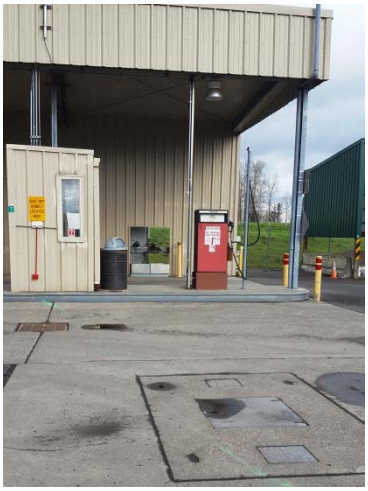
  — Regularly clean catch basins and stormwater .

  — Follow District IVM Plan when managing onsite vegetation.

  — Keep litter out of storm drains and waterways.

  — Properly manage wastes.

Figure 4-1: Examples of ways to minimize pollutants going into stormwater.



Remove oil

Remove sediment

Cover materials

- **Facilities Management and the MOB must be notified when existing drainage systems are modified, constructed, or excavated.** Changes to engineered drainage systems must be coordinated with Facilities Management.
- **Spill containment (e.g. curbing) and/or water treatment (e.g. routing stormwater through vegetation) should be present in areas where pollutants are likely to flow into waterbodies or sensitive sites (e.g. wetlands).**
- **A site drawing showing the stormwater system should be onsite.** Site drawings should be updated whenever drainage is modified or if additional stormwater elements are discovered. The drawing should include structural efforts to keep potential pollutants out of stormwater. At a minimum the drawing should include:
    a. Catch basins, inlets, and sumps
    b. Ditches
    c. Stormwater outlets
    d. Water quality features – swale and ponds
    e. Oil/water separators
    f. Permanent catch basin inserts
- **Employees based at the Maintenance yard should be aware of where stormwater water flows.** Local understanding and knowledge of onsite stormwater systems is important to aid the containment and cleanup of potential spills.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of drainage (e.g. inlets, outlets, and water treatment).** Visual inspections should look for signs of potential pollutants, sediment build-up, spills, and signs of deterioration. A blank copy of the Field Audit is located online and in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or cleaning) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. A blank copy of the Corrective Action Sheet is located online and in Appendix B. Additional information about EMS Audits is located in Appendix C.

4.1.1 Catch Basins, Inlets, and Sumps

Catch basin sumps are typically used for sediment removal. Sump deposits may be contaminated.

Refer to Section 5.18 – Roadwaste for the management of sediment removed for catch basin sumps and wash racks. A summary of information on roadwaste management is located in Appendix M.

- **Sumps and catch basins should be cleaned regularly.** Annual cleaning is recommended. If a significant amount of sediment enters the catch basin, the cleaning frequency should be increased. Cleaning high sediment systems before the sump is ⅓ full of sediment is recommended (measured from the bottom of the sump to the lowest overflow).
- **Records identifying when catch basins (including wash racks) were cleaned should be kept.**

4.1.2 Ditches

Refer to the ODOT Routine Road Maintenance Guide (*Blue Book*) for BMPs on ditch maintenance.

4.1.3 Stormwater Outlets

Refer to the ODOT *Blue Book* for BMPs on culvert maintenance.

- **ODOT owned or operated outlets that discharge water from yard drainage systems should be accessible for inspection and spill response.** Investigate ways to facilitate access where appropriate.

4.1.4 Swales, Ponds, and Other Water Quality Features

Water quality features installed at *maintenance yards* are managed in the same manner as similar highway features. Refer to Activity 125 – Water Quality Facilities in the Maintenance Guide. The best management practices listed in the standard maintenance tables have been reviewed by Geo-Environmental and accepted as adequate to maintain the facility and protect water quality. Some existing water quality features have outdated Operations and Maintenance manuals (O&M). The standard maintenance tables in the Maintenance Guide supersede O&M manuals created prior to December 2010.

Refer to the Section 5.18 – Roadwaste for BMPs on the management of sediment removed during routine maintenance.

- **Onsite water quality features that do not have a facility specific O&M Manual should be maintained using the guidance in Activity 125 of the Maintenance Guide.**
- **If the onsite water quality feature was constructed after December 2010 and a facility specific O&M Manual that describes limitations and special maintenance procedures is available these practices should be implemented in addition to the BMPs in the Maintenance Guide.**
- **Lined evaporation ponds should be checked regularly for damage**. Liners should be repaired or replaced when damaged. Liner is damaged when condition allows wash water to be released to the subsurface. Repair or replace the liner with similar material. In many cases, rigid plastic liners may be repaired by welding a similar material over the damaged portion or using a waterproof epoxy.

4.1.5 Underground Injection Control (UIC)

UICs are structures including drywells, french drains, trench drains, and drainfields that discharge below the ground surface. UICs are typically used for stormwater discharge, onsite sewage disposal, aquifer remediation, and agricultural drainage.

UICs are allowed for the disposal of stormwater, roof runoff, and domestic sewage. UICs are regulated by DEQ for EPA with the intent of protecting drinking water resources from contamination. All groundwater aquifers in Oregon are considered potential drinking water resources. ODOT has a Statewide Permit from DEQ for the management of stormwater UICs.

UICs are not allowed for the disposal of wastewater from shop floor drains or wash racks. Federal regulations banned the use of UICs for the disposal of wastewater from drains with a potential to receive automotive fluids (e.g. shop floor drains or vehicle wash racks) in 2000. These '*automotive UICs*' have been effectively banned in Oregon since 1984. All known '*automotive UIC*s' at ODOT Maintenance Yards have been decommissioned. If an '*automotive UIC*' is discovered, contact Region HazMat for assistance with decommissioning.

- **Facilities Management and the MOB must be notified when UICs are installed, discovered, or decommissioned at a Maintenance facility.** The person managing the installation of the new UIC is responsible for ensuring the UIC is properly registered and meets DEQ requirements.
- **Fluids that are not stormwater (e.g. hazardous substances, toxic materials, and oil) must be kept out of UICs.** Material storage and handling is not allowed near UICs.
- **Spills to UICs must be reported to OERS.** Notify HazMat and MOB of all spills reported to OERS.
- **Source control measures and structural operational BMPs must be taken to reduce or eliminate pollutants entering UICs.**
- **Stormwater entering UICs must be treated to remove oil and sediment.**
- **UICs must be either**
    a. **equipped with a shut-off valve**
    b. **have a accessible drain blocker / cover.**
- **Parking lots with UICs must be regularly swept.** Frequency depends on the accumulation of dirt and debris.
- **Employees at yards with UICs must be annually trained in the use of a spill kit and the visual inspection of UICs.**
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection and maintenance of UICs.** The visual inspection should ensure the system is functioning. A blank copy of the Field Audit is located in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or cleaning) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. A blank copy of the Corrective Action Sheet is located in Appendix B. Additional information about EMS Audits is located in Appendix C.

4.2 SEPTIC SYSTEMS

Septic systems are designed to treat domestic wastewater (sewage) by separating solids and liquids. Solids are typically stored in an underground tank and liquids are drained into the ground. If a septic system fails, sewage and untreated wastewater can be introduced into ground water or a nearby waterbody. The DEQ Fact Sheet - Septic Tank Maintenance is located in Appendix I.

Some septic systems with a projected sewage flow greater than 2,500 gallons per day must be registered and permitted by DEQ. The few septic systems that are known to meet DEQ criteria have been either registered or permitted (whichever is required). If the septic system has a DEQ permit, additional information will be in the *Yard Handbook.* Facilities Management is responsible for obtaining permits for new septic systems, if required.

The TMM, TMC, or designee is responsible for routine maintenance and sampling (if applicable) of the septic system. Facilities Management is responsible for repair and/or replacement of failing systems.

- **Servicing should be completed by a company with an active DEQ issued Sewage Disposal Service License.** A searchable list of licensed companies is located on DEQ's website. http://www.deq.state.or.us/wq/onsite/sdssearch.asp
- **Septic systems should be inspected annually.** The entire septic area (i.e. tank, line, and drainfield) should be checked for odors and damp, soggy sections.
- **The function and integrity of the drainfield should be maintained.** Heavy equipment and vehicles should be kept off the drainfield. The drainfield should not be covered with an impermeable surface (e.g. asphalt).
- **Only biodegradable materials should be discharged into the septic system.** Chemical additives, *hazardous materials*, and organic solvents should be kept out of the septic system.
- **Septic tanks and septic holding tanks should be routinely serviced.** Tanks typically have enough capacity for three to eight years of use between servicing. The size of the tank and the number of people using the system influences the frequency of servicing. Allowing wastes to overfill the septic tank will clog the drainfield and result in system failure. Having the septic tank pumped out before the sludge reaches ⅓ the volume of the tank is recommended.
- **Service ports for septic tanks and septic holding tanks should be accessible** for inspection and cleaning. The septic tank should be serviced through the large central service port, not the sanitary tee or baffle inspection ports. The condition of tees and baffles should be checked (and repaired if necessary) when the tank is serviced.
- **The location of septic components (e.g. tank, piping, and drainfield) should be noted on site drawings.** Site drawings should be updated whenever drainage is modified or if additional components are discovered. The MOB should be notified of modifications to the septic system.
- **If the septic system is permitted, permit requirements must be followed** in addition to the general BMPs listed in this section. Permit requirements may include annual reporting to DEQ, routine maintenance, and monitoring. A copy of the permit should be kept onsite.

4.3 WASTEWATER DISCHARGES

- 🕮 Guidelines for washing equipment and fleet are located in Section 5.9 – Equipment and Fleet.
- 🕮 Guidelines for floor drains and grease pit sumps are located in Section 4.1.4 – Catch Basins and Sumps.

Wastewater is usually the result of an activity (e.g. vehicle washing) or a discharge from interior areas where maintenance activities occur (e.g. from grease pit sumps or floor drains).

DEQ regulates the disposal of wastewater to the ground surface, to underground systems, and to waterbodies. DEQ's oily water discharge permit (1300J) and wash water discharge permits (1700A and 1700B) are currently expired; permits are not available from DEQ. Guidance in this section and in Section 5.9 – Equipment and Fleet is consistent with general requirement in previous versions of DEQ permits. The MOB will work with DEQ to obtain a statewide permits when these become available. DEQ may place pollutant limits on discharges. Contact the MOB with questions about DEQ wastewater permits.

Municipalities may place pollutant limits or treatment requirements on wastewater that is discharged to municipal systems.

Routine washing of buildings and parking lots is typically allowed without a permit even if wash water flows to a waterbody or UIC provided chemicals, soaps, detergents, steam, or heated water are not used while washing. Implementation of appropriate erosion/sediment control or water treatment prior to water reaching a waterbody is expected if the activity becomes a significant source of pollutants.

- **Drains and water treatment systems should be cleaned regularly.** See Section 4.1.1 – Catch Basins and Sumps and Section 4.4 – Water Treatment for additional information.
- **Shop drains and wash racks should be connected to municipal sanitary sewer systems where connections are available and allowed.** The local sewerage agency typically require pre-treatment of water flowing into municipal systems. The connection of drains to municipal sanitary sewers is the responsibility of Facilities Management. Authorization letters from the sewerage agency should be kept at the yard.
- **Where possible, discharges from shop drains and wash racks that are not connected to municipal sanitary systems should be managed so that a DEQ permit is not required.** Closed loop or no-discharge systems (e.g. sealed drains, evaporators, or recycling systems) are allowed without a DEQ permit. Under certain conditions infiltration is also allowed without a DEQ permit. Information about DEQ washing permits is located in Section 5.9 – Equipment and Fleet.
- **If the yard has a DEQ permit the requirements of the permit must be followed.** The MOB negotiates statewide permits where appropriate and possible.
- **Wastewater discharges (drains with a potential for receiving automotive fluids such as shop drains or wash racks) that flow to drywells or drainfields must be disconnected when discovered.** Releases of wastewater to underground distribution systems (e.g. drywells or drainfields) are not allowed. See Section 4.1.5 – Underground Injection Control (UIC) for additional information.
- **Discharges of effluent from shop drains and wash racks to the ground surface must have no visible sheen.**
- **At locations where municipal sanitary connections are unavailable, effluent from shop drain discharges should be kept onsite** where possible. Infiltrating the water onsite or using no-discharge methods such as recycling or evaporation are preferred. Depending on site conditions, evaporation may consist of a commercial evaporator or evaporation off a paved surface.
- **If effluent from shop drains has potential to reach a waterway or stormdrain an effluent must be treated to remove oil prior to discharge.** Best practices for wash rack drains is located in Section 5.9 – Equipment and Fleet.

- **Surface discharges of effluent from shop drains must be equipped with a method for preventing uncontrolled releases to surface waters or groundwater.** Drainage control methods include: a shut-off valve; an oil/water separator; a tank; a non-discharging basin; or an area that includes containment with no discharge. Best practices for surface discharges of effluent from wash rack drains is located in Section 5.9 – Equipment and Fleet.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of wastewater discharge areas.** Visual inspections should look for signs of potential pollutants, sediment build-up, and spills. A blank copy of the Field Audit is located in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Maintenance EMS Field Audit (e.g. needed repairs or cleaning) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. A blank copy of the Corrective Action Sheet is located in Appendix B. Additional information about EMS Audits is located in Appendix C.

4.4 WATER TREATMENT

Water treatment is a general term used to describe a process or equipment used to remove pollutants from wastewater or stormwater. Pollutants at *maintenance yard*s include, but are not limited to sediment, oil, and metals. Water is typically treated by settling, infiltration, or filtration (or some combination of the three). Evaporation and containment are not considered water treatment because the water is not discharged.

In general, source control (e.g. secondary containment, covering, housekeeping, activity siting, and routine inspections) has been determined more effective than treatment in reducing pollutant levels in stormwater runoff. Source control is preferred by EPA (and other regulatory agencies) and allows Maintenance the flexibility needed to meet changing operational needs, policies, and climates. Water treatment systems have been installed at yards where source control measures have been determined unable to adequately address site-specific concerns. ODOT will continue installing water treatment systems where appropriate.

When water treatment is warranted (e.g. recommended or required) call MOB or the Region Environmental Coordinator for assistance.

- **Water treatment equipment (e.g. oil/water separator) should be maintained according to manufacturer's specifications.** Typically, water treatment systems require routine maintenance (e.g. filter changes or removal of solids). Maintenance, including changing the absorbent filters, is recommended annually and should be tracked.
- **Oil-only absorbents (e.g. booms or skimmer pillows) used to remove petroleum-based pollutants from vaults, catch basins, oil/water separators should be replaced as needed.** Absorbents should be replaced more frequently in high-use water treatment systems. Absorbent that is saturated with oil should be replaced.
- **Oil-only absorbents (e.g. booms or skimmer pillows) that have been used to remove petroleum-based pollutants from water treatment systems should be managed as *solid waste* (i.e. trash).** Absorbents may be saturated with oil but not dripping.
- **Absorbent and absorbent filters from carbon-based treatment systems (e.g. water filtration drums) should be managed as *solid waste* (i.e. trash).** Absorbent may be saturated but not dripping oil. Waste should be taken to a permitted municipal landfill or transfer station. A list of permitted landfills is located in Appendix J.
- **Sludge and sump deposits from oil/water separators and other systems that collect solids should be managed according to the BMPs in Section 5.18 - Roadwaste.** Sludge and sediment typically accumulate inside settling vaults, trench drains, and evaporation systems. Deposits should be removed as necessary to maintain the function of the system.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of water treatment systems.** The visual inspection should ensure the system is functioning. A blank copy of the Field Audit is located in Appendix B. Additional information about EMS Audits is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or cleaning) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. A blank copy of the Corrective Action Sheet is located in Appendix B. Additional information about EMS Audits is located in Appendix C.

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5 EMS MATERIAL SPECIFIC PROCEDURES

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5.1 AEROSOL CANS

5.1.1 Purpose

This procedure is intended for the storing, handling, and disposing of aerosol cans. This procedure covers the management of various types of aerosol cans used by ODOT Maintenance employees to operate and maintain equipment and to repair and maintain highway features and infrastructure.

Aerosol cans include, but are not limited to, spray paint, bug spray, starter fluid, cleaners, degreasers, and solvents.

This procedure establishes management requirements for aerosol cans that minimize *hazardous waste* generation and encourage a safe, efficient working environment.

5.1.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

The Oregon State Fire Marshal's Office regulates the storage of flammable/combustible materials.

5.1.3 Alternatives and Pollution Prevention

- Increase the use of pumps or non-aerosol products, when available and practical, as a replacement for aerosol products. The use of bulk products may be reduce *hazardous waste* generation, increase cost effectiveness, and conserve resources.
- Reduce or eliminate the use of c*hlorinated products.* See the Definition of Terms section of this Manual for tips identifying chlorinated products.
- Increase the use of water-based cleaners and lubricants.
- Minimize the number and type of aerosol products used. Purchase only as much as needed.
- Use an aerosol can puncture system, where available, prior to disposal. Un-punctured aerosol cans are classified as a *hazardous waste*. Puncture systems reduce the volume of *hazardous waste* by separating the hazardous components (residue and propellant) from the non-hazardous components (can). Punctured aerosol cans may be recycled with scrap metal; check with the local recycler for restrictions.

5.1.4 Aerosol Cans – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

5.1.4.1 STORAGE OF AEROSOL CANS

- **Aerosol cans must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Refer to Section 5.1.4.3.1 – Full, Partially Full, and Spent Aerosol Cans for the management of unlabeled cans that cannot be relabeled.

- **Products should be stored in a cool, dry, well-ventilated area that is protected from the elements.** Exposure to freezing, high temperatures, and direct heat sources should be avoided. Products should be stored away from direct sunlight. Prolonged exposure to sunlight may cause the can to burst.
- **Aerosols must be kept in a *flammables cabinet* if more than 25 gallons are stored in a single indoor area.** Large quantities of aerosol cans (e.g. cases) should be stored inside a flammables cabinet. Storage areas are separated by a 2-hour fire rated barrier.

  256 twelve-ounce cans is approximately 25 gallons. Aerosol storage is limited to 60 gallons per flammables cabinet. Refer to Section 1 – Good Housekeeping for additional information on the storage of flammable materials.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information is located on the product label or *SDS*.

5.1.4.2 HANDLING AND USE OF AEROSOL CANS

- **The protective cap should be replaced when the aerosol can is not in use.**
- **Aerosol cans should be protected from puncture during use** (e.g. do not put sharp objects into the valve opening).

5.1.4.3 DISPOSAL OF AEROSOL CANS

A copy of the DEQ policy – Aerosol Spray Can Management is located in Appendix I. The policy should be consulted for additional clarification if necessary.

5.1.4.3.1 Full, Partially Full, and Spent Aerosol Cans (not punctured)

Aerosol cans are considered spent when the product is entirely used up or the remaining product cannot be used (e.g. the nozzle is plugged, the contents are unknown, or the propellant is depleted). Spent aerosol cans contain a small amount of material even when the can appears to be empty.

- **Usable, unwanted aerosol cans should be returned to the vendor or transferred to another ODOT crew.** Coordination and communication with the receiving party should occur before the property is transferred.

  This action does not require documentation on the Waste Generation or Waste Disposal Log because the material is not a waste.
- **Spent or unusable aerosol cans must be managed as *hazardous waste* using one of the following disposal options.** Un-popped aerosol cans should be kept out of the trash where practical. See Section 5.1.5 for assistance documenting the generation and disposal of aerosol cans.
  - Popped in a can popper (onsite or at another ODOT yard)
  - Picked up by a licensed *hazardous waste* management company
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - Taken to a DEQ sponsored *hazardous waste* collection event
    - A County waste facility that is authorized by DEQ to accept *hazardous waste*
  - Throw in trash (IF the yard is a CEG and the generation and disposal are documented).

- **Where practical puncture systems (e.g. a can popper) should be used to manage spent and unusable aerosol cans.** Extra care should be taken when popping full or partially full cans; the material inside the can may splatter when the can is punctured. BMPs for can poppers are located in Section 5.1.4.3.2 – Operation and Maintenance of Puncture Systems.

  Aerosol cans may be punctured at another ODOT Maintenance Yard provided the waste is recorded on the Waste Generation and Disposal Logs of the generating yard AND the generating yard is classified as *CEG*. Refer to Appendix D for information on classification as a *CEG*.

- **Containers that are used to store spent or unusable (un-popped) aerosol cans must be labeled with the following information.** Labels must be intact, visible, and legible. See Section 2 - Labels and Signs for additional information on labels.
  - The words "Hazardous Waste"
  - The *accumulation start date*
  - A description of the waste (e.g. "spent aerosol cans")
  - A statement of the hazard (e.g. "flammable")
- **Containers that are used to store spent or unusable aerosol cans must be kept closed when cans are not being added or removed.**

5.1.4.3.2 Operation and Maintenance of Puncture Systems (can poppers)

- **Puncture systems should be manufactured in accordance with industry standards**. The system should safely and effectively release internal pressure, capture propellant, and collect residue.
- **The puncture unit should be installed and maintained according to the manufacture recommendations.** Typically, the unit should be secured to a 30-gallon or 55-gallon collection barrel. Gaskets, puncture devices, and valve assemblies should be inspected, cleaned, and replaced as necessary.
- **Ether and caustics should be kept out of can poppers.** Refer to Section 5.1.4.3.1 – Full, Partially Full, and Spent Aerosol Cans for the management of un-popped aerosol cans.
- **Operation instructions should be posted near the can popper.** Laminated copies of the instruction sheet are available from the MOB. A copy of the instruction is also available on the ODOT website. Training or certification is not required to operate a can popper.
- **The filters for can puncture systems should be replaced according to the manufacturer recommendations.** Typically, filters changes are recommended annually (at large facilities) or after 1,000 cans are punctured. Some puncture system filters have indicators that change color when the filter needs to be replaced. Placing a start date or an estimated expiration date on a non-color coded filter may help ensure filters are changed.
- **The residue collection barrel must be labeled with the following information.** See Section 2 - Labels and Signs for additional information on labels.
  - The words "Hazardous Waste"
  - The *accumulation start date*
  - A description of the waste (e.g. "mixed aerosol waste " or "aerosol can residue")
  - A statement of the hazard (e.g. "flammable" or "flammable liquid")

Mixed aerosol waste

5.1.4.3.3 Puncture System (can popper) Wastes

- **The residue inside a can puncture system must be managed as *hazardous waste* using one of the following disposal options.** Check for area specific requirements.
  - Picked up by a licensed *hazardous waste* management company,
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*.

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **Filters from can puncture systems must be managed as *hazardous waste*** (see the list of disposal options in the bullet above). In addition to the options listed above if the facility is CEG the filter may be throw in the trash PROVIDED the waste is documented on the Waste Generation and Waste Disposal Logs.

5.1.4.3.4 Empty Aerosol Cans (punctured)

Aerosol cans are considered empty when the cans have been punctured and drained.

- **Empty aerosol cans should be recycled as scrap metal where practical.** Check with local scrap metal recyclers for availability.
- **When recycling is not practical, empty (punctured) cans should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.1.5 Documentation

Blank copies of EMS paperwork are located online and in Appendix B of this Manual.

- **The Monthly Maintenance EMS Field Audit must be used to document the visual inspect aerosol storage and disposal areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. unlabeled residue collection barrel) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The monthly generation of hazardous aerosol can waste must be documented on the EMS Waste Generation Log.** Spent aerosol cans (not punctured) and residue inside a collection barrel are classified as *hazardous waste*. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
  - If spent cans are stored onsite before being punctured or cans will not be punctured (e.g. thrown in the trash or taken to County HazWaste disposal), the weight of the cans must be tracked (¼ pound per can).
  - If spent cans are popped onsite immediately, the waste may be tracked by counting either a) the weight of the cans (¼ pound per can) or b) by determining the weight of the residue inside the collection barrel (1 ounce per can).

  At some locations both aerosol residue (from popping cans immediately after empty) and waste aerosol cans (from aerosols that cannot be popped) are generated.

Tips for counting aerosol waste.

- A spent (un-popped) aerosol can weighs approximately ¼ pound (4 ounces).
- If the can still has product inside, add the weight of the remaining product to the weight of the can (a ½ full 12-ounce can = 6 ounces of product + 4-ounce can = 9 ounces total = about a ½ pound).
- The weight of residue inside a collection barrel may be estimated or averaged based on prior accumulation. Count 1 ounce of residue per aerosol can.
- The actual weight of residue inside the collection barrel may be determined by weighing the drum or by using a plastic liner inside the collection barrel and weighing the residue. Do not include the weight of the barrel. If averaging based on annual disposal, include an estimated amount on the Waste Generation Log and adjusted when the actual weight is determined.

Tips for averaging aerosol wastes. The following numbers are based on statewide information on aerosol waste generation and appear to be reasonable averages.

- Average cans (aerosols are not popped onsite OR cans are stored before popping)
  i. very small shops = 0.25 pound per month
  ii. medium size shops = 1 pound per month
  iii. compounds with multiple crews = purchase a can popper
- Average residue (cans are popped onsite as soon as empty)
  i. very small shops = 0.1 pound per month
  ii. medium size shops = 0.2 - 0.5 pound per month
  iii. compounds with multiple crews = 0.8 - 1.5 pounds per month

- **The disposal of *hazardous waste* aerosol cans or residue must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. spent aerosol cans are taken to another yard or *hazardous waste* company picks up the can popper residue). The documentation must include where the waste went and the method of disposal (e.g. recycled or incineration). Additional information on the Waste Disposal Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

Section Divider

Section Divider

5.2 ASPHALT PAVING PRODUCTS

5.2.1 Purpose

This procedure is intended for the storing, handling, and disposing of asphalt paving products and wastes. This procedure covers the management of asphalt release agents and petroleum-based paving products routinely used by ODOT Maintenance employees to repair and maintain highway surfaces.

Asphalt paving products include but are not limited to asphalt release agents, emulsions, asphalt cements, cold mixes, tars, tack oils, vegetable oils, and crack sealants.

This procedure establishes management requirements for ODOT asphalt paving products that prevent releases of petroleum to the environment and encourage a safe, efficient working environment.

5.2.2 Regulating Agencies

The Oregon State Fire Marshal's Office regulates aboveground storage tanks.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

EPA and DEQ regulate the management of *solid waste* (including waste emulsion).

EPA and DEQ regulate and oversee cleanup actions that result from petroleum spills, leaks, or storage.

5.2.3 Alternatives And Pollution Prevention

- Refill portable storage tanks and distributors at the vendor, where available, to reduce spill potential and onsite storage quantities.
- Purchase packaged cold mix asphalt products instead of bulk material to reduce waste.
- Reduce or eliminate the use of *products that contain asbestos*. See the Definition of Terms section of this Manual for tips on identifying products that may contain asbestos.

5.2.4 Asphalt Paving Products - Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Practices required by yard-specific documents, such as *Spill Prevention Control and Countermeasure (SPCC) plan*s, must be followed** in addition to the general practices outlined in this document.

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.
- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.2.4.1 STORAGE OF ASPHALT PAVING PRODUCTS

BMPs for tanks, including portable tanks such as kettles and distributors, are located in Section 3 – Tanks. The BMPs in Section 3 provide guidance on the purchase, operation, maintenance, and disposal of ODOT owned tanks. This section provides guidance on the storage of asphalt paving products.

5.2.4.1.1 Tanks and Large Containers (emulsion and release agents)

- **Paving products, including paving products that are stored in portable tanks, should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.
- **Containers must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as a waste (see Section 5.2.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers must be closed** when product or wastes are not being added or removed. Containers with valves (e.g. distributor bars) are considered closed when product cannot escape the container without operating the valve. Process containers (e.g. dispensing containers or spreaders) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **Containers and equipment should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Storage areas for containers of liquid and semi-solid products should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Containers and tanks should be protected from vehicular damage.** Tanks located inside pickup beds or mounted on vehicles are protected from damage by the vehicle chassis. Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers of liquid and semi-solid paving products (including distributors and kettles) should be stored on a paved surface.** The use of absorbents (e.g. spill pads, gravel, or sand) is recommended for good housekeeping.
- **Containers that contain liquids or semi-solids must be in good condition** (e.g. no harmful rust, damage, or leaks).

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- ***Secondary containment* must be provided for all containers (55 gallons or larger) of oil-based products at *Maintenance yard*s with SPCC Plans.** Oil-based products include emulsion, tack, vegetable oil, and some release agents. Refer to the yard's SPCC Plan for site-specific requirements.

  SPCC Plans are not required at all ODOT Maintenance Yards. A list of yards that have written SPCC Plans is located in Appendix K. Information about the SPCC Program, updates to the list of sites (if any), and copies of site specific plans are available online. The containment BMP listed below should be followed at yards that do not require SPCC Plans or when storing paving products that are not oil-based at a Maintenance yard with a SPCC Plan.
- ***Secondary containment* should be provided for containers of liquid and semi-solid products that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** *Secondary containment* includes, but is not limited to, double-walled tanks, spill pallets, curbs, or berms that keep products from flowing offsite or into waterbodies. Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*.
- **Overfill protection must be provided for all containers (55 gallons or larger) of oil-based products at *Maintenance yard*s with SPCC Plans.** Overfill protection should be provided for paving oil tanks at *Maintenance yard*s without SPCC Plans. Overfill protection may be provided by an action (e.g. checking capacity before pouring) or by equipment (e.g. a level gauge).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).

5.2.4.1.2 Storage of Cold Mix Asphalt that is Not Packaged

- **Cold mix should be stored in pre-selected areas.** Storage areas should be organized and tidy. Using concrete barrier (or other methods) to delineate the storage area is recommended. Refer to Section 1 - Good Housekeeping for additional information.
- **Cold mix should be stored on a paved surface.** The surface should be constructed of a material that will not absorb the product or allow oil to flow into the soil below.
- **Cold mix storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Cold mix should be covered** (e.g. stored under a roof, overhang, tarp, or plastic sheeting) where practical.

5.2.4.1.3 Packaged Asphalt Products

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.
- **Packages must be labeled with product information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.2.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Packages should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).

5.2.4.2 HANDLING AND USE OF ASPHALT PAVING PRODUCTS AND EQUIPMENT

Release agents recommended by the equipment manufacturer (e.g. PAM®) may be used to remove or prevent the contact of paving products with equipment provided the BMPs in this section are followed.

- **Paving products and release agents must be used for the intended purpose.** Only products marketed as release agents may be used to remove or to prevent contact of asphalt products with equipment.

5.2.4.2.1 In-Use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **Containers must be closed** when product or wastes are not being added or removed. Containers with valves (e.g. distributor bars) are considered closed when product cannot escape the container without operating the valve. Process containers (e.g. dispensing containers or spreaders) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **In-use containers should be managed in a manner that prevents spills.** Absorbent pads or drip pans should be used where appropriate.
- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills.

5.2.4.2.2 Parking Paving Equipment During the Paving Season

- **During the paving season, drip trays or absorbent pads should be placed under distributor bars** to collect drips that may occur during heating or cooling.
- **Drip trays and other collection containers should be emptied periodically** to ensure sufficient collection capacity. Drip trays and other collection tools may be left uncovered if the container is in active use.
- **Paving equipment and tools should be cleaned prior to end-of-season storage.**
- **Paving equipment should be parked inside, under cover, or away from waterbodies and stormdrains** when rain occurs during the paving season. Appropriate source control measures should be installed when equipment is parked near waterbodies and stormdrains,

5.2.4.2.3 Routine and Seasonal Cleaning of Paving Equipment

- **If asphalt release or cutting agents that contain diesel or bio-diesel are used the use must be limited to cleaning the distributor system.** If diesel or bio-diesel are used for cleaning the distribution system must be either enclosed (self-recycling) or all waste must be captured and contained. The least amount of product necessary to clean the distributor bar should be used. All waste from cleaning the distributor bar must be properly managed as used oil in accordance with DEQ regulations. See DEQ Program Implementation Policy 99-001 in Appendix I.
- **Equipment cleaning must follow the Fleet and Equipment BMPs listed in Section 5.9 – Equipment and Fleet.** Seasonal cleaning of the distributor should be completed by the asphalt vendor, where practical. Routine cleaning of paving equipment should be performed at a wash rack system that is connected to municipal sanitary sewer. Yards without access to wash rack systems should contain and capture the equipment cleaning waste with plastic, sand, or drip pans.

5.2.4.2.4 Waste Asphalt/Tack Emulsion Storage

Refer to the Storage section of this procedure for additional BMPs.

- **Waste emulsion tanks and containers must be labeled "Waste Tack", "Waste Emulsion", or "Waste CSS".**
- **Waste emulsion must be managed separately from other wastes.** Non-oil wastes and *hazardous waste* (e.g. anti-freeze, solvents, and thinners) must be kept out of the waste emulsion tanks and containers.

5.2.4.3 DISPOSAL OF ASPHALT PAVING WASTES

5.2.4.3.1 Waste Asphalt Emulsion (liquid or semi-solid)

A copy of the DEQ policy – Management of Diesel Fuel and Asphalt Tack/Emulsion Mixtures is located in Appendix I. The policy should be consulted for additional clarification if necessary.

- **Waste emulsion should be recycled by a DEQ registered used oil recycler.** Waste emulsion that is stored and handled according the storage BMPs in this section AND recycled as used oil is classified as an *excluded waste*. Additional guidance on managing used oil is located in Section 5.13 – Oil.
- **IF waste emulsion is not recycled by a used oil recycler, the waste must be characterized (e.g. sampled or assumed hazardous) prior to disposal.** IF the characterization process determines the waste is hazardous, the waste emulsion must be managed as *hazardous waste.*. If waste characterization demonstrates the waste is non-hazardous, the waste should be managed as *solid waste* (i.e. trash). A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.2.4.3.2 Asphalt Coated Absorbent

- **Asphalt coated absorbent materials (e.g. spill pad or sand) should be managed as *solid waste* (i.e. trash).** Petroleum contaminated absorbents can be saturated but not dripping oil. Absorbent should be generously applied to spills and swept up.

5.2.4.3.3 Asphalt and Asphalt Grindings

See Section 5.18.4.3.7 – Asphalt Grindings for the guidance on the storage and disposal of solid asphalt including unwanted fresh hot mix; emulsified asphalt; old asphalt-concrete paving; asphalt grindings (including grindings that may include a striping paint); and off-specification asphalt pavement.

5.2.4.3.4 Empty Containers

See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty containers.

5.2.5 Documentation

Blank copies of EMS paperwork are located online and in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of containers (including portable tanks) that contain asphalt paving materials and paving equipment storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.

- **The generation and disposal of waste asphalt emulsion that is recycled as used oil must be documented on the EMS Waste Generation and Waste Disposal Logs.** Waste asphalt emulsion is categorized as an *excluded waste* IF the waste is managed as used oil AND the storage BMPs have been followed. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **If waste emulsion is not recycled as used oil the waste must be characterized (e.g. sampled or assumed hazardous). The method and result of the characterization must be documented.** If the waste is determined to be hazardous, *hazardous waste* generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.

Section Divider

Section Divider

5.3 AUTOMOTIVE FLUIDS AND PARTS

5.3.1 Purpose

This procedure is intended for the storing, handling, and disposing of automotive fluids and parts. The procedure covers the management of fluids and parts used to repair and maintain ODOT fleet vehicles, equipment, and tools. The procedure also covers wastes resulting from fleet and equipment repair and maintenance.

Automotive fluids include but are not limited to coolants, brake fluids, refrigerants, and non-aerosol penetrants that are routinely used to service equipment and fleet. Parts include parts and filters routinely used for repair and maintenance.

This procedure establishes management requirements for fluids (other than oil and fuel) and parts (other than batteries and tires) that prevent releases to the environment and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for aerosol spray cleaners and degreasers are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for lead acid batteries are located in Section 5.4 – Batteries.
- 🕮 Guidelines for managing fleet and equipment are located in Section 5.9 – Equipment and Fleet.
- 🕮 Guidelines for tires are located in Section 5.9 – Equipment and Fleet
- 🕮 Guidelines for gas and diesel are located in Section 5.11 - Fuel.
- 🕮 Guidelines for new and used oil are located in Section 5.13 – Oil.
- 🕮 Guidelines for solvents and degreasers are located in Section 5.19 – Solvent.

5.3.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee the cleanup actions that result from spills, leaks, storage, and/or disposal of harmful materials.

5.3.3 Alternatives And Pollution Prevention

- Choose non-hazardous (or less hazardous) products where possible. Look for products that are safe for people (e.g. do not produce toxic fumes or irritate skin) and the environment (e.g. break down quickly or do not harm fish).
- Reduce or eliminate the use of c*hlorinated products.* See the Definition of Terms section of this Manual for tips identifying chlorinated products.
- Reduce or eliminate the use of *products that contain asbestos*. Asbestos may be present in gaskets, sealants, brakes, and clutches (old and new). See the Definition of Terms section of this Manual for tips identifying *products that contain asbestos*.
- Increase the use of pumps or non-aerosol products, when available and practical, as a replacement for aerosol products. The use of bulk products may be reduce *hazardous waste* generation, increase cost effectiveness, and conserve resources.
- Purchase recycled, recyclable, or reusable products where opportunities are available.
- Recycle wastes where recycling opportunities are available. Mixing wastes reduces recycling options (e.g. used anti-freeze recyclers may not take anti-freeze mixed with large quantities of oil).

5.3.4 Automotive Fluids and Parts - Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.3.4.1 Storage of Automotive Fluid and Parts

5.3.4.1.1 Storage of Large Containers (30 gallons – 55 gallons)

- **Products should be stored in pre-selected areas that are intended for the storage of automotive fluids.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.

- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.3.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **Containers should be stored on a surface that provides a physical barrier between the container and the soil** (e.g. concrete floor). The surface should be constructed of a material that will not absorb potential spills.

- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.

- **Containers should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.

- **Containers that contain liquids or semi-solids must be in good condition** (e.g. no harmful rust, damage, or leaks).

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- ***Secondary containment* should be provided for containers of liquid and semi-solid products that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.3.4.1.2 Storage of Small Containers (less than 30 gallons)

- **Containers that contain liquids or semi-solids must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.
- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.3.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Flammable/combustible liquids must be kept in a *flammables cabinet* where appropriate.** The maximum storage quantities are listed in Table 2 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 1.

  Secondary containment may be required for flammable/combustible materials below the storage limits. Flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 1.

  The temporary storage of liquids used for building maintenance, painting, or other similar infrequent maintenance purposes is allowed in amounts exceeding the maximum IF the amount does not exceed a 10-day supply at anticipated use rates.

Table 2: Storage Chart for Flammable/combustible Materials		MAXIMUM STORAGE ALLOWED		
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]	Outdoors
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	10 gallons (liquids used for the maintenance or operation of equipment) 25 gallons (other flammable/combustible liquids)	60 gallons	No limit 1,100 gallons adjacent to a building
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*	10 gallons (liquids used for the maintenance or operation of equipment) 120 gallons (other flammable/combustible liquids)	240 gallons	No Limit 1,100 gallons adjacent to a building
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	120 gallons	660 gallons	No Limit 1,100 gallons adjacent to a building

Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

- **Aggregate indoor storage of more than 10 gallons of *flammable/combustible liquid*s used for the maintenance or operation of equipment must be kept in a *flammables cabinet***. Refer to the *SDS* to determine if a product is flammable or combustible. Additional information on flammable/combustible storage is located in Section 1 - Good Housekeeping.
- **If the aggregate storage of *flammable/combustible liquid* in one area is greater than 1,000 gallons all containers must have *secondary containment*.** *Secondary containment* includes, but is not limited to spill pallets, curbs, or berms. Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*.

5.3.4.1.3 Storage of Parts

- **Parts should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Parts should be stored in the original package.**

5.3.4.2 HANDLING AND USE OF AUTOMOTIVE FLUIDS AND PARTS

5.3.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil** (e.g. concrete floor). The surface should be constructed of a material that will not absorb potential spills.
- **Containers must be closed unless adding or removing products or wastes.** Process containers (e.g. drain pan) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater. Containers with valves (e.g. lube line) are considered closed when product cannot escape the container without operating the valve.
- **Drip trays and other collection tools should be emptied periodically** to ensure sufficient collection capacity. Collections tools (e.g. drain boards) may be kept open if the container is actively being used.
- **In-use containers should be stored inside**.
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**. See the Disposal section of this procedure (Section 5.3.4.3) for additional information.
- **Empty drums should be stored in a manner that indicates the drum is empty.** Examples of ways to show the drum is empty include storing the drum sideways with the bungs horizontal, labeling the drum "empty," or keeping the drum in an area signed “empty drums” or similar wording. Refrain from storing drums that previously contained liquids upside-down.

5.3.4.2.2 Changing Coolant, Oil, and Fuel Filters

Refer to Section 5.3.4.3.1 for guidance on the disposal of filters.

- **Filters must be drained (until there are no free liquids) prior to disposal.** Filters may be drained by gravity, punctured, or crushing, as appropriate.
- **Anti-freeze drained from coolant filters should be managed with used anti-freeze.** Refer to Section 5.3.4.3.5 – Disposal of Used Coolant for disposal options. Coolant should be kept out of used oil containers.
- **Oil and fuel drained from filters should be managed as used oil.** Oil recyclers may want waste fuel stored in a separate container. For additional information refer to Section 5.11 – Fuel or Section 5.13 – Oil.

5.3.4.2.3 Servicing Air Conditioning Systems

- **Air conditioning systems must be serviced by EPA-certified technicians according to the manufacturer specifications.** Freon must be handled by operators with EPA air conditioning certification. Servicing includes the removal of refrigerants prior to disposal.
- **Refrigerants must be captured during servicing.** Refrigerants must not be released to the atmosphere.
- **Refrigerants should be recycled and placed back into the air conditioning system.**

5.3.4.2.4 Brake and Clutch Repairs

Work practices to reduce expose to asbestos containing materials are regulated by OSHA and EPA. Contact the Region Safety Officer or consult the ODOT Safety Manual with questions about work practices.

A copy of the EPA pamphlet Current Best Practices for Preventing Asbestos Exposure Among Brake and Clutch Repair Workers and a copy of the OSHA bulletin titled Asbestos-Automotive Brake and Clutch Repair Work are located in Appendix O.

- **Brake and clutch repairs should be completed by ODOT Fleet or a qualified mechanic. The use of chlorinated brake cleaners should be avoided.** Where possible, water-based brake washers or cleaners should be used.
- **Fluids collected during brake repairs should be managed according to BMPs listed in Used Brake Fluid portion of this section.**

5.3.4.2.5 Cleaning Parts

Refer to Section 5.19 for guidance on parts washers and solvents.

5.3.4.2.6 Storage of Used Automotive Fluids and Filters

Refer to the Storage section of this procedure for additional BMPs.

- **Different waste types should be stored in separate containers.** Waste solvent, used oil, and other automotive fluids should be kept out of the used coolant container to the extent practical. Petroleum-based wastes should be managed with used oil. Mixing wastes reduces the opportunity for recycling and may cause the waste to be classified as hazardous. Some coolant recyclers want the different types of coolant to be separated; contact the vendor for specifics.
- **Containers of waste fluids must be clearly labeled to identify the waste being stored** (e.g. "Used Antifreeze" or "Used Oil Filters").
- **Containers must be closed** when wastes are not being added. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.

5.3.4.3 DISPOSAL OF AUTOMOTIVE FLUIDS AND PARTS

5.3.4.3.1 Disposal of Used Filters

- **Filters must be drained prior to disposal.** Refer to Section 5.3.4.2.7 for the storage and disposal of fluid removed from the filters.
- **Drained coolant, oil, and fuel filters should be recycled where practical.** Drained filters should be managed as *solid waste* (i.e. trash) where recycling is not practical. A list of permitted municipal landfills and transfer stations is located in Appendix J.

  Used gasoline fuel filter have been determined hazardous waste; review the documentation expectations in Section 5.3.5. Other types of filters are non-hazardous and waste documentation is not required. The fluids drained from filters (e.g. oil or coolant) may require documentation.
- **Used air filters should be managed as *solid waste*** (i.e. trash).

5.3.4.3.2 Disposal of Brake Pads and Clutch Pads

Mechanics should assume that brake and clutch pad contain asbestos. A person performing vehicle brake and clutch maintenance or repair is exempt asbestos licensing and certification regulations.

Automotive gaskets are exempt from asbestos packaging and disposal requirements provided the waste is non-friable. An asbestos waste is considered friable if the waste can be reduced to small pieces with very little pressure. Automotive parts are typically non-friable; dust is typically friable.

- **Automotive gaskets should be managed as *solid waste* (i.e. trash).** Waste should be double bagged before throwing the bag in the dumpster.
- **Brake and clutch dust and other friable *asbestos-containing* waste must be taken to a landfill that is authorized by DEQ to accept asbestos.** A list of landfills that are authorized to accept asbestos is located in Appendix O.
- **Containers that contain friable asbestos-containing waste must be labeled with the following statement.**

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

- ***Asbestos-containing* wastes must be collected and stored separately in sealed, impermeable containers**; double bagging is recommended. *Asbestos-containing* wastes include, but are not limited to, brake vacuum system filters, used brake pads, cloths used to wipe brake dust, water or solvent solutions that contain brake dust, and absorbent used to collect brake dust or brake cleaner.
- **Brake cores should be returned to the vendor.**

5.3.4.3.3 Disposal of Metal Grindings

- **Metal grindings should be recycled as scrap metal where practical.** Metal grindings that are not recycled should be managed as *solid waste* (i.e. trash).

5.3.4.3.4 Disposal of Used Brake Fluid and Other Petroleum-Based Fluids

- **Waste brake fluid and other petroleum-based fluids should be managed as used oil.** Guidance on the management of used oil is located in Section 5.13 – Oil.
- **Used petroleum-based fluids that are not managed as used oil (i.e. recycled or burned for fuel) must be characterized (e.g. sampled or assumed hazardous) prior to disposal.** The waste must be managed as *hazardous waste*, if characterization determines the waste is hazardous (see bullet in this section on chlorinated wastes for disposal options). If waste characterization demonstrates the waste is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).

  Most disposal companies do not allow the liquids to be thrown in the dumpster. Non-hazardous liquid waste may be mixed with an absorbent (until saturated but not dripping) or placed in a small, closed, container (typically 1 gallon or less). Contact the local disposal company with questions.

5.3.4.3.5 Disposal of Used Coolant

- **Used coolant should be recycled.** Recycled coolant that is managed according to the BMPs in this procedure is classified as an *excluded waste*. The recycling process may take place either onsite or offsite. Additional guidance is available on the DEQ Fact Sheet - Used Antifreeze located in Appendix I.
- **Used coolant that is not recycled (e.g. coolant has been mixed with other wastes such as solvent or oil) must be characterized (e.g. sampled or assumed hazardous) prior to disposal.** The waste must be managed as *hazardous waste*, if characterization determines the waste is hazardous. See the first bullet in Section 5.3.4.3.4 for *hazardous waste* disposal options.

5.3.4.3.6 Management of Used Automotive Parts

- **Parts should be returned to the vendor for core charges,** where appropriate.
- **Non-returnable used metal parts should be recycled with scrap metal** where available.
- **Parts that are not recycled or returned should be managed as *solid waste* (i.e. trash).**

5.3.4.3.7 Disposal of Used Absorbents

- **Absorbent used to cleanup oil and fuel spills should be managed as *solid waste* (i.e. trash).** Absorbents can be saturated but not dripping. Wastes from cleaning petroleum spills should be taken to a permitted municipal landfill or transfer station. A list of permitted waste facilities is located in Appendix J.
- **Absorbent used to cleanup non-hazardous spills (e.g. coolant) should be managed as *solid waste* (i.e. trash).** Absorbents can be saturated but not dripping.

5.3.4.3.8 Empty Drums and Containers

- ***Empty container*s should be managed as *solid waste* (i.e. trash).** Recycling and reuse is recommended where opportunities are available. See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty drums.

5.3.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of containers that contain automotive fluids and automotive fluid storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The generation and disposal of recycled anti-freeze must be documented on the EMS Waste Generation and Waste Disposal Logs.** Waste anti-freeze is categorized as an excluded waste IF the storage BMPs have been followed and the waste is recycled. Records of recycling must be kept onsite. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

- **Waste anti-freeze that is not recycled must be characterized (e.g. sampled or assumed hazardous). The method of characterization and result must be documented.** At a minimum, lab analysis should include TCLP metals and *flashpoint*. If the waste is determined to be hazardous, *hazardous waste* generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.
- **The generation and disposal of brake fluid and other petroleum-based wastes managed as used oil must be documented on the EMS Waste Generation and Waste Disposal Logs.** Used oil is categorized as an *excluded waste* IF the storage BMPs have been followed and the waste is recycled or burned for fuel. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **Used brake fluid and other petroleum-based wastes that are not managed as used oil must be characterized (e.g. sampled or assumed hazardous). The method and result of the characterization must be documented.** At a minimum, lab analysis should include TCLP metals and volatile organic compounds (VOCs). If the waste is determined to be hazardous, *hazardous waste* generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.
- **The generation and disposal of used gasoline fuel filters and other *hazardous waste*s must be documented on the EMS Waste Generation and Waste Disposal Logs.**

  If gasoline fuel filters are changed onsite,

  On the Waste Generation Log

  a. For the Type of Waste, check "hazardous"
  b. For the Method of Characterization, check "lab analysis"
  c. For the Monthly Generation, write “1 pound” in each month that filters are changed onsite (if averaging) or “0.125 pound” for each filter (if counting filters)

  On the Waste Disposal Log once a year

  a. For the Date of Disposal, write "various"
  b. For the Description of Waste, write "gasoline fuel filters"
  c. For the Quantity, write "<8 per month".

     if more than eight filters are changed in a month write 2 pounds on the Waste Generator Log.

  d. Fill in other columns as appropriate.

  Examples are shown in Appendix D.
- **If managing friable *asbestos-containing* waste, contact the asbestos landfill for documentation requirements.** DEQ documentation is not required. EMS documentation is not required. Asbestos waste is currently accepted at the Hillsboro Landfill in Washington County, the Short Mountain Landfill in Lane County, the Brown's Island Landfill in Marion County, Wasco County Landfill in Wasco County, and Coffin Butte Landfill in Benton County.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.

Section Divider

Section Divider

5.4 BATTERIES

5.4.1 Purpose

This procedure is intended for the storing, handling, and disposing of batteries. This procedure covers various types of batteries routinely used by ODOT Maintenance to power equipment, fleet, tools, communication devices, and electronics.

Batteries include non-rechargeable (e.g. alkaline) and rechargeable (e.g. lead-acid, nickel metal hydride, nickel cadmium, and lithium ion) batteries.

This procedure is to establish requirements for managing batteries used by ODOT Maintenance employees to minimize *hazardous waste* generation and to maintain a safe, efficient working environment.

5.4.2 Regulating Agencies

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

5.4.3 Alternatives And Pollution Prevention

- Utilize contracts with vendors that offer batteries recycling. See the Disposal section of this Procedure for recycling opportunities.
- Recycle used batteries where opportunities are available and practical. Most batteries can be recycled; however, some batteries are recycled more readily than others. Recycling prevents the dangerous elements (e.g. lead, mercury, lithium, and cadmium) found in some batteries from entering the environment.
- Consider using solar battery chargers, where practical. Solar battery chargers are available for recharging most battery sizes (e.g. 12 volt to AAA).
- Consider replacing battery operated items with items that have renewable energy sources (e.g. solar, winding, or shaking), where products are available and practical (e.g. radios or flashlights).
- Consider purchasing standard size *rechargeable batteries* with a high capacity rating (i.e. mAh), where available. Batteries with a higher capacity rating typically have more hours (or minutes) of usage between charges. Manufacturers sometimes sell the same brand of batteries, in the same packaging, with different capacity ratings. The best Nickel-Cadmium (NiCd) batteries have about half the capacity of the best Nickel-Metal Hydride (NiMH) batteries.
- Use rechargeable or long-life batteries where practical. *Rechargeable batteries* have a higher initial cost than disposable batteries; however, *rechargeable batteries* can be discharged and recharged many times. Consult Table 6.4-1: Comparison of *Rechargeable batteries*.

  Non-rechargeable batteries may be more practical when charge retention is important (e.g. an emergency flashlight that sits unused for a long time). Typically, *rechargeable batteries* self-discharge quicker than *non-rechargeable batteries* and need to be recharged before use, however slow discharging *rechargeable batteries* are available. Non-rechargeable lithium batteries outlast all *rechargeable batteries* and fully discharged lithium batteries are a recyclable, non-hazardous waste.
- Use low energy equipment, such as LED flashlights where practical to increase battery life.

5.4.4 Batteries – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Where *rechargeable batteries* and chargers are used the battery should meet the manufacturer's recommendations for the device including service life and maintenance**.

5.4.4.1 Storage of New Batteries

Guidelines for the storage of broken or leaking batteries are listed in Section 5.4.4.2.4

- **Batteries should be stored in the original package**, where practical. Some battery information is only located on the package; keeping the package simplifies the identification and management of battery wastes.
- **Batteries should be stored in a manner that protects the function and integrity of the product.** Batteries should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Batteries should be stored in a manner that ensures the terminals of adjoining batteries remain separated.
- **Lead-acid batteries should be stored upright in a pre-selected area intended for battery storage.** The area should be located away from heavy traffic. The storage area should be cool, dry, and protected from the elements. Exposure to freezing temperatures and direct heat sources should be avoided.
- **Lead-acid batteries should be stored on a surface that provides a physical barrier between the battery and the soil.** The surface should be constructed of a material that will not absorb potential spills.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.4.4.2 Handling and Use of Batteries

Guidelines for the storage of broken or leaking batteries are listed in Section 5.4.4.2.4

5.4.4.2.1 *Recharge Dry Cell Batteries*(e.g. nickel metal hydride and lithium-ion)

- ***Rechargeable batteries* that no longer hold a sufficient charge should be managed as *universal waste*** *(i.e. recycled)*.

5.4.4.2.2 Storage of Used Wet Batteries (e.g. lead-acid)

A wet cell battery has a liquid electrolyte (i.e. acid). Wet cells are used in automobile batteries, standby power cells¸ telecommunication, or large uninterruptible power supplies. Sealed wet cell and gel cell batteries should follow these same guidelines.

- **Used lead-acid batteries should be stored upright in designated areas.** Used lead-acid batteries may be stored with new batteries; however, there should be some method of determining new batteries from old batteries. Lead-acid batteries should be stored on a surface that prevents direct contact with the soil.
- **Containment should be provided for lead-acid batteries.**

5.4.4.2.3 Storage of Used Dry Cell Batteries (e.g. alkaline, carbon-zinc, nickel-cadmium, nickel metal hydride, and lithium-ion)

A dry cell has the electrolyte immobilized as a paste, with only enough moisture to allow current to flow. Unlike a wet cell, a dry cell can operate in any orientation without spilling as it contains no free liquid.

- **Containers that hold used batteries should be kept in locations that minimize the risk of damage** (e.g. indoors on a shelf).
- **Batteries should be stored in a manner that ensures the terminals of adjoining batteries remain separate** (e.g. tape terminals or place in a plastic bag)
- **Containers that hold used batteries that will be recycled as *universal waste* must be labeled with the following information.** See Section 2 - Labels and Signs for additional information on labels.
    1. The words "*Universal waste*"
    2. The *accumulation start date*
    3. The words "batteries," "recycled batteries," or "used batteries"
- **Containers that store used batteries must be kept closed when batteries are not being added or removed.** Various battery types may be mixed in one container, however some recyclers may charge extra for sorting.

5.4.4.2.4 Storage of Broken or Leaking Batteries

Many battery chemicals are corrosive, poisonous, or both. The chemicals released from leaks may be dangerous. Both dry and wet cell batteries can leak.

- **Batteries that show signs of leakage must be contained.** The appropriate containment depends on the battery size and could include a sturdy box, a plastic container, or a plastic bag. Leaking batteries should be disposed as soon as practical.
- **Lead-acid spills must be handled by personnel trained to handle lead acid.** Contact the Region HazMat or the Region Safety Manager for assistance.

5.4.4.3 DISPOSAL OF BATTERIES

Non-rechargeable batteries that are not recycled should be managed as *solid waste* (i.e. trash). A list of permitted municipal landfills and transfer stations is located in Appendix J. Information on the disposal of lead-acid batteries collected from ODOT highways or right-of-way is located in Section 5.18.4.3.1 – Litter Including Abandoned Hazardous Waste.

- **Equipment batteries (e.g. large lead-acid batteries and gel cell batteries) should be returned to the vendor for recycling or reclamation.** Vendors are required to accept used lead-acid batteries. Keeping receipts of incoming and outgoing batteries is recommended. Lead-acid batteries are banned from *solid waste* disposal in Oregon. For additional information on material banned from landfills consult the DEQ Fact Sheet – Landfill Bans in Oregon located in Appendix I.
- **Other *rechargeable batteries* (e.g. small lead-acid, nickel-cadmium, lithium ion, and nickel metal hydride) and non-rechargeable mercury or silver-oxide batteries should be sent to a *universal waste* facility for recycling or disposal.** Additional information on managing batteries as *universal waste* is available on the DEQ Fact Sheet – Managing Waste Batteries Under the *Universal waste* Rule. A copy of the Fact Sheet is located in Appendix I.
  - Rechargeable Battery Recycling Corporation (RBRC) offers free recycling of Ni-Cd, Ni-MH, Li-ion and small sealed lead acid (less than 2 pounds) batteries to public agencies. See the RBRC web site (www.rbrc.com) for additional information.
  - Some hazardous waste and solid waste businesses offer universal waste management services in addition to the primary waste service. Contact the businesses directly for more information. A partial list is available on DEQ's website (http://www.deq.state.or.us/lq/hw/uwcollectors.htm)
  - Universal wastes may be accepted at DEQ sponsored household hazardous waste collection events. Additional information is available from the local contact or the DEQ contact. Scheduled events are listed on DEQ's website (http://www.deq.state.or.us/lq/sw/hhw/events.htm)
  - Some county waste collection facilities are authorized by DEQ to accept *universal waste*. Contact the local facility to determine if batteries are accepted. A list of county collection facilities is located on the DEQ website https://www.oregon.gov/DEQ/Hazards-and-Cleanup/hw/Pages/HHW-events.aspx
- ***Universal waste* should be removed from the site at least annually.** Accumulation may be longer than one year if additional time is needed to ensure proper disposal so long as the containers or items are properly labeled with the accumulation start date.
- **Rechargeable batteries that are not recycled or returned to a vendor for reclamation must be managed as *hazardous waste*.** The generation of *hazardous waste* counts toward the facility's *Hazardous waste* Generator status. A facility must generate less than 220 pounds of *hazardous waste* each month in a calendar year to maintain a *Very Small Quantity Generator* status. An average auto battery weighs 35 to 60 pounds.

5.4.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of battery storage areas.** A blank copy of the Field Audit is located in Appendix B.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The generation of *universal waste* batteries must be documented on the EMS Waste Generation Log.** Generation is counted when the battery is determined unusable. If batteries are managed as *universal waste*, the weight of the batteries does not count toward the facility's *hazardous waste* generator status. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

  The generation and disposal of non-hazardous batteries (e.g. alkaline) does not have to be documented. Equipment batteries returned to the vendor for reclamation do not have to be documented. Rechargeable batteries picked up by the radio tech for recycling HAVE to be tracked.
- **The generation of *hazardous waste* batteries (i.e. rechargeable batteries that are not recycled or returned to vendor) must be documented on the EMS Waste Generation Log.** If batteries are managed as *hazardous waste*, the weight of the batteries counts toward the facility's *hazardous waste* generator status. A facility must generate less than 220 pounds of *hazardous waste* each month in a calendar year to maintain a *Very Small Quantity Generator* status. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E. An average auto battery weighs 35 to 60 pounds.
- **The disposal of *universal waste* batteries and *hazardous waste* batteries must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. batteries are taken to county waste facility or picked up by a waste disposal company). The documentation must include where the waste went and the method of disposal (e.g. recycled or incineration). A blank copy of the Waste Disposal Log is located in Appendix B.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.

  Lead acid batteries are reportable if 500 pounds or more of a category (wet, gel, or used) is stored onsite. Lead acid batteries that are in use (i.e. powering fleet or equipment) and dry cell batteries are not reportable. Lead acid batteries are not fee-exempt. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards. The reportable quantity for battery acid is 1,000 pounds or 143 gallons (to the ground) or any amount to a waterbody.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.5 CLEANING PRODUCTS

5.5.1 Purpose

This procedure is intended for the storing, handling, and disposing of cleaning products. This procedure covers various types of cleaning products used by ODOT Maintenance employees in the operation and maintenance of equipment and facilities.

Cleaning products include, but are not limited to cleaners, disinfectants, detergents, abrasives, sanitizers, softeners, polishes, soaps, bleach, ammonia, citrus degreaser, drain opener, glass wipe, hand cleaner, and car wash. Cleaning products are intended for odor, dirt, and dust.

This procedure establishes management requirements for ODOT Cleaning Products that minimize *hazardous waste* generation, and encourage a safe, neat working environment. Other relevant procedures include:

- 🕮 Guidelines for aerosol cleaning products are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for steam cleaners and pressure washers are located in Section 5.9 – Equipment and Fleet.
- 🕮 Guidelines for equipment washing and wash water are located in Section 5.9 – Equipment and Fleet.
- 🕮 Guidelines for antimicrobial cleaners are located in Section 5.16 – Pesticides.
- 🕮 Guidelines for solvents and other industrial degreasers (used to remove residue from parts and tools) are located in Section 5.19 – Solvent.

5.5.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee the cleanup actions that result from spills, leaks, storage, and/or disposal of harmful materials.

5.5.3 Alternatives And Pollution Prevention

- Choose pump or non-aerosol cleaning products, when available and practical, to replace aerosol products. The use of bulk products may reduce *hazardous waste* generation, increase cost effectiveness, and conserve resources.
- Choose non-hazardous (or less hazardous) cleaning products where possible. Look for products that are labeled non-toxic, phosphate free, or biodegradable. For example water-based, organic, soy, and citrus cleaners are preferred over toluene or petroleum-based cleaners. Avoid dangerous cleaning products such as *corrosive* drain cleaners, oven cleaners, and acidic toilet bowl cleaners.

  EPA allows products that meet stringent screening and testing requirements to carry the Design for the Environment (DfE) label. This mark allows consumers to quickly identify and choose safe products that can help protect the environment. EPA maintains a list DfE products on the EPA web site. http://www.epa.gov/dfe/pubs/projects/formulat/formparti.htm

  Antimicrobial cleaners and disinfectants that contain substances used to destroy or suppress the growth of harmful microorganisms (i.e. bacteria, viruses, or fungi) on inanimate objects and surfaces are regulated by the EPA as pesticides.
- Minimize the use of ammonia. Ammonia fumes can pose an immediate hazard to the lungs and skin. Ammonia can cause even greater damage if mixed with chlorine bleach (or cleaners containing bleach). Ammonia fumes also react with nitrates in the environment that can linger in dust.

- Recycle empty plastic containers where opportunities are available and practical. High-density polyethylene (HDPE, denoted by the #2 inside the recycling triangle) and polyethylene terephthalate (PETE, #1) are accepted for recycling in a growing number of communities. Avoid polyvinyl chloride (PVC, #3) containers. PVC is made from cancer-causing chemicals such as vinyl chloride and forms dioxin (a carcinogen) during production and incineration. There are fewer opportunities for PVC recycling.

5.5.4 Cleaning Products – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. all-purpose sorbent). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.5.4.1 Storage of Cleaning Products

5.5.4.1.1 Storage of Large Containers (30 gallons – 55 gallons)

- **Products should be stored in pre-selected areas intended for the storage of cleaning products.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.

- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.5.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.

- **Containers should be stored on a surface that provides a physical barrier between the container and the soil.** The surface should be constructed of a material that will not absorb potential spills.

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Containers should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- ***Secondary containment* should be provided for containers of liquid and semi-solid products that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.
- ***Incompatible products* should be stored away from each other (e.g. store bleach away from ammonia).** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.5.4.2 HANDLING AND USE OF CLEANING PRODUCTS

- **Mixing *incompatible products* must be avoided.** DO NOT COMBINE cleaning products that have the potential for creating toxic gases. For example, emptying a diluted ammonia solution (e.g. bucket of water with ammonia) into a sink, followed by a sponge full of bleach, can produce enough chlorine gas to be dangerous. The following cleaning products are known to be incompatible. Refer to the *SDS* for specific information.
  - Chlorine bleach with ammonia
  - Chlorine bleach with acids (commonly used in toilet bowl cleaners)
  - Ammonia with lye (in some battery terminal cleaners)
  - Two different drain cleaners
  - Some disinfectants with detergents
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.

5.5.4.3 DISPOSAL OF CLEANING PRODUCTS

Antimicrobial cleaners and some disinfectants are regulated as pesticide by EPA, see Section 5.16– Pesticides for disposal options.

- ***Empty containers* should be recycled where opportunities are available and practical.** Where recycling is not practical, the containers should be managed as *solid waste* (i.e. trash). A list of permitted municipal landfills and transfer stations is located in Appendix J.

- **Cleaners should be managed as a product** (instead of a waste). Full containers of unwanted cleaners should be returned to the vendor or transferred to another ODOT crew who can use the cleaner. Where appropriate obtain approval prior to transferring products.
- **Cleaners that cannot be used, returned, or transferred must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.** See Appendix D for additional information on waste characterization.
- **If characterization demonstrates the waste is hazardous one of the following disposal options must be used.**
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the waste is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Landfills will not take liquids and semi-solids unless the waste is inside a closed container. Non-hazardous liquids may be mixed with an absorbent to assist disposal.
- **Absorbents that have been used to clean up non-hazardous products or wastes should be disposed of a *solid waste*.**

5.5.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain cleaning products.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **Cleaners that cannot be used, returned, or transferred must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal. The method and result of the characterization must be documented.** If the waste is determined to be hazardous, waste generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs. Additional information on waste characterization and documentation is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.6 COMPRESSED GAS

5.6.1 Purpose

This procedure is intended for the storing, handling, and disposing of compressed gas. This procedure covers the management of various types of compressed gas that are routinely used by ODOT Maintenance employees for air-powered tools, welding, fuel, or emergency fire suppression.

Compressed gases include, but are not limited to, acetylene, argon, butane, carbon dioxide, MAPP gas, nitrogen, oxygen, and compressed air. Some fire extinguishers are also considered compressed gas.

This procedure establishes management requirements for ODOT compressed gases that protect the environment, minimize incidents (leaks), and encourage a safe, efficient working environment. Other relevant procedures include:

📖 Guidelines for propane and other liquid petroleum gases are located in Section 5.17 – Propane.

5.6.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

The Oregon State Fire Marshal's Office regulates the storage of compressed gases and flammable/combustible materials.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.6.3 Alternatives And Pollution Prevention

- Return compressed gas cylinders to vendor where possible.
- Use refillable containers instead of disposable where opportunities are available.

5.6.4 Compressed Gas – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

5.6.4.1 STORAGE OF COMPRESSED GAS

- **Compressed gas cylinders must be visually inspected for obvious leaks before being accepted from the shipper.** The visual inspection should check for cracks, bulges, defective valves or pressure relief devices, evidence of physical abuse, evidence of fire or heat damage, and deep rusting or corrosion. Leaking cylinders must be refused and returned to the shipper.
- **Compressed gas cylinders must be clearly labeled with the chemical or trade name.** Labels must be visible from any angle of approach. The identification should be located on the shoulder of the cylinder. Unmarked cylinders must be returned to the vendor.

- **Areas used to store compressed gas must meet the following conditions.**
  - Be secured against unauthorized entry
  - Protect the container from vehicular damage
  - Allow for upright storage (valve end up)
  - Prevent direct contact with the soil or unimproved surface
  - Be sloped to prevent water from pooling in the storage area

- ***Flammable gas*es (e.g. acetylene, hydrogen, MAPP®, and butane) must be stored away from flame, ignition sources, and areas where electrical sparks are generated.** Storage areas for *flammable gas*es should be well ventilated and free of highly combustible materials.

- **Incompatible gases must be stored in a separate locations** (e.g. acetylene away from oxygen)**.** A minimum of 20 feet (or a 1-hour firewall) must be kept between *flammable gas* cylinders and oxidizers (e.g. oxygen or compressed air) cylinders. Inert gases (e.g. argon, carbon dioxide, or nitrogen) will not react with other materials.

- **Cylinders must be secured** to prevent falling caused by contact, vibration, or seismic activity by using one of the following methods.
  - Secure to a fixed object (e.g. a building) with one or more restraints
  - Secure to cart designed for moving compressed gas containers
  - Secure to other cylinders, wall, or bracing using a tight, three-point contact system.
  - Secure to, or place within, a rack or frame

- **Empty cylinders should be stored separately from full cylinders.**

5.6.4.2 HANDLING AND USE OF COMPRESSED GAS

Refer to the ODOT Safety Standard (STD96001) for additional information on the handling of compressed gas. As a general rule cylinders with an attached regulator is considered in-use and capped cylinders are considered stored (or not in-use).

- **Operators must be trained in the use of compressed gases when required.** Product specific training is not required for compressed air operators.
- **Compressed gas cylinders should be visually inspected for obvious leaks prior to use.** The visual inspection should check for cracks, bulges, defective valves or pressure relief devices, evidence of physical abuse, evidence of fire or heat damage, and rusting or corrosion. A leak detection solution should be used to verify suspected leaks.
- **Leaking, damaged, or corroded cylinders must be removed from service.** The fire department or the vendor should be contacted if compressed gas cylinders are damaged, but not leaking. Emergency services (911) should be contacted if a compressed gas cylinder is leaking. Damaged containers may be placed back into service, if repaired. Damaged cylinders must be repaired by the vendor or manufacturer.
- **Standard combinations of valves and fittings should be used.** Regulators are gas specific and are not interchangeable. Threads on valves, regulators, and other fittings should be examined to ensure the apparatus is undamaged and is suited for the gas.
- **Valves must be protected from physical damage (e.g. have a protective cap or collar).** The protective device must be in-place except when the container is in-use or being serviced.
- **The valves, including valves on empty compressed gas cylinders, must be kept closed** unless the gas is being used. Valve assemblies should be accessible. For cylinders equipped with a stem valve, the valve spindle key should remain on the cylinder. Only wrenches or tools provided by the gas supplier should be used to open and close valve.
- **The surfaces of oxygen cylinders must be kept free of oil and grease.** The surfaces of other compressed gas cylinders should be kept free of oil and grease.
- **When the cylinder is empty, the valve should be closed, the distribution system bled, and the regulator removed.**
- **The cylinders should be marked to visually identify empty cylinders from full cylinders** (e.g. area signage, collar tags, or collar rings).
- **Refillable compressed gas cylinders must be filled by a Compressed Gas Association (CGA) certified vendor.**
- **Empty non-refillable compressed gas cylinders must be managed as waste (see the Disposal part of this Procedure)**; the cylinder may not be refilled.

5.6.4.3 DISPOSAL OF COMPRESSED GAS

- **Compressed gas cylinders should be returned to the vendor for reuse, recycling, or disposal where available.** Empty cylinders still contain gas. Compressed gas cylinders returned to the vendor do not have to be tracked on the EMS Waste Logs.
- **Cylinders that cannot be returned to the vendor and empty non-refillable cylinders (e.g. butane) must be managed as *hazardous waste* using one of the following disposal options.**
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*
  - Completely empty non-refillable cylinders may be thrown in the trash (if the yard is a *CEG* and the generation and disposal are documented).
    - WARNING: Residual gas is present in empty cylinders. Cylinders that are thrown in the trash could cause damage or injury.

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.

5.6.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain compressed gas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The generation and disposal of *hazardous waste*s (e.g. cylinders not returned to the vendor) must be documented on the EMS Waste Generation and Waste Disposal Logs.** Cylinders returned to the vendor do not have to be recorded. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.

  Compressed gas cylinders vary in size and capacity. The tables on the next page may be used to help determine when a gas is reportable to the Fire Marshal.

High Pressure Cylinders			
Approximate capacity cubic feet (ft^3)	Outside diameter inches	Approximate Height inches	Common Letter Codes
300 - 335	9	55 - 58	T; L; A
200 - 277	9 - 9.25	51 - 55	K; H; G; B
150	7	47	P; S
125	7	42 - 43	M
80 - 84	7	31 - 33	Q; C
60 - 65	7 - 7.5	23 - 24	X; R
35 - 40	6.75 - 7	17.5 - 19	Y; G; D1
20	5 - 5.25	14 - 15	R; F; D; T

Acetylene Cylinders			
Approximate capacity cubic feet (ft^3)	Outside diameter inches	Approximate Height inches	Common Codes
300 - 340	12	41 - 42	L; 5
200 - 250	10	38	L; 4.5
100 - 140	8 - 8.5	30 – 34	M
65 - 75	7	26 - 26.5	Q; 3
40	6	19.5 - 20	T; B
10	4	13	D; MC

Section Divider

Section Divider

5.7 ELECTRONIC EQUIPMENT AND COMPUTERS

5.7.1 Purpose

This procedure is intended for the storing, handling, and disposing of electronic equipment and computers. This procedure covers various types of electronic equipment and computers used by ODOT Maintenance employees in the course of day-to-day business.

Electronic equipment includes, but is not limited to, computers, monitors, keyboards, printers, radios, televisions, cell telephones, calculators, fax machines, and copiers.

This procedure establishes management requirements for ODOT owned electronic equipment and computers located at *Maintenance yard*s to minimize *hazardous waste* generation, and encourage a safe, efficient working environment. Other relevant procedures include:

📖 Guidelines for batteries are located in Section 5.4 – Batteries.

5.7.2 Regulating Agencies

EPA and DEQ regulate the disposal of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

ODOT regulates the procurement and management of information technology through the ODOT Information Technology Asset Management Policy (SUP 03-02).

ODOT regulates the disposal of surplus property through the ODOT Disposal of State Owned Property Policy and Procedure (SUP 09-01 and SUP 09-02 respectively).

DEQ regulates electronic recycling (ORS 459A.300-.365)

5.7.3 Alternatives And Pollution Prevention

- Purchase recyclable electronics. Oregon law prohibits retailers from selling certain electronics unless the electronics are purchased from manufacturers who comply with the Oregon Electronics Recycling law. Additional recycling information is available from electronics manufacturers.
- Transfer usable electronic equipment (that is not included in ODOT's Fixed Asset Program) to ODOT Surplus Property for resale or redistribution. Contact ODOT Surplus Property before transferring equipment.

5.7.4 Electronic Equipment And Computers - Best Management Practices

5.7.4.1 STORAGE OF ELECTRONIC EQUIPMENT AND COMPUTERS

- **Electronics should be stored in a manner that protects the function and integrity of the product.** Electronics should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Storage areas should be high and dry.
- **IT and other inventoried assets requiring asset tags must be properly tracked in accordance with ODOT's asset financial standards.**
- **Unwanted electronics should be stored indoors in a manner that prevents breakage**

5.7.4.2 HANDLING AND USE OF ELECTRONIC EQUIPMENT AND COMPUTERS

This section is intentionally blank. ODOT IS provides guidance on the handling and use of electronics.

5.7.4.3 DISPOSAL OF ELECTRONIC EQUIPMENT AND COMPUTERS

Electronic waste (e-waste) is banned from Oregon landfills. DAS Statewide Policy 107-011-050PR (effective 03/09/2017) describes e-waste as: 1. Obsolete or non-working electronic equipment and electronics that have memory that could contain sensitive or confidential data. Examples: information technology equipment, televisions, copiers, facsimile machines, medical equipment, telephones, radios, electronic test equipment, etc. 2. Other equipment that is primarily made of circuit boards, CRT monitors, plasma monitors, and liquid crystal displays.

- **E-waste disposal must comply with ODOT polices regarding information technology asset management and disposal of state owned property.**
- **The disposal and transfer of inventoried assets must be coordinated with ODOT Surplus Property.** Desktop, laptops, and other personal computer devices are tagged and inventoried regardless of the total acquisition cost. Refer to ODOT Financial Administration & Standards Manual Number 5.3.1 – Transfer of Inventoried Assets and Number 5.9 – Disposal and/or Removal of Inventoried Assets.
- **IT and other inventoried assets must be accompanied by a completed and signed Transfer of Property Form when transferred to another crew** (e.g. organizational change, asset on loan, or location change).
- **E-waste must be sent to a DEQ certified Oregon E-cycle collection site or ODOT Surplus Property for sorting and disposal.** ODOT Surplus Property will accept any electronics that cannot be disposed of locally. Oregon E-Cycles provides free recycling of computers (desktops and laptops - including tablets), monitors, TV, printers and peripherals (keyboard and mice). A searchable list of certified recyclers and drop off locations is posted on DEQ website. https://www.deq.state.or.us/ecsearch/Default.aspx

5.7.5 Documentation

- **EMS documentation is not required for electronic wastes that are transferred to Surplus Property, given to an authorized e-waste recycler, or transferred to another ODOT crew.**
- **Forms required by the ODOT Fixed Asset System (including Transfer of Property Forms) must be completed as specified in the ODOT Financial Administration & Standards Manual**. A Transfer of Property form is required when transferring any equipment to ODOT Surplus Property. An original five-part Transfer of Property form must be used; facsimiles are not acceptable. Original forms may be obtained from the Storeroom. Refer to the ODOT Financial Services web site (intranet.odot.state.or.us/fsb/) for additional information.

Section Divider

Section Divider

5.8 EPOXY

5.8.1 Purpose

This procedure is intended for the storing, handling, and disposing of epoxy and epoxy-like products. The procedure covers epoxies used by ODOT Maintenance employees to maintain or repair highways, facilities, equipment, and tools.

Epoxy includes, but is not limited to, adhesive, caulk, fiberglass, filler, glue, grout, mortar, polymer, resin, rubber cement, sealant, silicone, and urethane.

This procedure establishes management requirements for epoxy that prevent releases to the environment and encourage a safe, efficient working environment.

5.8.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee the cleanup actions that result from spills, leaks, storage, and/or disposal of harmful materials.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

The Oregon State Fire Marshal's Office regulates the storage of flammable/combustible materials.

5.8.3 Alternatives And Pollution Prevention

- Reduce or eliminate the use of *products that contain asbestos*.
- Choose non-hazardous (or less hazardous) epoxies, adhesives, and sealants where possible. Look for products that are labeled non-toxic. When less hazardous products are unavailable limit personal exposure to vapors and fumes (refer to the ODOT Safety Manual).

5.8.4 Epoxy - Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.8.4.1 STORAGE OF NEW EPOXY

5.8.4.1.1 Storage of Large Containers (30 gallons – 55 gallons)

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Flammable/combustible liquids must be kept in a *flammables cabinet* or liquid storage room where appropriate.** The maximum storage quantities are listed in Table 1 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 1.

  Secondary containment may be required for flammable/combustible materials below the storage limits. Flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 2.

  The temporary storage of liquids used for building maintenance, painting, or other similar infrequent maintenance purposes is allowed in amounts exceeding the maximum IF the amount does not exceed a 10-day supply at anticipated use rates.

Table 1: Storage Chart for Flammable/combustible Materials		MAXIMUM STORAGE ALLOWED		
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]	Outdoors
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	10 gallons (liquids used for the maintenance or operation of equipment) 25 gallons (other flammable/combustible liquids)	60 gallons	No limit 1,100 gallons adjacent to a building
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*	10 gallons (liquids used for the maintenance or operation of equipment) 120 gallons (other flammable/combustible liquids)	240 gallons	No Limit 1,100 gallons adjacent to a building
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	120 gallons	660 gallons	No Limit 1,100 gallons adjacent to a building

Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

- **Original and *secondary containers* must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.9.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **Containers should be stored in a manner that protects the function and integrity of the product.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Containers should be stored on a surface that provides a physical barrier between the container and the soil** (e.g. concrete floor). The surface should be constructed of a material that will not absorb potential spills.
- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Containers should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers that contain liquids or semi-solids must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- ***Secondary containment* must be provided for flammable/combustible materials when required.** A flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 2 (below) for limits. Refer to Section 1.6 for additional information on secondary containment.

Table 2: Secondary Containment Chart for Flammable/combustible Materials		*SECONDARY CONTAINMENT* REQUIRED	
		Indoor area	Outdoors or liquid storage room
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a flammables cabinet. containers larger than 55 gallons	All containers if the aggregate liquid storage is more than1,000 gallons All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*		
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	containers larger than 55 gallons	

- ***Secondary containment* should be provided for containers of liquid and semi-solid products that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.

- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.8.4.1.2 Storage of Small Containers (less than 30 gallons)

- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.8.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.
- **Flammable/combustible liquids must be kept in a *flammables cabinet* where appropriate. (See Tables 1 and 2 in Section 5.8.4.1.1).** Refer to the *SDS* to determine if a product is flammable or combustible. Additional information on flammable/combustible storage is located in Section 1 - Good Housekeeping.

5.8.4.1.3 Storage of Dry and/or Granular Products

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Storage areas should be high and dry.
- **Dry products (e.g. powder or granular) should be stored away from liquids.**

5.8.4.2 HANDLING AND USE OF EPOXY

5.8.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **In-use containers and product transfers should be handled in a manner that prevents spills** (e.g. use absorbent pads). Containers, including bags, should be handled so that tears, bursts, and punctures are minimized.
- **Containers must be stored closed.** Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **In-use containers should be stored indoors where practical.**

- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**, see the Disposal section of this procedure.
- **Empty drums should be stored in a manner that indicates the drum is empty.** Examples of ways to show the drum is empty include storing the drum sideways with the bungs horizontal, labeling the drum "empty," or keeping the drum in an area signed “empty drums” or similar wording. Refrain from storing drums that previously contained liquids upside-down.

5.8.4.2.2 Mixing and Loading

Refer to the ODOT Safety Standards or contact the Region Safety Manager with safe handling questions.

- **Mixing and loading areas should be sited away from stormdrains and waterbodies,** where practical based on site constraints. Mixing and loading areas should be operated so that spills, overfills, and leaks stay out of nearby waterbodies, stormdrains, soil, or adjacent properties.

5.8.4.2.3 Cleaning Epoxy Applicators and Tools

Refer to the Section 5.9 – Equipment and Fleet for guidance on equipment washing.

- **Equipment cleaning areas should be located away from floor drains, stormwater conveyances, and waterbodies where practical based on site constraints.** Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Disposable tubes and tips should be removed from epoxy application equipment and managed as *solid waste* (i.e. trash).**
- **Wastes from equipment cleaning should be captured and contained.** If solvent is used to clean application equipment refer to the guidelines in Section 5.19 – Solvent for the management of solvent containing waste.
- **Waste containers must be closed.** Process containers (e.g. paint trays) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **Labels on containers of waste must identify the contents (e.g. old epoxy) and hazard information** (if any)**.** Labels must be intact, visible, and legible. The words “hazardous waste” and an accumulation start date must be included on containers of hazardous waste. Refer to Section 2 - Labels and Signs for guidance on labeling.

5.8.4.3 DISPOSAL OF EPOXY

5.8.4.3.1 Disposal of Waste Epoxy

- **Disposable epoxy application equipment (e.g. tube or tips) should be managed as *solid waste* (i.e. trash).**
- **Hardened epoxy should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

  Unusable epoxy may not be intentionally hardened to create a *solid waste* unless the epoxy (or both parts of a two part epoxy) is known to be non-hazardous. Equipment cleaning waste that hardens as part of the cleaning process may be managed as solid waste.
- **Outdated, unusable, or unwanted liquid and semi-solid epoxies must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.**

- **If characterization demonstrates the waste is hazardous, one of the following disposal options must be used.**
  - — Picked up by a licensed *hazardous waste* management company, OR
  - — Taken to a local *household hazardous waste* event or facility if available. Local options vary. some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - o DEQ sponsored *household hazardous waste* collection event
    - o County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the liquid or semi-solid waste is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Landfills will not take liquids and semi-solids unless the waste is inside a closed container. Waste may be mixed or hardened to form a solid before landfill disposal. Intentionally mixing epoxy to form a solid is only allowed if the epoxy (or both parts of a two-part epoxy) is known to be non-hazardous.

5.8.4.3.2 Empty Containers

- ***Empty containers* should be managed as *solid waste* (i.e. trash).** Recycling and reuse is recommended where opportunities are available. See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty drums.

5.8.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain epoxy products and wastes.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information is located in Appendix C.
- **Liquid and semi-solid epoxy wastes must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal. The method and result of the characterization must be documented.** If the waste is determined to be hazardous, waste generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs. Additional information on waste characterizing and the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spills* that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.9 EQUIPMENT AND FLEET

5.9.1 Purpose

This procedure is intended for the storing, repairing, and disposing of equipment and fleet. This procedure covers fleet vehicles, fleet equipment, and small combustion engine equipment and tools that are parked, stored, or repaired at ODOT Maintenance Yards for use in highway maintenance. Guidelines for the management of activity specific equipment (such as pesticide spray trucks) are listed under the product procedure.

Equipment and fleet includes, but is not limited to, light fleet, heavy fleet, boats, off-highway vehicles (OHVs), all-terrain vehicles (ATVs), blowers, chippers, forklifts, sweepers, mowers, chain saws, trimmers, pressure washers, steam cleaners, variable message boards, and portable generators.

This procedure is to establish requirements for managing equipment and fleet used by ODOT Maintenance employees to prevent fluid releases to the environment and to maintain a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for truck-mounted tanks are located in Section 3 – Tanks.
- 🕮 Guidelines for automotive fluids are located in Section 5.3 – Automotive Fluids and Parts.
- 🕮 Guidelines for lead-acid batteries are located in Section 5.4 – Batteries.
- 🕮 Guidelines for wash soaps and cleaners are located in Section 5.5 – Cleaning Products
- 🕮 Guidelines for gas and diesel are located in Section 5.11 - Fuel.
- 🕮 Guidelines for oil are located in Section 5.13 – Oil.
- 🕮 Guidelines for pesticide application equipment is located in Section 5.16 – Pesticide.
- 🕮 Guidelines for propane-fueled equipment are located in Section 5.17 - Propane.
- 🕮 Guidelines for parts washers are located in Section 5.19 – Solvent.
- 🕮 Guidelines for tanks used to store water collected from washing salt application equipment are located in Section 5.21 – Winter Maintenance.

5.9.2 Regulating Agencies

ODOT provides management direction on the acquisition, operation, and disposal of fleet through the ODOT Fleet Management Policy (MAI 07).

ODOT regulates the disposal of surplus property through the ODOT Disposal of State Owned Property Policy and Procedure (SUP 09-01 and SUP 09-02 respectively).

DEQ regulates the disposal of vehicle wash water to the ground and/or waterbodies.

5.9.3 Alternatives And Pollution Prevention

- Perform preventative maintenance to extend the life of the equipment. Preventative maintenance includes periodic scheduled services and inspections aimed at preventing potential breakdowns, maintaining the equipment in safe and efficient operating condition, and detecting the need for major repairs.
- Connect vehicle wash structures to municipal sanitary sewers or use no discharge methods (e.g. evaporation) to eliminate the need for DEQ permits and reduce potential impacts to the environment.
- Wash equipment and fleet at ODOT wash stations that are connected to sanitary sewer or a closed loop system, where practical and available. Where ODOT wash stations are not available consider washing at commercial wash stations.

- Minimize the use of cleaning products that contain surfactants or "wetting agents." Surfactants are added to some detergents, disinfectants, stain removers, and citrus cleaner/degreasers. Many surfactants biodegrade slowly or biodegrade to more toxic and persistent chemicals which threaten aquatic life. **Surfactants may reduce the effectiveness of oil/water separators and other water treatment devices.**

5.9.4 Equipment And Fleet – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively.
- **The storing, handling, and disposing of equipment and fleet must comply with the ODOT Fleet Management Policy and Fleet Manual.**

5.9.4.1 STORAGE OF EQUIPMENT AND FLEET

5.9.4.1.1 Parking of Operational Equipment and Fleet (daily use)

- **In-use equipment and fleet should be kept in pre-selected indoor or outdoor parking areas.** Where practical based on site constraints, parking areas should be located on paved surfaces away from stormdrains and waterbodies. Where practical and available parking areas should be located in areas that are unlikely to flood.

5.9.4.1.2 Seasonal Storage of Equipment and Fleet

- **Seasonal equipment and fleet, that are not currently in-use, should be stored in pre-selected parking areas that meet the operational needs of the yard.** Covered storage areas are recommended for off-season storage of vehicles with operational fluids.
- **Equipment and fleet (with operational fluids) should be parked away from floor drains, stormwater conveyances, and waterbodies where practical based on site constraints.** Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Vehicles that are used seasonally should be stored according to manufacturer or Fleet Services recommendations during the off-season.** Contact Fleet Services with questions. Refer to product specific procedures for the storage and disposal of operating fluids removed from seasonally stored equipment.

5.9.4.1.3 Storage of Damaged Vehicles (including OSP impounds)

- **Damaged vehicles that are brought onsite or discovered onsite should be inspected for leaks and drips as soon as possible.** Use drip pans, plastic sheeting, or booms, as needed, to keep vehicle fluids from seeping into the ground or flowing into stormwater conveyances and waterbodies. The employee who accepts the vehicle is responsible for completing a preliminary leak inspection and placing leak capture devices where needed.
- **Where appropriate (based on Fleet Services recommendations), engine and transmission fluids should be drained from damaged or wrecked vehicles.** Drip pans should be placed under the vehicle for several days to collect remaining fluids. Refer to product specific procedures for the storage and disposal of operating fluids removed from damaged or wreaked vehicles.

5.9.4.1.4 Storage of Power Tools (e.g. chain saw or push mower)

- **Power tools should be stored in pre-selected areas that are protected from the weather or other damaging elements.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containment systems or drip pads should be used where necessary to keep leaks and drips out of floor drains.**

5.9.4.2 HANDLING AND USE OF EQUIPMENT AND FLEET

5.9.4.2.1 Preventative Maintenance

- **Periodic services and inspections must be performed.** Refer to the Fleet Service Manual or owner manual for frequency.
- **Annual inspections of fleet and equipment with a fleet equipment number should be coordinated with ODOT Fleet Services.**

5.9.4.2.2 Handling of Power Tools

- **Power tools should be visually inspected for deterioration and leaks prior to use.**

5.9.4.2.3 Routine Maintenance and In-House Repairs

- **Employees performing repair activities should be qualified to perform equipment repair.** Equipment repair activities include the management of automotive fluids and spill response//spill cleanup procedures.
- **Leaks should be stopped and contained where possible.** The ODOT *First Responder Guide* to Highway Incident Response should be consulted for response actions outside the training of the responding employee or if the spill is gasoline. Fluids from damaged equipment should be transferred into suitable containers and clearly label the container.
- **If repair activities are conducted outdoors fluids must be kept out of waterbodies, stormdrains, and soil.** Repair activities should be completed indoors where practical.
- **If repairs are conducted in areas that are likely to flood secondary containment should be installed to ensure fluids stay out of waterbodies.** Repair work should be performed above areas that are likely to flood whenever possible.
- **Absorbent pads, drip pans, drain boards, or drying racks should be used to collect fluids** where appropriate. Containers should be handled carefully so that spills, bursts, and punctures are minimized. Refer to product specific procedures for the storage and disposal of oil, operating fluids, and parts.
- **Drip trays and other collection tools should be emptied periodically** to ensure sufficient collection capacity. Collections tools (e.g. drain boards) may be kept open if the container is actively in use.
- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.
- **Repair and equipment maintenance should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.
- **Spill reporting policies and documentation must be followed.** OERS and National Response Center must be notified of all *reportable spill*s. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

  The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills.

5.9.4.2.4 Storage of Used Tires from ODOT Fleet

- **Used tire storage must be limited to 100 tires or fewer at a single location**. Partial tires and pieces of tires (i.e. scrap rubber) are not included in the 100-tire storage limit. Refer to Section 5.18 – Roadwaste for guidance on the management of scrap rubber.

5.9.4.2.5 Fleet and Equipment Washing

Refer to Section 5.18 – Roadwaste for the disposal of solids and sludges collected from washing equipment. The solids may contain contaminants (e.g. oil) or wastes (e.g. litter) in addition to dirt.

Guidance for cleaning activity specific equipment (e.g. pesticide application trucks) is listed under the procedure for the product.

- **Washing should occur in pre-selected areas that are intended for washing fleet and equipment.** Wash areas should be sited away from repair areas and chemical storage. Equipment maintenance and repairs should occur away from wash areas. Refer to Table 5.9-1 for information about washing activities allowed in a variety of wash area.
- **Wash water should be directed to a municipal sanitary system where possible.** New connections to municipal systems should be coordinated with Facilities Management. Written agreements may be required. Local sewage agencies often require the removal of oil, grease, and sediment prior to accepting wash water. BMPs for the maintenance of water treatment system are located under Section 4 – Drainage and Water Quality.
- **In locations where municipal sanitary connections are unavailable wash water should be kept onsite** where possible. When washing seven vehicles or less per week, infiltrating the wash water is preferred. When washing eight vehicles or more per week, no-discharge methods such as recycling or evaporation are preferred. Depending on site conditions, evaporation may consist of a commercial evaporator or evaporation off a paved surface.
- **Where practical equipment and fleet should be washed in a manner that is allowed without a DEQ permit.** Refer to Table 5.9 – 1: Vehicle and Equipment Washing Guidance for washing activities that require DEQ permits.

  DEQ general wash permits (1700A and 1700B) are currently expired; permits are not available from DEQ. MOB will work with DEQ to obtain statewide washing permits

Table 5.9 – 1: Vehicle and Equipment Washing Guidance (Allowed = the activity is allowed without a DEQ permit)

Washing Condition	Clean exterior with cold water ONLY	Clean exterior with cold water and non-phosphate biodegradable cleaner	Clean exterior with heated water or a steam cleaner	Clean asphalt equipment, sweepers, engines, OR undercarriage	Use caustic cleaners or *organic solvent* (degreaser)	Clean salt application equipment	Water Treatment and Permits
If 7 or less vehicles are washed per week and the wash water. . .							
Seeps into the ground onsite (not part of a piped system)	Allowed	Allowed	WPCF[1]	WPCF	Prohibited	Prohibited	Vegetation is preferred
Evaporates completely off a paved surface or processed in a closed-loop (no-discharge) system	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Possible waste disposal issue
Flows off-site but does not go into a waterbody or stormwater system (seeps into the ground off-site)	Allowed	Allowed	WPCF	WPCF	Prohibited	Prohibited	Treatment recommended
Flows into a drywell or french drain	Allowed	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	
Flows into waterbody or stormwater system	Allowed	NPDES[2]	Prohibited	NPDES	Prohibited	Prohibited	See footnote[2] below
Goes to a municipal sanitary sewer	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Local City or county[3]
If 8 vehicles or more are washed per week and the wash water . . .							
Seeps into the ground onsite (not part of a piped system)	Allowed	Allowed	WPCF	WPCF	Prohibited	Prohibited	Treatment recommended
Evaporates completely off a paved surface or processed in a closed-loop (no-discharge) system	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Possible waste disposal issue
Flows off-site but does not go into a waterbody or stormwater system (seeps into the ground off site)	WPCF	WPCF	WPCF	WPCF	Prohibited	Prohibited	See footnote[1] below
Flows into a drywell or french drain	Allowed	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	
Flows into waterbody or stormwater system	NPDES	NPDES	Prohibited	Prohibited	Prohibited	Prohibited	See footnote[2] below
Goes to a municipal sanitary sewer	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Local City or county

1 Washing practices must conform to DEQs 1700B (WPCF) permit. Erosion or sediment control must be implemented where feasible. If washing engines, undercarriages, asphalt equipment, or sweepers the wash water must be treated to remove oil and sediment. Wash activities that clean engines, undercarriages, asphalt equipment, or sweepers or that utilize heated water must be conducted on a paved surface.

2 Washing practices must conform to DEQs 1700A (NPDES) permit. Wash water must be treated to remove sediment and oil prior to release. Treatment should also remove metals if washing engines, undercarriages, or sweepers. Wash activities that clean engines, undercarriages, asphalt equipment, or sweepers or that utilize heated water must be conducted on a paved surface. The discharge cannot cause a measurable increase in waterbody temperature. Where appropriate, efforts must be made to reduce the temperature of heated water such as allowing water to travel at least 250 feet through gravel or vegetation before reaching a ditch, catch basin, or waterbody.

3 Water treatment to remove oil and sediment may be required by the municipality. Refer to site-specific agreements. Water treatment equipment is typically installed during construction.

- **Wash water systems that require changes to the facility or the installation of new water treatment equipment should be coordinated with Facilities Management.** Routine maintenance of installed equipment is a local responsibility.
- **If wash water flows into a waterbody or a stormwater system (including a drywell) vehicles must be washed with cold water only (no soap, detergent, steam, or chemicals).** Non-phosphate, biodegradable cleaners may be used when wash water does not flow into a waterbody, drywell, or stormwater system.
- **If cleaning engines, undercarriages, or sweepers the wash area must meet one of the following criteria.**
  - Be connected to a municipal system; OR
  - Use a no discharge method (e.g. evaporator or recycler); OR
  - Wash on a paved surface and treat wash water prior to releasing. The treated wash water must be able to meet water quality standards for pH, copper, lead, zinc, and oil/grease.
- **If cleaning salt application equipment the wash area must be paved and meet one of the following conditions**
  - Be connected to a municipal system; OR
  - Use a no discharge method (e.g. evaporation from an impervious surface, discharge to a lined evaporation pond, or collection in a storage tank)
- **If equipment wash water is discharged to a municipal sanitary system approval from the municipality must be obtained prior to a significant change in washing or rinsing practices.**
- **Water treatment systems including erosion and sediment control should be used where appropriate.** Water treatment systems include oil/water separators, settling ponds, rock dams, grassy swales, and sediment filters. Water treatment should remove sediment and oil/grease.
- **Water treatment systems should be regularly maintained** (e.g. annual cleaning of sumps and oil/water separators). Maintenance schedules vary depending on usage and equipment. Refer to Section 4.4 – Water Treatment for guidance on maintaining water treatment systems. Refer to Section 5.18 – Roadwaste for the management of solids from sumps and oil/water separators.

5.9.4.2.6 Rinsing Dirt and Debris (Not an Engineered Wash Rack)

Rinsing means cold water sprayed onto the truck bed to remove dirt or sand. If soap or other cleaners are used or the material being removed is something other than dirt (e.g. a sweeper) refer to Section 5.9.4.2.5 – Fleet and Equipment Washing.

- **Rinse water must remain onsite.** The rinsing of accumulated dirt from construction equipment and vehicles is allowed (without a permit) provided the wash water does not go offsite or discharge to a waterbody, storm drains, or dry wells.
- **Rinsing should occur in pre-selected areas that are intended for rinsing fleet and equipment.** Vehicle fluids should not be changed in rinse areas. Rinse areas should be sited away from repair and chemical storage areas.
- **Rinsing must be limited to the exterior of the vehicle or equipment.** The exterior does not include engines, transmissions, undercarriages, interior surfaces of truck-mounted containers, spray solution tanks, sweeper hoppers, gutter brooms, or any other surface that has 'stuff' other than dirt. Rinsing off materials, other than dirt or sand, is considered washing.
- **Rinsing should occur on a paved surface that does not directly, discharge to a storm drain.** Allow water to soak into the surrounding ground or evaporate off the paved surface.
- **Erosion and sediment control measures should be used where appropriate.** Rinsing should not cause soil erosion or offsite runoff.

5.9.4.2.7 Vehicle-Mounted Tanks

📖 Refer to Section 3 – Tanks for information on tank management.

📖 Refer to the EMS Procedures (e.g. pesticide or winter maintenance chemical) for product management.

5.9.4.3 DISPOSAL OF EQUIPMENT AND FLEET

5.9.4.3.1 Equipment and Fleet Disposal

Refer to product specific procedures for guidance on the management of equipment fluids such as oil and coolant.

- **The disposal of inventoried assets must follow the disposal procedures specified in the Financial Administration and Standards Manual – 5.9 Disposal and/or Removal of Inventoried Assets.**
- **Equipment that has served beyond the useful life and/or equipment that is no longer suitable for service should be returned to Fleet Services or ODOT Surplus Property.** Fleet Services should be notified of equipment recycling, onsite sales, or donations. Discarded or abandoned vehicles are banned from Oregon landfills. For additional information on materials banned from Oregon landfills, refer to the DEQ Fact Sheet – Landfill Bans in Oregon located in Appendix I.

5.9.4.3.2 Disposal of Whole Tires

This section addresses the disposal of tires from ODOT fleet. Refer to Section 5.18 – Roadwaste for guidance on the disposal of tires collected from the highway.

Whole tires are banned from Oregon landfills. The intent of the ban is to divert reusable and recyclable materials from Oregon landfills. For additional information on material banned from landfills consult the DEQ Fact Sheet – Landfill Bans in Oregon located in Appendix I.

- **Tires from ODOT fleet should be returned to the vendor** for recycling.
- **Used tires that are not returned to the vendor must be taken to a DEQ permitted waste tire collection facility or other rubber recycler.** Many transfer stations and tire dealers around the state accept used tires. Contact the local facilities for additional information. A list of DEQ permitted waste tire facilities (including landfills and transfer stations) is located in Appendix J.

5.9.4.3.3 Disposal of Solids from Washing and Wash Rack Sumps

📖 Refer to Section 5.18 – Roadwaste for the disposal of solids and sludges collected from washing equipment. The solids may contain contaminants (e.g. oil) or wastes (e.g. litter) in addition to dirt.

5.9.4.3.4 Disposal of Power Tools

Refer to ODOT Surplus Property procedures for disposal of power tools.

- **Oil and fuel should be drained from tools prior to disposal.** Refer to the EMS Procedures (e.g. oil or fuel) for product management.

5.9.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of equipment and fleet storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.

Section Divider

Section Divider

5.10 FERTILIZER AND LIME

Best Management practices for fertilizer and lime have been included in Section 1 - Good Housekeeping in this 2019 version of the EMS Manual.

Section Divider

Section Divider

5.11 FUEL

5.11.1 Purpose

This procedure is intended for the storing, handling, and disposing of fuel. The procedure covers fuel used by ODOT Maintenance employees to operate fleet vehicles and small engines. Fuel oil used to heat Maintenance facilities and diesel additives like DEF are also covered by this procedure.

Fuel includes, but is not limited to, diesel, bio-fuels, unleaded gasoline, kerosene, and heating oil.

This procedure establishes management requirements for fuel that prevent releases to the environment and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for the purchase, operation, maintenance, and disposal of large aboveground fuel tanks (1,000 gallons or greater) are located in Section 3.1.1 – Aboveground Bulk Fuel Tanks.
- 🕮 Guidelines for the purchase, operation, maintenance, and disposal of small aboveground fuel tanks (less than 1,000 gallons) are located in Section 3.1.2 – Stationary Metal Tanks.
- 🕮 Guidelines for the purchase, operation, maintenance, and disposal of underground fuel tanks are located in Section 3.1.3 – Underground Fuel Storage Tanks.
- 🕮 Guidelines for fuel filters are located in Section 5.3 – Automotive Fluids and Parts.
- 🕮 Guidelines for used oil that fuels ODOT owned space heaters are located in Section 5.13 – Oil.
- 🕮 Guidelines for propane and other LP gases are located in Section 5.17 - Propane.

5.11.2 Regulating Agencies

EPA regulates the storage and handling of fuel in locations where a spill could impact navigable water or tributaries.

The Oregon State Fire Marshal's Office regulates aboveground fuel tanks and fuel dispensing.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

The Oregon State Fire Marshal's Office regulates the storage of flammable/combustible materials.

EPA and DEQ regulate underground storage tanks.

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee cleanup actions that result from petroleum spills, leaks, and storage.

EPA and DEQ regulate air emissions from gasoline stations. Local air authorities may have more stringent regulations.

5.11.3 Alternatives And Pollution Prevention

- Oregon's Renewable Energy Action Plan (REAP) mandates the following use of *biofuel*s: 25 percent of the gasoline used by state government's fleet vehicles will be E-85 by 2025; 100 percent of the diesel used by state government's fleet vehicles will be B-20 by 2025. Renewable Diesel qualifies as a substitute for Biodiesel. ODOT fuel stations have switched to *biofuel*s and ODOT is on-track meeting the mandates. ODOT's goals and strategies are outlined in the ODOT Sustainability Plan.
- Fleet Services is responsible for equipment purchases and modifications. Information about innovative and ongoing fuel reduction strategies goals including the purchase of alternative fuel vehicles and the Idle Reduction Policy can be found on the website. http://intranet.odot.state.or.us/fleet/.

5.11.4 Fuel - Best Management Practices

Refer to yard-specific documents, such as Spill Prevention Control and Countermeasure (SPCC) plans, for additional site-specific requirements.

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.11.4.1 Storage of Fuel

5.11.4.1.1 Storage in Stationary Aboveground Storage Tanks (ASTs)

This section includes bulk fuel tanks at ODOT fuel stations and stationary tanks used to store fuel required for facility operations (e.g. generators).

Refer to Section 3.1.1 and Section 3.1.3 for information on purchasing, operation, and disposal of ODOT owned stationary fuel tank.

- **Fuel tanks must be maintained to keep the tank in good condition** (e.g. no harmful rust, damage, or leaks). Maintenance personnel should coordinate repair and tank maintenance with Supply Operations and the Region Facilities Coordinator.

- **Integrity tests should be scheduled** based on the guidance Section 3.1.2 – Stationary Metal Tanks. Facilities Management is responsible for scheduling routine tank integrity inspections for the bulk fuel tanks. Contact Facilities Management for a list of vendors that perform structural integrity testing. Facilities Management may be able to coordinate inspections of smaller tanks (e.g. generators fuel tanks) with bulk fuel tank inspections.

- **Tanks must be labeled with the name of the product (i.e. diesel or unleaded) and a hazard warning (e.g. flammable).** Labels must be intact, visible, and legible. Tanks with a storage capacity greater than 100 gallons must be labeled with a NFPA diamond. Refer to Section 2 - Labels and Signs for guidance on labeling.

- ***Secondary containment* must be provided for stationary tanks (greater than 55 gallons) that hold fuel (e.g. diesel).**

- **Pipes that hold fuel must be labeled with the name of the product (i.e. diesel or unleaded), the direction of flow, and a hazard warning** (e.g. flammable). Color coded labels may be used to identify the hazard (i.e. black lettering on a yellow background for unleaded and white lettering on a brown background for diesel). Labels should be applied at the beginning and end of continuous runs and wherever confusion may occur. Refer to Section 2 - Labels and Signs or the ODOT Safety & Health Manual for additional information on pipe labels.
- **Overfill indicators, overfill protection, and vapor recovery equipment (if installed) must be maintained on fuel tanks.** Maintenance should coordinate where appropriate with Facilities Management on the replacement and repair of faulty indicators and equipment on large fuel tanks (greater than 1,000 gallons).Refer to Section 3 - Tanks for information on tank components.
- **The emergency fuel shutoff should be tested periodically.** The emergency shutoff should be tested in accordance with the manufacturer's specifications and the ODOT Safety Policy. If manufacturer recommendations are not available test annually.

  Small fuel tanks, such as tanks that store fuel for backup generators, are not required to have emergency shutoff systems.
- **The overfill alarm, if installed, should be checked monthly during the Monthly Maintenance EMS Field Audit.** Some tanks have a leak detection alarm in addition to the overfill alarm. The alarm panel typically has a "test" button that initiates an audible and/or visual signal. Refer to the equipment manual for specific testing methods.
- **If the tank is not equipped with a leak detection alarm the space between the tank walls should be checked monthly for leaks.** Many tanks have gauges that provide a visual signal if liquids are present. If the tank is not equipped with a gauge check use the inspection port to determine if liquids are present.

Examples of Tank Equipment

			
Fuel shut-off Cuts off the power to the dispenser	Overfill alarm Audible warning when the level of fuel in the tank is too high	Leak detection gauge Visual warning there is fluid between the walls of double-walled tank	Monitoring system Typically checks fuel level and fluid between the walls of double-walled tank

- **Protection from vehicular damage must be maintained.** See Section 3.1 for vehicle protection requirement for fuel tanks.
- **A *defensible space* should be maintained around fuel tanks at forested *Maintenance yard*s** to aid in fire protection. Contact an ODOT Forester or the local Fire Marshal for assistance or additional information on defensible fire spaces.

5.11.4.1.2 Storage in Underground Storage Tanks (UST) – Not Heating Oil Tanks

Refer to Section 3.1.2 for information on purchasing, operation, and disposal of ODOT owned UST*s*. A document titled Guidance for Underground Fuel Tanks at ODOT Maintenance Yards is available from the MOB.

There are five ODOT owned facilities that have underground fuel tanks.

- **The available volume of the tank must be determined before filling or refilling.** Typically automatic tank gauge system.
- **The tank must be constantly attended during filling** by fuel delivery personnel.
- **Spill equipment must be maintained near the tank.** The equipment must have sufficient capacity to contain a release from the bulk transfer hose when the hose is detached from the tank fill pipe. Spill equipment may consist of absorbent materials or a *spill bucket*. Absorbent should be kept in a weatherproof container, where appropriate. Spill response materials should be replenished if used.
- **Overfill indicators, corrosion protection, leak monitoring systems, and vapor recovery equipment (if installed) must be maintained.** There must be some method to demonstrate the equipment is functional. Methods may include visual verification or documented inspections by a licensed UST service provider. Faulty indicators and equipment discovered by Maintenance personnel during routine inspections should be reported to the Region Facilities Coordinator for replacement or repair. Visual inspections should be completed according to the equipment's operating manual.
- **Annual inspections of the UST system should be conducted by a licensed UST service provider.** Copies of the inspection results should be kept onsite.
- **A licensed UST service provider must perform all repairs, modifications, or replacements.** Repairs, modification, or replacement of the tank or tank components must be completed as necessary to correct, detect, or prevent releases. Repairs, modification, or replacement should be coordinated with Facilities Management. Repair records must be kept at the yard as well as with Facilities Management.
- **DEQ must be notified of any UST retrofits or upgrades.** Notification must be submitted 30-days and 3-days before work begins. Upgrades include the installation of underground piping, leak detection equipment, or monitoring wells. Notification is not required for the maintenance (repair or replacement) of existing components or the installation of aboveground piping. The UST service provider may submit paperwork on ODOT's behalf and provide copies to ODOT.
- **Investigation and/or corrective action associated with possible leaks or overfills must be completed as necessary.** The Region Facilities Coordinator must be notified of suspected structural and/or functional failures. Faulty UST components discovered by Maintenance personnel during routine inspections should be reported to the Region Facilities Coordinator by the next business day.
- **Spills, leaks, overfills, corrosion protection failures, and confirmed releases must be reported to DEQ.** Contact the Region HazMat Coordinator to coordinate sub-surface investigations and oversee cleanup or remediation actions. The Region HazMat Coordinator should keep the TMM, the MOB, and Facilities Management updated and provide copies of "No Further Action" letters and/or other paperwork.

5.11.4.1.3 Underground Heating Oil Tanks

- **The location and size of known tanks should be identified on site drawings.**
- **Underground heating oil tanks should be actively monitored for leaks** by measuring the volume of oil at least twice a year. Measurements should be collected at the end of the heating season and prior to adding fuel for the next season. There should be at least 3-days between measurements. If there is a significant change in volume, a UST service provider should be contacted to conduct additional investigation.
- **Tank integrity testing should be completed by a certified UST service provider if oil usage during the heating season changes unexpectedly or the oil volume changes significantly when the system is not in use.** Coordinate tank inspections or corrective actions with the Region Facilities Coordinator.
- **Heating oil must be removed from the tank if the tank is permanently disconnected from an oil furnace and/or if the tank is not used because of a permanent change in heating fuel (e.g. switch to propane).** Refer to the Disposal section of this Procedure for guidance on managing waste fuel.
- **Heating oil tanks that are no longer in permanent use should be decommissioned.** Contact the Region HazMat Coordinator to manage tank decommissioning. The Region HazMat Coordinator should provide final copies of closure paperwork to Facilities, the MOB, and the TMM. Additional information on decommissioning heating oil tanks can be found on the DEQ Fact Sheet – Requirements for Heating Oil Tanks No Longer in Use, located in Appendix I.

5.11.4.1.4 Storage of Fuel in Portable Tanks (e.g. pack tanks or transfer tanks)

- **Portable fuel tanks must be labeled with product identification (e.g. diesel) and hazard information (e.g. flammable or combustible).** The Waste Hauling flow chart on the last page of Appendix D – Waste Paperwork should be used to determine if CDL endorsements and placards are required for hauling fuel.
- **Portable fuel tanks should be stored in a manner that prevents direct contact with the ground.**
- **Tanks should be repaired or replaced as needed.** Portable fuel tanks are unlikely to fail unless damaged in a collision.

5.11.4.1.5 Storage in Large Containers (30 gallons – 55 gallons)

- **Containers should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Storage areas for containers should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Containers should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers should be stored on a paved surface.** The surface should prevent or minimize the impact of potential releases to the surrounding soil. Absorbents (e.g. spill pads, gravel, or sand) may be placed on top of the surface to assist with the cleaning and capturing of spills that may occur.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as a waste (see Section 5.11.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- ***Secondary containment* must be provided for all fuel containers (55 gallons or larger) at *Maintenance yard*s with SPCC Plans.** Refer to the yard's SPCC Plan for site-specific requirements. SPCC Plans are not required at all ODOT Maintenance Yards. A list of yards that have written SPCC Plans is located in Appendix K. The secondary containment BMP listed below should be followed at yards that do not require SPCC Plans.
- ***Secondary containment* must be provided for fuel containers larger than 10 gallons if the container is stored in indoors or if more than 1,000 gallons (aggregate) is stored outdoors.** *Secondary containment* includes, but is not limited to, spill dollies, spill pallets, curbs, or berms that keep products from flowing offsite or into waterbodies. Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*.
- **Overfill protection must be provided for all fuel containers (55 gallons or larger) *Maintenance yard*s with SPCC Plans.** Overfill protection should be provided for fuel containers at *Maintenance yard*s without SPCC Plans. Overfill protection may be provided by an action (e.g. checking capacity before pouring) or by equipment (e.g. a level gauge).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).

5.11.4.1.6 Storage of Small Containers (e.g. gas cans and pre-mix fuel less than 30 gallons)

Gas cans are considered in-use containers. Additional BMPs are located in Section 5.11.4.2.5 - In-Use Containers of Fuel or Diesel Exhaust Fluid (DEF).

- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product (i.e. last for a long time without damaging the container or product) and USDOT approved.** The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers (including *secondary container*s) must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Refer to Section 2 - Labels and Signs for guidance on labeling.

  Color-coded fuel containers are adequately labeled IF the contents match the container. Mixed gas and diesel stored in a red gas can require supplemental labels.
- **Containers must be closed.** Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **Fuel containers must be kept in a *flammables cabinet* or other *secondary containment* if more than 10 gallons (aggregate) are stored in one indoor location. If more than 120 gallons are stored in one indoor area the containers must be in a *flammable cabinet or liquid storage room*** Additional information on flammable/combustible storage is located in Section 1 - Good Housekeeping.

- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*.

  Small fuel containers may be stored in the same location as portable propane cylinders.

5.11.4.1.7 Storage of Diesel Exhaust Fluid (DEF)

DEF is a blended urea solution that is necessary in fleet that have Selective Catalytic Reduction (SCR) technology. SCR technology reduces air emissions. Contact Fleet Services with questions regarding equipment, usage, and availability.

- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **Containers must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers of DEF should be stored in a cool, dry, well-ventilated area.** Avoid long-term storage in direct sunlight. Exposure to high temperatures for extended periods reduces the shelf life. Storage at temperatures between 12°F and 86°F are recommended. DEF will begin to crystallize and freeze at 12°F, but will thaw without degrading the product.
- ***Secondary containment* should be provided for containers with a capacity of 55 gallons or more if the containers are stored in a location where an accidental release could reach a waterbody or a stormdrain.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.
- **Containers of DEF should be stored away from strong oxidizers (e.g. hydrogen peroxide or bleach) and strong acids (e.g. battery acid).** DEF is alkaline and will corrode copper and brass.

5.11.4.2 HANDLING AND USE OF FUEL

- **Fuel must be used for the intended purpose.** For example, only products marketed as release agents may be used to remove or to prevent contact of asphalt products with equipment and raw fuel may not be used as an igniter for burn piles (fuel may be used in drip torches).

5.11.4.2.1 Permits and Plans for Fuel Stations

- **A *Spill Prevention Control and Countermeasure (SPCC) plan* must be written and implemented for ODOT Maintenance Yards that store more than 1,320 gallons of oil or fuel (aggregate) in aboveground containers (with a capacity of 55 gallons or more) if the facility is located where a release could impact navigable water.** A list of SPCC yards is located in Appendix K and posted on the Agency website. Contact the MOB or refer to site specific SPCC Plans for program details. A copy of the SPCC plan must be kept onsite.
- **A Non-Retail Facility License (or Cardlock Permit) must be maintained for ODOT Maintenance Yards that provide gasoline to non-State agencies (e.g. city or county agencies).** Coordinate interagency agreements with Supply Operations. Coordinate with Facilities Management on the installation of equipment needed to comply with the permit.
- **A DEQ Operational Permit must be maintained for fuel stations with underground fuel tanks.** Facilities Management is responsible for obtaining and renewing permits. Maintenance is responsible for day-to-day record keeping.
- **An Air Contaminant Discharge Permit must be maintained for underground or aboveground gasoline tanks that have a throughput of 10,000 gallons or more per month.** As of 2012, no sites have a throughput requiring this permit. ODOT's Fuels Management Group reviews the fuel usage monthly and will notify MOB, the TMM, and Facilities Management if the limit is exceeded.

5.11.4.2.2 Training at Facilities that Store Fuel in Underground Storage Tanks

An individual previously trained as an UST System Operator may be designated as either a Class A or a Class B Operator (or both). A list of scheduled UST Operator Training courses is available on the DEQ web site (http://www.deq.state.or.us/lq/training.htm#Training).

- **Each UST facility must have a Class A Operator.** The Class A Operator is responsible for regulatory requirements related to operating and maintaining the UST system. The operator must complete a training course from a DEQ certified vendor or pass an equivalent certification program within 90 days of being designated. Individuals may be designated in more than one classification provided the training requirements have been completed.
- **Each UST facility must have a Class B Operator.** The Class B Operator is responsible for field inspections and the day-to-day operation and maintenance of the UST system. The operator must complete a training course from a DEQ certified vendor or pass an equivalent certification program within 90 days of being designated. Individuals may be designated in more than one classification provided the training requirements have been completed.
- **Written verification of the training must be maintained permanently.** The records must be available for DEQ review (preferably onsite).

5.11.4.2.3 Fuel Stations and Fuel Dispensing (Including Dispensing from Pack Tanks)

- ***Secondary containment* must be provided for fueling areas at *Maintenance yard*s with SPCC Plans.** Refer to the yard's SPCC Plan for site-specific maintenance requirements. *SPCC Plans are required at approximately 25% of the ODOT Maintenance Yards. A list of yards that have written SPCC Plans is located in Appendix K.*
- **Safe fueling training must be completed by the following people prior to dispensing fuel.** (Course number: SA010006 - Safe Fueling of Vehicles)

  a. Any person who dispenses fuel from an ODOT fuel station that has underground fuel tanks

  b. Any person who dispenses fuel from an ODOT fuel station with a DEQ air discharge permit

  c. Non-state agency customers (e.g. city or County customers) of ODOT fuel stations that have a Non-Retail Facility License (or Cardlock Permit) issued by the Fire Marshal

  Training can be completed by reviewing the Safe Fuel Guidelines or other material that covers the Fire Marshal requirements for non-retail facilities. Records of ODOT employee who receive Safe Fueling training should be tracked in the HR system (contact Region Safety for assistance). A copy of the Safe Fuel Guidelines is located in Appendix P. Refresher training is not required but should be completed as needed.

- **All users of ODOT fuel stations and employees who may be first responders to fuel spills at ODOT fuel stations should receive safe fueling training** (Course number: SA010006 - Safe Fueling of Vehicles)**.** Training can be completed by reviewing the Safe Fuel Guidelines or other material that covers the Fire Marshal requirements for non-retail facilities. Records of ODOT employees who receive Safe Fueling training should be tracked in the HR system. A copy of the Safe Fuel Guidelines is located in Appendix P. Refresher training is not required but should be completed as needed.
- **Diesel dispensers must be labeled to indicate the type of diesel being dispensed** (i.e. low sulfur diesel or ultra-low sulfur diesel). Contact Supply Operations for stickers.
- **Absorbent materials and/or spill kits must be located at fuel stations.** Cleanup materials should be appropriate for fuel spills (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather. **Absorbent should be generously applied to spills and swept up.**

- **The following signs must be posted at ODOT Maintenance fuel stations.** Signs should be visible and readable from a distance of 10 feet from the dispensing pump.
  - "Driver Must Remain At Vehicle While Fueling."
  - "No Smoking" or other sign prohibiting smoking.
  - "Stop Your Engine" or other sign requiring vehicle engines to be stopped during fueling.
  - Sign prohibiting dispensing into unapproved containers.
  - Sign marking the location of the emergency shutoff.
  - Sign marking the location of the fire extinguisher.
- **A sign must be posted at all fuel stations with gasoline tanks that prohibits topping off the vehicle fuel tank.** A sticker or a flyer may be used to meet the requirement. "Don't Top Off" stickers are available from the MOB. The DEQ flyer is available on the website http://www.deq.state.or.us/aq/permit/vapor/vapor.htm.
- **If the fuel station is used by personnel from non-State agencies (e.g. City agencies or county agencies), the following signs also must be posted in a conspicuous location.**
  - "In Case Of Fire, Spill, or Release
    - Use Emergency Pump Shutoff
    - Report The Accident!
    - Fire Department Telephone No._____
    - Facility Address _____"
  - "Discharge Static Electricity Before Fueling
    - Do Not Reenter Your Vehicle While Fueling
    - If A Fire Starts, Remove the Nozzle; Use the Emergency Shutoff"
  - "Portable containers must be removed from the vehicle and placed on the ground before filling"
  - "It is a violation of law, subject to penalty, to dispense flammable liquids without first receiving the training required by the rules."
  - "It is a violation of law, subject to penalty, to dispense flammable liquids for personal use or into vehicles or containers not owned or used by a business, government, non-profit or charitable organization."
  - The phone number of the owner or operator.
  - Instructions for operating the dispenser.
- **If fuel is stored in underground storage tanks, the annual DEQ Operational Permit must be displayed in a conspicuous location that is visible to the fuel delivery driver.** Regulations prohibit filling an UST unless the Operational Permit is visible. A copy of the current permit can by obtained from DEQ's website (http://www.deq.state.or.us/lq/pubs/docs/tanks/OperatingCertificates.pdf)
- **Adequate lighting must be provided at yards with SPCC Plans and at yards where fuel is available to non-State agencies.** Adequate lighting should be provided at all fueling areas. Lighting should provide enough illumination to dispense fuel or detect a spill during non-daylight hours.
- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.11.4.2.4 Routine Fuel Tank Maintenance

ODOT's Fuel Testing and Tank Cleaning Program is administered by the Fleet Services Section, Fuel Management group. The statewide program provides comprehensive fuel testing and tank cleaning for bulk fuel tanks. Contact the Fuels Management Group with questions regarding testing schedules and maintenance activities. Additional information about tank inspections is in Section 3 – Tanks.

5.11.4.2.5 In-Use Containers of Fuel or Diesel Exhaust Fluid (DEF)

Refer to the Storage section of this procedure for additional BMPs.

- **In-use containers and product transfers should be handled in a manner that prevents spills.**
- **Containers must be closed.** Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **In-use containers should be stored indoors.**
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**, see the Disposal section of this procedure.

  DEF has a limited shelf life. DEF will degrade over time. Degradation increases when the product is stored at higher temperatures or exposed to sunlight. Each DEF container has a date stamp; the expected shelf life ranges from 6 months to 3 years. If poor quality DEF is used in equipment a warning light will come on. Failure to correct the problem will restrict vehicle speed.
- **If a portable tank has been damaged in a collision, the tank should be inspected by Fleet Services before being returned to service.** The mechanic should determine if the tank if fit for service.
- **Empty drums should be stored in a manner that indicates the drum is empty.** Examples of ways to show the drum is empty include storing the drum sideways with the bungs horizontal, labeling the drum "empty," or keeping the drum in an area signed "empty drums" or similar wording. Refrain from storing drums that previously contained liquids upside-down.

5.11.4.3 DISPOSAL OF FUEL

5.11.4.3.1 Disposal of Unusable Fuel

- **Unwanted but still useable fuel should be managed as a product** (instead of a waste). Degraded fuel that is unsuitable for ODOT operations (e.g. powering equipment) may be given to other another agency or municipality who has a use for lower quality fuel (e.g. fueling drip torches). Where appropriate obtain approval prior to transferring products.
- **Where allowed by the recycler or oil burner unusable fuel should be managed as used oil (i.e. recycled or burned as fuel).** Refer to Section 5.13 – Oil for additional guidance. Oil recyclers may want fuel segregated from oil (i.e. stored in a separate container). If the fuel will be burned in a space heater contact the receiving agency prior to mixing with the oil.

- **Unusable fuel that is not managed as used oil (e.g. fuel that is intentionally mixed with absorbent not resulting from a spill), must be characterized (e.g. sampled or assumed hazardous) prior to disposal.** At a minimum, the characterization should demonstrate the waste fuel was below *hazardous waste* levels for benzene (<0.5 ppm) and *flashpoint* (>140°F).
- **If characterization demonstrates unusable fuel is hazardous, the waste must be managed as *hazardous waste* using one of the following disposal options.**
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
  - DEQ sponsored *hazardous waste* collection event County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates unusable fuel is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Non-hazardous waste fuel may be mixed with an absorbent (until saturated but not dripping) or placed in a small, closed, container (1 gallon or less) and thrown in the trash. A list of permitted landfills and transfer stations is located in Appendix J.

5.11.4.3.2 Disposal of Fuel Saturated Absorbent

- **Absorbent that has been used to clean up fuel spills should be managed as *solid waste* (i.e. trash).** Petroleum contaminated absorbents (including booms and filters) can be saturated but not dripping. **Absorbent should be generously applied to spills and swept up**. Oregon regulations for spill cleanup, disposal, and reporting are located in Appendix H.

5.11.4.3.3 Disposal of Diesel Exhaust Fluid (DEF)

- **Totes should be returned to the vendor.**
- **Unusable DEF is non-hazardous and should be managed as *solid waste*.** Non-hazardous liquid waste may be mixed with an absorbent (until saturated but not dripping) or placed in a small, closed, container (typically 1 gallon or less) and thrown in the trash. A list of permitted landfills and transfer stations is located in Appendix J.

5.11.4.3.4 Disposal of Portable Fuel Tanks and Other Empty Fuel Containers

- **Portable fuel tanks that are no longer needed (but are in good condition) should be transferred to Fleet, Surplus Property, or another ODOT crew.** Coordinate the transfer with the receiving crew. Refer to the Fleet Equipment Transfer System for procedures.
- **Portable tanks that are in poor condition and other unwanted fuel containers should be recycled** where opportunities are available. If recycling is not practical, the container should be managed as *solid waste* (i.e. trash).

5.11.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of tanks (including portable tanks) and fueling areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The generation and disposal of unusable fuel that is managed as used oil (i.e. recycled or burned in a space heater) must be documented on the EMS Waste Generation and Waste Disposal Logs.** Unusable fuel that is managed as used oil is categorized as an excluded waste IF the storage BMPs have been followed. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **If unusable fuel is not recycled or burned as fuel (e.g. must be characterized (e.g. sampled or assumed hazardous). The method and result of the characterization must be documented.** If the waste fuel was sent to a lab for analysis, the documentation should show, at a minimum, that the waste was analyzed for benzene and *flashpoint*. Contact the Region HazMat Coordinator for assistance with waste characterization. Additional information on waste characterizing is located in Appendix D.
- **If characterization determines the unusable fuel is hazardous waste, the generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.** Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.

  Materials kept in tanks that are mounted to mobile equipment (i.e. fleet) are not reportable to the Fire Marshal; reporting is not required for slip-ins or mobile refueling tanks. If the tank, comes off the equipment and is used as a stationary storage container the material is reportable.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.
- **If the facility has a DEQ "Indirect Source and Vapor Collection" air discharge permit, a Vapor Recovery Maintenance/Inspection Log must be completed by Maintenance and submitted to DEQ.** Contact Facilities or MOB for additional information on the documentation required for Indirect Source and Vapor Collection Permits. A copy of The "How To" Book on Vapor Recovery (published by DEQ) is located in Appendix P.

- **If the facility has underground storage tanks, records of monitoring, repair, and decommissioning must be kept onsite and retained for the life of the tank.** Records must demonstrate that equipment is functional. Records should include inspections and repairs conducted by licensed UST service providers as well as monthly monitoring records and routine fuel reports. Refer to the Guidance for Underground Fuel Tanks at ODOT Maintenance Yards for additional information.
- **A record of safe fueling training must be maintained for employees who dispense fuel from ODOT fuel stations that store fuel in underground tanks or fuel stations that have an air discharge permit. A record of providing safe training to customers of fuel stations that have a Cardlock Permit issued by the Oregon Fire Marshal must also be kept.** A copy of the ODOT Fire Safety Training – Safe Fueling Guidelines is located in Appendix P. The HR system should be used to track employee training SA010006 - Safe Fueling of Vehicles.
- **Copies of the results for tank integrity tests should be kept at the *Maintenance yard* and with Facilities Management.** Integrity tests for bulk aboveground fuel tanks are scheduled by Facilities. Integrity tests for small metal tanks are scheduled by Maintenance; see Section 3.1.2.4 – Routine Maintenance for testing frequency.

Section Divider

Section Divider

5.12 LIGHTING AND FLARES

5.12.1 Purpose

This procedure is intended for storing, handling, and disposing of lighting. This procedure covers lamps and fixtures used or stored at *Maintenance yard*s. In addition, the procedure covers the storage and disposal of lamps and fixtures used along highways or right-of-ways. **Road flares and other light sticks are also covered under this procedure.**

Lamps include, but are not limited to, incandescent, halogen, fluorescent, compact fluorescent, mercury vapor, sodium vapor, low-pressure sodium, high-pressure sodium, metal halide, solid-state, and light-emitting diode (LED).

Mercury containing lamps include, but are not limited to, fluorescent, compact fluorescent, mercury vapor, sodium vapor, low-pressure sodium, high-pressure sodium, and metal halide.

Fixtures include fluorescent light fixture *ballast*s.

This procedure establishes requirements for managing lighting used by ODOT Maintenance employees to properly manage *universal waste*, minimize *hazardous waste* generation, and maintain a safe, efficient working environment. Other relevant procedures include:

📖 Guidelines for electronics are located in Section 5.7 – Electronic Equipment and Computers.

5.12.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate the disposal of polychlorinated biphenyl (PCBs) under the Toxic Substances Control Act (TSCA).

5.12.3 Alternatives And Pollution Prevention

- Consider purchasing and installing energy-efficient lamps with low or no mercury content. Low mercury lamps (while still containing some mercury) do not exhibit *hazardous waste* characteristics and may be managed as *solid waste* (i.e. trash). Low mercury linear fluorescent, compact fluorescent, high-pressure sodium, metal halide, and halogen lamps are available. Low mercury fluorescent lamps may be identified by the green end caps or Toxic Characteristic Leaching Procedure (TCLP) compliance statements on packaging.
- Consider recycling all mercury containing lamps, even low mercury lamps that can be managed as *solid waste* (i.e. trash). Mercury is an essential ingredient for most energy-efficient lamps (e.g. fluorescent, sodium vapor, or metal halide). Lighting is one of the largest sources of mercury in Oregon's *solid waste* stream. When a lamp is broken, incinerated, or placed in a landfill mercury is released. Mercury has both health and environmental concerns.
- Consider using light-emitting diodes (LEDs) or other solid-state lamps. High efficiency LEDs have a long life span and are mercury free.
- Consider replacing standard *incandescent lamp*s with ENERGY STAR® lamps. EPA's ENERGY STAR program includes voluntary labeling designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. ENERGY STAR® compact fluorescent lamp use about 75 percent less energy than standard *incandescent lamp*s and last up to 10 times longer.
- Consider using timers, motion detectors, or other light sensor to ensure lights are not operating unnecessarily.

- Consider switching to fluorescent lamps with a lower T number. "T" is the diameter of the tube in the lamp. A T12 bulb will have a diameter of 1½", T8 are smaller, and the T5 are smaller yet. The narrow lamps are more energy efficient. According to some sources, changing lighting to T5 technology will save as much as 79% on lighting costs.

5.12.4 Lighting – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

5.12.4.1 Storage of New Lighting Products

5.12.4.1.1 Storage of New Lamps

- **Lamps should be stored in the original package**. Some information is only located on the package, so keeping the package simplifies the identification and management of wastes. Packaging should limit breakage.
- **Lamps should be stored in a manner that protects the function and integrity of the product.** Lamps should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Lamps should be stored indoors in a pre-selected area that is intended for lighting storage.** The area should be located away from heavy traffic. The storage area should be high and dry. Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.

5.12.4.1.2 Storage of Road Flares

Spill control and secondary containment are not required for flammable solids.

- **Flares should be stored indoors.**
- **Flares must be stored separately from incompatible materials and away from open flames.** Up to 1,000 cubic feet of flares may be stored in an area. Refer to Section 1 - Good Housekeeping, for additional information.
- **Storage areas must be orderly.** Shelves must be of substantial construction. Shelves must be braced and anchored where appropriate. Storage areas must be separated an aisle at least 4-feet wide.
- **A "No Smoking" sign must be visible in the flare storage area.**

5.12.4.2 HANDLING AND USE OF LIGHTING PRODUCTS

5.12.4.2.1 Storage of Used High-Mercury Lamps and Low-Mercury Lamps that will be Recycled

- **Used lamps should be stored indoors in a pre-selected area that is intended for lighting storage.** The area should be located away from heavy traffic.
- **Used standard fluorescent tubes and other high-mercury lamps must be stored and handled in a manner that minimizes breakage**. Crushing is prohibited. Cardboard boxes or fiber drums are recommended for storage.
- **Containers of lamps that will be recycled must be clearly marked with all of the following items:**
  - The words "Universal Waste – Lamps," "Waste Lamps," or "Used Lamps."
  - The date began putting lamps into the container (the *accumulation start date*)
- **Containers that store used lamps must be kept closed when lamps are not being added or removed.** If allowed by the recycler, various lamp types may be mixed in one container.

5.12.4.2.2 Cleanup of Broken Mercury-Containing Lamps

All fluorescent and many high intensity discharge (HID) lamps contain mercury. When mercury lamps (even low mercury lamps) are broken or placed in landfill mercury is released. The amount of mercury released from broken lamps varies widely. An EPA pamphlet on the cleanup of mercury lamps is located at the end of this section. Contact Region Safety with health and safety concerns.

- **The area should be well ventilated before beginning cleanup by opening windows and doors.** Turn off HVAC and other forced air system including fans.
- **Glass pieces should picked up or swept up (use gloves where appropriate). Vacuuming broken lamp pieces should be avoided.**
- **The area should be cleaned with a wet wipe or damp towel.** Use duct tape, packing tape, or masking tape to pick up smaller pieces of glass and glass dust prior to wet wiping.
- **Broken lamp pieces and cleanup materials (i.e. tape or wet wipe) should be placed in a small, closable container.** The lids should be securely fastened.

5.12.4.2.3 Removal and Storage of Waste Light Ballasts

PCBs were commonly used in transformer and capacitor fluids until 1978. PCBs are a persistent organic pollutant that has both health and environmental concerns. *Ballast*s that do not contain PCBs are marked "No PCBs" by the manufacturer.

- **Lamp *ballast*s in must be examined for PCB content prior to disposal.** *Ballast*s installed prior to 1978 or ballasts installed after 1978 without a “No PCBs” sticker must be assumed to contain PCBs.
- **Waste PCB *ballast*s should be handled in a manner that prevents damage.** PCB *ballast*s should be stored in containers that prevent the release of potential leaks.
- **Leaking *ballast*s should be stored in a separate container.**

5.12.4.3 DISPOSAL OF LIGHTING PRODUCTS

5.12.4.3.1 No-Mercury and Low-Mercury Lamp Disposal

- **No-mercury lamps (e.g. *incandescent lamp*s and LEDs) should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

  Non-hazardous, low-mercury lamps (e.g. fluorescent tubes with green end caps) should be recycled where recycling opportunities are available and practical. Follow guidance for storage and documentation of high-mercury lamps when recycling low-mercury lamps.

  Non-hazardous, low mercury lamps will have documentation from the manufacturer stating the lamp is Toxic Characteristic Leaching Procedure (TCLP) compliant. "Energy-saving" is different from "low mercury." Philips Alto lamps, GE Ecolux lamps, and Sylvania Ecologic lamps product lines are low mercury. Philips Lighting "Alto" lamps have green end caps. Osram Sylvania "Ecologic" and GE "Ecolux" typically use green lettering for identification.

- **Low-mercury lamps that are not recycled should be managed as solid waste** (i.e. trash). Care should be taken to minimize breakage.

5.12.4.3.2 High-Mercury Lamp Disposal (e.g. standard fluorescent tubes)

Recycling is the preferred method of disposal for mercury containing lamps and is strongly encouraged unless impractical or unavailable.

- **Standard fluorescent tubes and other high-mercury containing lamps should be sent to a *universal waste* destination facility for recycling**. See Section 5.12.5 for additional information on documenting hazardous waste generation and disposal.

  Mercury containing lamps include, but are not limited to, fluorescent, compact fluorescent, mercury vapor, sodium vapor, low-pressure sodium, high-pressure sodium, and metal halide. The DEQ Fact Sheet – Waste Lamp and Ballast, that provides additional information on waste lamps as *universal waste*, is located in Appendix I.

  — Some hazardous waste and solid waste businesses offer universal waste management services in addition to the primary waste service. Contact the businesses directly for more information. A partial list is available on DEQ's website (http://www.deq.state.or.us/lq/hw/uwcollectors.htm)

  — Universal wastes may be accepted at DEQ sponsored household hazardous waste collection events. Additional information is available from the local contact or the DEQ contact. Scheduled events are listed on DEQ's website (https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/HHW-Events.aspx)

  — Some county waste collection facilities are authorized by DEQ to accept *universal waste*. Contact the local facility to determine if lamps are accepted. A list county collection facilities is located on the DEQ website https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/HHW-by-County.aspx

- ***Universal waste* should be removed from the site at least annually.** Accumulation may be longer than one year if additional time is needed to ensure proper disposal so long as the containers or items are properly labeled with the accumulation start date.

- **Where recycling opportunities are not available standard fluorescent tubes and other mercury containing lamps must be managed as hazardous waste.** The weight of hazardous waste counts toward the facility's hazardous waste generator status. A facility that generates 220 pounds of hazardous waste in a month is classified as Small Quantity Generator (see Appendix D).

5.12.4.3.3 Disposal of Broken Lamps

- **Broken high-mercury lamps must be managed as *hazardous waste* using one of the following disposal options.** See Section 5.12.5 for additional information on documenting hazardous waste generation and disposal. Crushing high-mercury lamps (e.g. using a drum top crusher) is considered waste restatement and is prohibited.
  - Pick up by a licensed *hazardous waste* management company
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event that accepts mercury
    - County waste facility that is authorized by DEQ to accept mercury waste
  - Throw sealed containers in trash (ONLY if yard is a *CEG*).
- **Broken no-mercury and low mercury lamps should be managed as solid waste** (i.e. lamps are thrown in the trash or taken to the landfill).

5.12.4.3.4 Ballast Disposal

- **Non-PCB *ballast*s should be recycled where opportunities are available.** Non-PCB *ballast*s that are not recycled should be managed as *solid waste.* Non-PCB *ballast*s are labeled "No PCBs."
- ***Ballast*s that have fluids that contain PCBs must be sent to an EPA approved recycling center.** The State of Oregon (DAS) may have a mandatory a price agreement for the collection, disposal, and recycling of PCB *ballast*s. More information about State contacts can be obtained from the Oregon Procurement Information Network website (http://orpin.oregon.gov) or the Region HazMat Coordinator.

5.12.4.3.5 Disposal of Road Flares and Other Light Sticks

- **Unwanted, usable road flares should be transferred to other crews or ODOT Surplus Property.**
- **Unusable flares should be given to Oregon State Police (OSP) for disposal.** Contact the pyrotechnic and explosives division of OSP for additional information.
- **Unwanted road flares that are not transferred to other crews or OSP should be ignited (i.e. remove the cap and strike the flare) and allowed to burned in a safe location.** Road flares that will not ignite should be saturated with water (i.e. soaked in a bucket) and managed as *solid waste* (i.e. thrown in the trash).
- **Used glow sticks and other non-hazardous light sticks should be managed as *solid waste*.**

5.12.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of lighting storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. labels) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information is located in Appendix C.

- **The generation of *universal waste* lamps (i.e. standard fluorescent tubes or other mercury lamps that will be recycled) must be documented on the EMS Waste Generation Log.** Generation is counted when the lamp is determined unusable. If lamps are managed as *universal waste*, the weight does not count toward the facility's *hazardous waste* generator status. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- The generation and disposal of non-hazardous lamps (i.e. incandescent, LED, and low-mercury lamps) that are thrown in the trash does not have to be tracked. Used non-hazardous lamps that are recycled should be tracked as universal waste.**The generation of *hazardous waste* lamps (i.e. standard fluorescent tubes or other mercury lamps that are thrown in the trash or taken to a landfill) must be documented on the EMS Waste Generation Log.** If lamps are managed as *hazardous waste*, the weight of the lamps counts toward the facility's *hazardous waste* generator status. A facility must generate less than 220 pounds of *hazardous waste* each month in a calendar year to maintain a *Very Small Quantity Generator* status. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

  The following numbers are based on statewide information on municipal recycling information and appear to be reasonable averages

  a. 4-foot fluorescent tube weighs 0.5 pound.

  b. Compact fluorescent weighs 0.5 pound

  c. HID lamps weigh 1.0 pound
- **The disposal of *universal waste* lamps and *hazardous waste* lamps must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. batteries are taken to county waste facility or picked up by a waste disposal company). The documentation must include where the waste went and the method of disposal (e.g. recycled or incineration). A blank copy of the Waste Disposal Log is located in Appendix B.

Section Divider

Section Divider

5.13 OIL

5.13.1 Purpose

This procedure is intended for storing, handling, and disposing of oil. The procedure covers petroleum products used in the operation and maintenance of small engines, equipment, and fleet at ODOT

This section also covers the used oil burned at ODOT Maintenance Yards for heat.

Oil includes any liquid or semi-liquid petroleum-, soy-, or vegetable-based products. Oil includes, but is not limited to, motor oil, crank case oil, lubricant, heat transfer oil, gear oil, hydraulic fluid, machine cutting oil, and grease.

This procedure establishes management requirements for oil products that prevent releases of oil to the environment and encourage a safe, efficient work environment. Other relevant procedures include:

- 🕮 Guidelines for installation, maintenance, and disposal of tanks are located in Section 3 – Tanks.
- 🕮 Guidelines for spray oils and petroleum-based sprays are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for petroleum-based paving products are located in Section 5.2 – Asphalt Paving.
- 🕮 Guidelines for vegetable oil are located in Section 5.2 – Asphalt Paving.
- 🕮 Guidelines for brake fluid are located in Section 5.3 – Automotive Fluids and Parts
- 🕮 Guidelines for diesel and other fuel oils are located in Section 5.11 - Fuel.
- 🕮 Guidelines for heating oil are located in Section 5.11 - Fuel.
- 🕮 Guidelines for managing fleet are located in Section 5.9 – Equipment and Fleet.

5.13.2 Regulating Agencies

EPA regulates the storage of oil in locations where a spill could impact navigable water or tributaries.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

EPA and DEQ regulate the management of used oil including the storage and transportation of used oil and the use of used oil space heaters.

EPA and DEQ regulate and oversee the cleanup actions that are in response to petroleum spills, leaks, and/or storage.

5.13.3 Alternatives And Pollution Prevention

- Consider recycling or returning empty barrels to the vendor where opportunities are available.
- Consider the use of bio-lubricants where practical and allowed by the equipment manufacturer.
- Recycle wastes where recycling opportunities are available. Mixing wastes reduces recycling options (e.g. oil recycler recyclers may not take oil mixed with anti-freeze). Mixing used oil with solvents and thinners reduces recycling options and may create *hazardous waste*s.

5.13.4 Oil - Best Management Practices

Refer to yard-specific documents, such as Spill Prevention Control and Countermeasure (SPCC) plans, for site-specific requirements and best management practices.

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for the type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** OERS and National Response Center must be notified of all *reportable spill*s. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

  The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills.

5.13.4.1 STORAGE OF NEW OIL

BMPs for the purchase, operation, maintenance, and disposal of metal tanks used to store new and used oil are located in Section 3 – Tanks. This section provides guidance on product storage.

Refer to Section 3.1.3 for information on purchasing, operation, and disposal of ODOT owned stationary oil tanks.

5.13.4.1.1 Storage in Aboveground Tanks and Large Containers (≥30 gallons)

BMPs for tanks are located in Section 3 – Tanks. The BMPs in Section 3 provide guidance on the purchase, operation, maintenance, and disposal of ODOT owned tanks. This section provides guidance on product storage.

- **Oil should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.

- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control or water treatment measures should be implemented where appropriate.

- **Containers and tanks must be labeled with product information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as a waste (see Section 5.13.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **Containers and tanks must be in good condition** (e.g. no harmful rust, damage, or leaks).

- ***Secondary containment* must be provided for all oil containers (55 gallons or larger) at *Maintenance yard*s with SPCC Plans.** Refer to the yard's SPCC Plan for site-specific requirements. Double-walled tanks provide secondary containment.

SPCC Plans are not required at all ODOT Maintenance Yards. A list of yards that have written SPCC Plans is located in Appendix K. A copy of the yard's SPCC Plan must be kept onsite.

- ***Secondary containment* must be provided for oil containers that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** *Secondary containment* includes, but is not limited to, double-walled tanks, spill pallets, curbs, or berms that keep products from flowing offsite or into waterbodies. Secondary containment should be provided at all other locations. Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*.
- **Overfill protection must be provided for all oil containers (55 gallons or larger) at *Maintenance yard*s with SPCC Plans.** Overfill protection should be provided for oil tanks at *Maintenance yard*s without SPCC Plans. Overfill protection may be provided by an action (e.g. checking capacity before pouring) or by equipment (e.g. a level gauge).
- **Valves that allow the outward flow of oil must be securely closed (when not in use) on all oil containers (55 gallons or larger) at *Maintenance yard*s with SPCC Plans.** Valves should be closed on all oil tanks.
- **Containers and tanks should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers and tanks should be stored on a paved surface.** Absorbents (e.g. spill pads, gravel, or sand) may be placed on top of the pavement to assist with cleaning and capturing drips and spills.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.
- **If oil is stored in a double-walled tank the space between the tank walls should be checked monthly for leaks.** Some double-walled tanks have a gauge that shows the level of liquid between the tank walls. If the tank is not equipped with a gauge check use the inspection port to determine if liquids are present.

Check the inspection port to determine if liquids are present between the double-walls of the tank.

5.13.4.1.2 Storage of Small Containers (less than 30 gallons)

- **Original and *secondary container*s (e.g. drain pans) must be labeled with product information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as a waste (see Section 5.13.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- ***Incompatible products* (e.g. oil and welding gases) should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.13.4.2 HANDLING AND USE OF OIL

5.13.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **Containers must be closed when product or wastes are not being added or removed.** Process containers (e.g. drip trays or drain pans) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater. Pumps are considered closed.
- **Containers and liquids should be handled in a manner that reduces spills.** Absorbent pads or drip pans should be used where appropriate.
- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills (e.g. asphalt or concrete).
- **Absorbent or spill kits should be located in oil handling areas.** Cleanup materials should be appropriate for oil spills (e.g. oil only or all-purpose). Supplies should be replenished as used. **Absorbent should be generously applied to spills and swept up.**
- **In-use containers should be stored indoors.**
- **Drip trays and other collection tools should be emptied periodically** to ensure sufficient collection capacity. Collections tools (e.g. drain boards) may be kept open if the container is actively in use.
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Empty drums should be stored in a manner that indicates the drum is empty.** Examples of ways to show the drum is empty include storing the drum sideways with the bungs horizontal, labeling the drum "empty," or keeping the drum in an area signed “empty drums” or similar wording. Refrain from storing drums that previously contained liquids upside-down.

5.13.4.2.2 Used Oil Storage

Refer to the Storage section of this procedure for additional BMPs. (e.g. secondary containment, overfill protection, and testing).

- **Used oil tanks and containers must be labeled "Used Oil" or "Heater Fuel."** Labels must be intact, visible, and legible. Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Process containers (e.g. drain pans) that are not emptied by the end of the process must be labeled and covered.**
- **Non-oil products and wastes (e.g. anti-freeze, solvents, and thinners) should be kept out of used oil tanks and containers** where practical. Mixing oil with non-oil wastes reduces the opportunity for recycling and may cause the waste to be classified as hazardous.
- **Unusable fuel and petroleum-based automotive fluids (e.g. brake fluid) should be mixed with used oil if allowed by the used oil recycler.** Refer to the manufacture recommendations or contact the operator before mixing fuel with used oil that will be burned in a used oil space heater.

5.13.4.3 DISPOSAL OF OIL

5.13.4.3.1 Disposal of Used Oil

- **Used oil is banned from disposal at Oregon landfills and must be either**
  1. **Recycled OR**
  2. **Burned for fuel.**

  Used oil that has been stored and handled according the BMPs in this section is classified as an *excluded waste*. For additional information on material banned from landfills consult the DEQ Fact Sheet – Landfill Bans in Oregon located in Appendix I.
- **If used oil is collected by a used oil company, the company should be registered with DEQ** as either a used oil processor or a used oil burner. Used oil may be given to other State or local agencies or municipalities provided the agency the oil is properly burned for fuel. Refer to Section 5.13.4.3.3 if oil is transferred to another ODOT Maintenance Yard for a used oil space heater.
- **Used oil that has been mixed with non-oil wastes (e.g. solvent) must be characterized (e.g. sampled or assumed hazardous) prior to disposal.** The used oil must be managed as *hazardous waste*, if characterization shows the waste is hazardous. If waste characterization demonstrates the waste is non-hazardous, the waste should be recycled. Used oil that has been mixed with a *chlorinated product* is usually classified as a *hazardous waste*.
- **Absorbent used to cleanup oil spills should be managed as *solid waste* (i.e. trash).** Absorbents can be saturated but not dripping. Wastes from cleaning petroleum spills should be taken to a permitted municipal landfill or transfer station. A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.13.4.3.2 Reuse of Used Oil as Space Heater Fuel (onsite)

- **The used oil space heater must be designed for burning used oil.** Used oil space heaters have a maximum capacity of 0.5-million BTU per hour and are vented outdoors. Coordinate the installation of building heating units with Facilities Management.
- **The used oil space heater must burn only used oil generated by the routine maintenance of ODOT owned equipment.** ODOT is authorized to burn used oil generated at ODOT facilities . ODOT is not authorized to burn used oil generated by other agencies or individuals.
- **The used oil space heater must be maintained and operated according to manufacturer instructions.**

5.13.4.3.3 Transporting Used Oil to Another ODOT Site

ODOT is registered with DEQ to transport used oil (heater fuel) from one ODOT Maintenance Yard to another. ODOT's DEQ/EPA used oil transporter number is ORQ000021683.

- **Transport vehicle must be owned by ODOT.**
- **If transporting more than 55 gallons of used oil (per trip), the shipment must be documented on the Used Oil Transfer Log.** The Used Oil Transfer Log must be kept at yard receiving the used oil (the yard with the burner). The log is filled out by the employee who transports the oil (regardless of whether the employee is from the generating yard or the receiving yard). A copy of the Used Oil Transfer Log is located in Appendix Q.

5.13.4.3.4 Empty Oil Containers

See Section 1.4 – Empty Containers for addition information if needed.

- **Empty drums should be reused onsite or returned to the vendor for reconditioning** if opportunities exist. Vendor reconditioning is not available in all areas.
- ***Empty container*s that are not reused or returned to the vendor should be recycled.** Metal containers can typically be recycled as scrap metal. Contact local recyclers for availability and requirements.
- ***Empty container*s that are not recycled, reused, or returned to the vendor should be managed as *solid waste* (i.e. trash).** Plastic drums should be cut into two separate pieces prior to disposal. Crushing empty, metal drums is recommended. Contact the local landfill for site-specific requirements.
- **Aboveground tanks that are no longer needed, but are still in good condition, should be transferred to Surplus Property or to another ODOT crew.** Prior coordination with the receiving crew is expected.
- **Tanks that are in poor condition should be recycled where opportunities are available.** Tanks that are not recycled should be managed as *solid waste* (i.e. trash).

5.13.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of tanks, containers, and oil handling areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **Used oil that is mixed with non-oil wastes must be characterized (e.g. sampled or assumed hazardous) before disposal. The method and result of the characterization must be documented.** If the waste was sent to a lab for analysis, the documentation should show, at a minimum, that the waste was analyzed for volatile organic compounds, metals, and *flashpoint*. Contact the Region HazMat Coordinator for assistance with waste characterization. Additional information on waste characterizing is located in Appendix D.

- **The monthly generation of used oil (excluded or hazardous) must be documented on the EMS Waste Generation Log.** Used oil and mixed oil that is determined non-hazardous should be listed as *excluded waste*. The weight of *excluded waste* does not count toward the facility's *hazardous waste* generator status. The monthly generation of used oil may be estimated by 'sticking' the tank, using a level gauge, or projecting the amount based on prior disposal. Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The disposal of used oil (excluded or hazardous) must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. taken to another ODOT yard or picked up by a recycling company). The documentation must include where the waste went and the method of disposal (e.g. recycled or burned for fuel). If used oil is burned onsite in a used oil space heater, the disposal should be noted once a year. Additional information on the Waste Disposal Log is located in Appendix D.
- **The Used Oil Transport Logs must be used to document the movement of used oil from one ODOT yard to another.** A copy of the log and a summary of the requirements are located in Appendix Q. The Used Oil Transport Log must be kept at the receiving yard. ODOT's DEQ/EPA used oil transporter number (ORQ000021683) must be included in the "manifest" column of the generating yard's Waste Disposal Log.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.14 PAINT AND COATINGS

5.14.1 Purpose

This procedure is intended for the storing, handling, and disposing of paint and other surface coatings. routinely used by ODOT Maintenance employees in the maintenance of vehicles, facilities, and structures. This procedure covered the removal of paint and coatings using media blasting or wet blasting. This procedure also covers ink used by the ODOT Sign Shop in the creation of signs. This procedure does not include traffic line/striping paints or aerosol spray paint.

Paint includes, but is not limited to, latex, waterborne, oil-based, lacquer, enamel, primer, acrylic, pigment, alkyd, ink, urethane paint, epoxy paint, and automotive paint.

This procedure establishes management requirements for paint that protect the environment and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for aerosol spray paints are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for paint removers, thinners, and solvents are located in Section 5.19 – Solvent.
- 🕮 Guidelines for epoxies are located in Section 5.8 – Epoxy.
- 🕮 Guidelines for traffic line (striping) paint are located in Section 5.15 – Pavement Marking.

5.14.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee the cleanup actions that result from spills, leaks, storage, and/or disposal of harmful materials.

The Oregon State Fire Marshal's Office regulates the storage of flammable/combustible materials.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.14.3 Alternatives And Pollution Prevention

- Choose non-hazardous (or less hazardous) paint where possible. Look for products that are labeled non-toxic, low VOC, water based, or lead-free. For example (where appropriate for the application), water-based paint is preferred over oil-based paint; low solvent is preferred over high solvent; and lead-free is preferred over paint with heavy metals (e.g. lead, chromium, zinc, and cadmium).
- Choose paints in reusable, returnable, or recyclable containers where available.
- Consider purchasing recycled paint where opportunities exist. For example, MetroPaint® is a recycled interior/exterior latex paint that is filtered to industry standards and tested for performance and environmental safety. MetroPaint® is available in a variety of colors at stores in Portland, Salem, Eugene, Medford, and Roseburg. The price is reduced for government agencies. For more information got to http://www.oregonmetro.gov/index.cfm/go/by.web/id=521.
- Consider powder coating, electrostatic painting, or other industrial coating (e.g. Line-X® or Rhino®) on metal surfaces and fleet rather traditional liquid paints. Industrial coatings offer protection against abrasion, corrosion, impact, and slipping. Industrial coatings increase the useful life of equipment and fleet while reducing repainting frequency. .
- Where blasting is necessary for preparing painted surfaces dry blasting methods are typically preferred over wet-blasting. Filter solids (i.e. paint chips) from water prior to disposal. Both the solids and the liquid require hazardous waste characterization prior to disposal.

Wet-blasting painted surfaces coated with significant bat or pigeon guano pose an additional hazard. The guano lowers the pH of the water, which allows heavy metals in the paint to leach at a much greater degree. The waste water is more likely to be a hazardous waste.

- Use caution when welding or torch cutting metals treated with rust inhibitors or rust preventative paints. Refer to Health Exposure Alerts developed by the ODOT Office of Employee Safety for additional information. http://intranet.odot.state.or.us/employeesafety/Hazard%20Alerts.html

5.14.4 Paint – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. all-purpose or sand). Supplies should be replenished as used. Absorbent materials should be protected from the weather.

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.14.4.1 Storage of Paint

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.

- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.14.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **Containers that contain liquids or semi-solids must be in good condition** (e.g. no harmful rust, damage, or leaks).

- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.

- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

- **Flammable/combustible liquids (e.g. oil-based paint and automotive paints) must be kept in a *flammables cabinet* where appropriate.** The maximum storage quantities are listed in Table 1 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 1. Store flammable paints away from heat, sparks, and open flames.

  Secondary containment may be required for flammable/combustible materials below the storage limits. Flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 2.

  The temporary storage of liquids used for building maintenance, painting, or other similar infrequent maintenance purposes is allowed in amounts exceeding the maximum IF the amount does not exceed a 10-day supply at anticipated use rates.

Table 1: Storage Chart for Flammable/combustible Materials		MAXIMUM STORAGE ALLOWED		
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]	Outdoors
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	10 gallons (liquids used for the maintenance or operation of equipment) 25 gallons (other flammable/combustible liquids)	60 gallons	No limit 1,100 gallons adjacent to a building
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*	10 gallons (liquids used for the maintenance or operation of equipment) 120 gallons (other flammable/combustible liquids)	240 gallons	No Limit 1,100 gallons adjacent to a building
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	120 gallons	660 gallons	No Limit 1,100 gallons adjacent to a building

Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

- ***Secondary containment* must be provided for flammable/combustible materials when required.** A flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 2 (below) for limits. Refer to Section 1.6 for additional information on secondary containment.

Table 2: Secondary Containment Chart for Flammable/combustible Materials		*SECONDARY CONTAINMENT* REQUIRED	
		Indoor area	Outdoors or liquid storage room
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a flammables cabinet. containers larger than 55 gallons	All containers if the aggregate liquid storage is more than1,000 gallons All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*		
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	containers larger than 55 gallons	

- **Containers should be stored in a manner that protects the function and integrity of the product.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Cool, dry, and well-ventilated areas are recommended. Temperature extremes (e.g. freezing and heat) accelerate deterioration.
- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.

5.14.4.2 HANDLING AND USE OF PAINT

5.14.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **Containers must be closed.** Process containers (e.g. paint trays) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills (e.g. pavement or concrete).
- **In-use containers should be stored inside** where practical.
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**, see the Disposal section of this procedure.

5.14.4.2.2 Tool and Equipment Cleaning

- **If the facility is connected to sanitary sewer, tools used to apply latex or water-based paint should be washed in the sink.** Use plenty of water. Latex paints clog septic systems. Paint and paint cleaning wastes should be kept out of the septic system, storm drains, or conveyances.
- **Waste from cleaning tools used to apply non-latex paint should be collected and managed according to the Disposal section of this procedure.** Lacquer thinner or solvent that is used to clean application equipment should be managed according to the guidelines in Section 5.19 - Solvent.
- **Unusable paint from line flushes should be stored in separate containers.** Label waste containers.
- **The labels on containers used to store waste paint must identify the contents (e.g. old paint) and hazard information.** Labels must be intact, visible, and legible. Refer to Section 2 – Labels and Signs for guidance on labeling.
- **Containers of paint must be closed.** Process containers (e.g. paint trays) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.

5.14.4.2.3 Wet Blasting and Media Blasting (e.g. bead blasting or sandblasting)

- **Where practical, paint should be characterized for heavy metals (i.e. sampled or waste profile) BEFORE blasting to determine if the waste will be hazardous.** Refer to the *SDS* or other product information to determine if the paint is lead, cadmium, and chromium-free. Contact Region HazMat for assistance.

  Wet blasting includes pressure and power washing where the intent is to remove coating from the surface of the material. If the lead, cadmium, and chromium levels in the paint are below hazardous waste levels, media waste including water from wet-blasting will typically be non-hazardous waste. Water from wet-blasting paint that has been determined non-hazardous may be filtered through a geotextile fabric directly onto the ground and the paint chips may be thrown into the trash.
- **Blasting should be done over a surface that allows the blasting media to be collected for disposal** (e.g. inside a blasting booth).
- **Blasting areas should be located away from stormwater conveyances and waterbodies** where practical based on site constraints. Airborne material should be contained to the extent practical. Refer to the Disposal section of this procedure for the management of paint chips and blasting waste.
- **If lead-based paint is removed from buildings or structures the work must be done by a licensed lead abatement contractor.** The waste must be collected and managed as *hazardous waste*. Contact the Region HazMat Coordinator for assistance.

5.14.4.3 DISPOSAL OF PAINT

5.14.4.3.1 Disposal of Paint

Paint may not be intentionally hardened to create a *solid waste* unless the paint is known to be non-hazardous.

- **Where possible, paint should be used (to paint things) rather than managed for disposal.** Paint that mixes when stirred is still usable (general rule). Oil-based paint may remain usable for up to fifteen years. Latex paint is typically usable if the paint is less than ten years old and has not been repeatedly frozen and thawed.
- **Unwanted *architectural paint* should be recycled.** Oregon is the leader in paint recycling. Paint recycling is offered at Metro®, some county agencies, some landfills, and some paint retailers. For a complete list of collection locations go to the PaintCare web site https://www.paintcare.org/drop-off-locations/#/find-a-drop-off-site
- **Hardened lead-free paint should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.
- **Unusable latex or alkyd paint should be managed as a *solid waste*.** Liquid and semi-solid latex or alkyd paint waste may be mixed with an inert material (e.g. grease sweep or sand) or allowed to harden before disposal. Remember to label the container.
- **Liquid and semi-solid paint (that is not latex or alkyd) must be characterized (i.e. complete an EMS Waste Profile or assume hazardous) prior to disposal.** For more information on waste characterization see Appendix D or contact the Region HazMat Coordinator.

  The typical reasons paints are classified as hazardous waste are elevated concentrations of heavy metals (typically lead, cadmium, or chromium) or the presence of volatile organic compounds (i.e. a chemical odor).
- **If characterization demonstrates the waste is hazardous, one of the following disposal options must be used.** The generation and disposal of hazardous waste must be documented.

  Evaporation or air-drying is not allowed prior to disposal. Containers must be kept closed except when adding wastes.

  — Picked up by a licensed *hazardous waste* management company, OR

  — Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.

    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the liquid or semi-solid paint is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Liquid and semi-*solid waste* may be mixed with an inert material (e.g. grease sweep) or allowed to harden before disposal. During the drying process, paint containers should be kept on shelves or other locations where the container is unlikely to be tipped over. Remember to label the containers.

5.14.4.3.2 Disposal of Non-Reusable Accessories (e.g. strainers or forms)

- **Unwanted paint accessories (e.g. stencils, forms, or brushes) that are coated with dried, heavy-metal free paint should be managed as *solid waste* (i.e. trash).** Recycling is encouraged where opportunities exist.
- **If paint accessories are coated with hazardous paint, one of the following disposal options must be used.** The generation and disposal of hazardous waste must be documented.

  Evaporation or air-drying is not allowed prior to disposal. Containers must be kept closed except when adding wastes.

  — Picked up by a licensed *hazardous waste* management company, OR

  — Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.

    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.

5.14.4.3.3 Disposal of Waste from Cleaning Paint Tools

- **Disposable tubes and tips should be removed from application equipment and managed as *solid waste* (i.e. trash).**
- **Latex paint (not mixed with solvent) and other non-hazardous paint that is collected from flushing application lines should be managed as *solid waste* (i.e. trash).** Liquid waste may be mixed with an inert material (e.g. grease sweep or sand) or allowed to harden before disposal. During the drying process, paint containers should be kept on shelves or other locations where the container is unlikely to be tipped over. Remember to label the containers.

  Waste that is determined hazardous must be managed as *hazardous waste*. See Section 2 - Labels and Signs for container label requirements. The generation and disposal of hazardous waste must be documented. One of the following disposal options must be used. Evaporation or air-drying is not allowed prior to disposal if the waste is determined hazardous. Containers must be kept closed except when adding wastes.

  — Picked up by a licensed *hazardous waste* management company, OR

  — Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.

    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.

5.14.4.3.4 Disposal of Paint Booth Filters

- **Dry paint booth filters must be characterized (e.g. tested or assumed hazardous) prior to disposal.** Contact Region HazMat with questions regarding *hazardous waste* characterization.
- **Waste that is determined hazardous must be managed as *hazardous waste*.** See Section 2 - Labels and Signs for container label requirements. The generation and disposal of hazardous waste must be documented. One of the following disposal options must be used.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **Waste that is determined non-hazardous should be managed as *solid waste* (i.e. trash).**

5.14.4.3.5 Disposal of Blasting Waste Mixed with Paint Chips

- **Blasting waste must be characterized (i.e. sampled, assumed hazardous, or Waste Profile) prior to disposal.** The method and result of the characterization must be documented. Lab analysis should show, at a minimum, that the solids were analyzed according to the Toxicity Characteristic Leaching Procedure (TCLP) for lead, cadmium, and chromium. Liquid waste (i.e. water from wet blasting) should be tested for total lead, cadmium, and chromium. Contact Region HazMat with questions regarding *hazardous waste* characterization.
- **Waste that is determined hazardous must be managed as *hazardous waste*.** See Section 2 - Labels and Signs for container label requirements. The generation and disposal of hazardous waste must be documented. One of the following disposal options must be used.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **Waste from blasting non-hazardous paint (e.g. lead, chromium, and cadmium free or latex paint) should be managed as *solid waste* (i.e. trash).** Non-hazardous liquid waste, that is free of paint chips, should be directed to a sanitary sewer (with permission from the municipality) where practical or allow to infiltrate into the ground.

5.14.4.3.6 Disposal of Empty Containers

- ***Empty containers* should be managed as *solid waste* (i.e. trash).** Recycling and reuse is recommended where opportunities are available. See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty drums.

5.14.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain paint products and wastes.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **If waste is determined to be hazardous, waste generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.** Additional information on waste characterization and documentation is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.15 PAVEMENT MARKING

5.15.1 Purpose

This procedure is intended for the storing, handling, and disposing of pavement marking products. The procedure covers various marking products routinely used by ODOT Maintenance employees on highways.

Pavement marking products include, but are not limited to, striping paints, thermoplastics, glass beads, and pavement markers.

This procedure establishes management requirements for pavement marking products that protect the environment and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for aerosol spray paints are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for adhesives are located in Section 5.8 – Epoxy.
- 🕮 Guidelines for paints are located in Section 5.14 – Paint.
- 🕮 Guidelines for thinners and solvents are located in Section 5.19 – Solvent.

5.15.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee the cleanup actions that result from spills, leaks, storage, and/or disposal of harmful materials.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.15.3 Alternatives And Pollution Prevention

- Choose non-hazardous (or less hazardous) products where possible. Avoid products that contain methyl methacrylate (MMA). Look for products that are non-toxic; lead, chromium, and cadmium-free; water-based; or low VOC. When less hazardous products are unavailable, try to limit personal exposure to vapors and fumes.
- Consider using refillable totes instead of permanent truck mounted vessels where practical and available. Refillable totes are returned to the vendor; reducing the need for onsite equipment cleaning.

5.15.4 Pavement Marking Products – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.
- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.15.4.1 STORAGE OF PAVEMENT MARKING PRODUCTS

5.15.4.1.1 Paints (e.g. waterborne paint and low VOC paint)

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.15.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **When storage areas for large quantities of paint cannot be located away from conveyances or waterbodies, *secondary containment* should be installed to limit the flow of potential spills.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.
- **Containers should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- **Striping paints should be stored for the shortest period practical**; typically one season.

5.15.4.1.2 Dry Products (e.g. thermoplastics)

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Dry products should be stored indoors or under cover.** Covering includes storing under a roof, an overhang, or under a tarp or plastic sheeting.

5.15.4.1.3 Hard Goods and Durable Markers (e.g. glass beads, legends, and Dura-stripe)

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture). Storage areas should be high and dry.

5.15.4.1.4 Construction Paints and Survey Markers

See Section 5.1 – Aerosol Cans or Section 5.14 – Paint.

5.15.4.2 HANDLING AND USE OF PAVEMENT MARKING PRODUCTS AND EQUIPMENT

Maintenance activities that utilize these products must follow application guidelines in the ODOT *Blue Book* and/or from the vendor.

5.15.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **In-use containers and product transfers should be handled in a manner that prevents spills** (e.g. use absorbent pads). Containers, including bags, should be handled so that tears, bursts, and punctures are minimized.
- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills (e.g. asphalt or concrete).
- **Containers must be closed.** Valves should be securely closed when not in use.
- **In-use containers should be stored inside or undercover.**
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**, see the Disposal section of this procedure.

5.15.4.2.2 Mixing and Loading Areas

- **Mixing and loading areas should be sited away from stormdrains and waterbodies,** where practical based on site constraints. Areas should be operated so that spills, overfills, and leaks stay out of nearby waterbodies, stormdrains, soil, or adjacent properties.

5.15.4.2.3 Equipment Cleaning

- **Filtered wash water from cleaning equipment used to apply waterborne paint should be released to the municipal sanitary system, if available.** Solids should be removed prior to discharge. Wastewater should be mostly water (e.g. not off-spec paint or line flushes). If a sanitary system is not available, collect the wash water and manage according to the equipment cleaning BMPs listed in the Disposal section of this procedure (Section 5.15.4.3.2).
- **Wastes from line flushes and cleaning equipment used to apply non-waterborne paints should be collected and managed according to the Disposal section of this procedure.** Unusable product should be stored in a separate container (not mixed with waste). Lacquer thinner or solvent that is used to clean application equipment should be managed according to the guidelines in Section 5.19 - Solvent.

- **Containers must be closed.** Process containers (e.g. paint trays) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **The labels on containers used to store waste paint must identify the contents (e.g. MMA - yellow) and hazard information.** Labels must be intact, visible, and legible. Refer to Section 2 – Labels and Signs for guidance on labeling.

5.15.4.2.4 Off-Season Storage of Pavement Marking Products

- **Products should be used until the container is empty.**
- **Product remaining at the end of the season should be returned to the vendor.**

5.15.4.3 DISPOSAL OF PAVEMENT MARKING PRODUCTS

5.15.4.3.1 Disposal of Unusable Products

- **Hardened paints and legends should be managed as *solid waste* (i.e. trash).** Wastes may not be intentionally hardened to create a *solid waste* unless the waste is known to be non-hazardous. A list of permitted municipal landfills and transfer stations is located in Appendix J.
- **Unusable waterborne paint should be managed as *solid waste* (i.e. trash)**. Liquid and semi-solid waterborne paint waste may be mixed with an inert material (e.g. grease sweep) or allowed to harden before disposal.
- **Liquid and semi-solid non-waterborne paints and legends (e.g. outdated, unusable, or unwanted) must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.** For more information on waste characterization see Appendix D or contact Region HazMat.
- **If characterization demonstrates the waste is hazardous, one of the following disposal options must be used.** Evaporation or air-drying is not allowed prior to disposal. Containers must be kept closed except when adding wastes.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the liquid or semi-*solid waste* is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Non-*hazardous waste* may be air-dried, mixed with an absorbent, or hardened to form a solid before disposal.
- **Unusable hard-goods (e.g. glass beads) should be managed as *solid waste* (i.e. trash).**

5.15.4.3.2 Disposal of Equipment Cleaning Waste

- **Disposable tubes and tips should be removed from application equipment and managed as *solid waste* (i.e. trash).**
- **Wash water from cleaning equipment used to apply waterborne striping paint should be discharged to a sanitary system.** Do not pour paint or solvent into the sanitary system.

- **Solids should be removed before wash water goes into the drain.** Solids will clog oil/water separators. Solids should be collected and managed as *solid waste* (i.e. trash) (e.g. thrown in the trash).
- **Waterborne striping paint and other non-hazardous paint should be managed as *solid waste* (i.e. trash).** Non-hazardous liquid and semi-*solid waste* may be mixed with an inert material (e.g. grease sweep) or allowed to harden before disposal.
- **Paint that cannot be managed as *solid waste* (i.e. trash) must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.** For more information on waste characterization see Appendix D or contact Region HazMat.
- **If characterization demonstrates the waste is hazardous, the waste must be managed as *hazardous waste*.** See Section 5.15.4.3.1 for disposal options. Evaporation or air-drying is not allowed prior to disposal. Containers must be kept closed except when adding wastes.

5.15.4.3.3 Disposal of Non-Reusable Accessories (e.g. forms)

- **Unwanted accessories (e.g. stencils, forms, or brushes) that are coated with dried paint should be managed as *solid waste* (i.e. trash).** Recycling is encouraged where opportunities exist.

5.15.4.3.4 Disposal of Paint Grindings

See Section 5.18.4.3.6 – Roadwaste - Striping Grindings.

5.15.4.3.5 Disposal of Empty Containers

- **The vendor should be contacted to remove empty totes** as soon as practical.
- ***Empty container*s should be managed as *solid waste* (i.e. trash).** Recycling and reuse is recommended where opportunities are available. See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty drums.

5.15.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of containers and storage areas that contain pavement marking products and wastes.** Additional information on the Monthly Field Audit is located in Appendix C. The Traffic Line Manager should be informed of issues that need to be resolved at temporary storage locations.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **Liquid and semi-solid, non-waterborne, wastes must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal. The method and result of the characterization must be documented.**
- **If waste is determined to be hazardous, waste generation and disposal must be documented on the EMS Waste Generation and Waste Disposal Logs.** Wastes are recorded at the point of generation, so waste from traveling crews must be added to Waste Logs for the *Maintenance yard* where the product was stored. Additional information on waste characterizing and the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located online, in the ODOT Emergency Operations Manual, and in Appendix B.

Section Divider

Section Divider

5.16 PESTICIDE

5.16.1 Purpose

This procedure is intended for the storing, handling, and disposing of pesticides and the storing and handling of pesticide application equipment. This includes any product with a pesticide label intended for preventing, destroying, repelling, or mitigating any pests. This procedure covers "ready to use" pesticides as well as undiluted concentrated pesticides. This section also includes adjuvants and stickers used in conjunction with pesticides.

Antimicrobial pesticides (e.g. bathroom cleaners) are substances used to destroy or suppress the growth of harmful microorganisms (i.e. bacteria, viruses, or fungi) on inanimate objects and surfaces and like all pesticides are registered by the EPA.

Pesticides include, but are not limited to, defoliants, desiccants, fungicides, herbicides, insecticides, nematicides, rodenticides, and plant growth regulators.

This procedure establishes management requirements for pesticides used by ODOT Maintenance employees to prevent releases of pesticides into the environment and to maintain a safe, neat working environment. Other relevant procedures include:

- 🕮 Guidelines for installation, maintenance, and disposal of tanks are located in Section 3 – Tanks.
- 🕮 Guidelines for aerosol pesticides are located in Section 5.1 – Aerosol Cans.

5.16.2 Regulating Agencies

EPA regulates the use and management of pesticides. Product specific EPA storage, use, and disposal guidance is located on the container label.

EPA and DEQ regulate the management of hazardous and *universal waste* (including waste pesticides) under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

Oregon Department of Agriculture (ODA) regulates pesticide use under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

ODA regulates public pesticide applicator licensing and certification based on types of pesticide and application techniques.

DEQ regulates the application of pesticides over, in, or within three feet of waterbodies.

EPA and DEQ regulate the reporting and clean up spills and leaks including the disposal of spill cleanup wastes.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

Oregon Water Resource Department regulates the use of backflow devises when filling from XX.

5.16.3 Alternatives And Pollution Prevention

- Purchase returnable or refillable containers from distributors. Contact Statewide Vegetation Management Coordinator for information on the most recent contract.
- Minimize onsite pesticide storage. Purchase only the amount of pesticide to be used in that season. Mix only the amount to be used in a single day or shift.
- Consider using commercial pesticide applicators or coordinate with local agency applicators.

- Consider alternative (non-chemical) forms of pest control and prevention. Pesticides have an EPA label. An EPA Registration Number (EPA Reg. No.) appears on all registered pesticides sold in the United States. The EPA number is usually found on the back panel of the label along with the detailed instructions for use. Examples of alternative forms include:
  - — Mechanical – mowing, hand pulling, or pruning. Also includes traps for critters.
  - — Cultural - cleaning equipment between jobs, replanting disturbed areas with desirable vegetation (that will out compete weeds), using mulch for weed suppression, or using *clean fill*.
  - — Biological - contact the ODOT Statewide Vegetation Management Coordinator for biological controls available through ODA.

  EPA maintains a searchable online database of all products registered as a pesticide. http://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1
- Consider pest life cycle and weather when applying necessary pesticide to ensure optimum control.
- Choose less hazardous pesticides where possible. Look for products that are as safe as possible for people (e.g. do not produce toxic fumes or irritate skin) and the environment (e.g. break down quickly or do not harm fish). Apply the least toxic and most appropriate product to control unwanted vegetation and other pests.

5.16.4 Pesticide – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).
- **ODOT employees must be licensed and certified to apply pesticides (in accordance with ODA regulations) if the employee is**
  1. **applying or consulting in the application of "Restricted Use" pesticides; OR**
  2. **applying any pesticide with motorized equipment (e.g. power backpack, lawnmower, or ATV).**

  "Restricted use" pesticides can only be purchased by licensed applicators. The "restricted use" designation will be located on the product's EPA label. The application of "ready to use" pesticides, such as wasp sprays and insect repellents, typically do not require licensing or certification. For more information on licensing and certifications, contact the ODOT Statewide Vegetation Management Coordinator.
- **Pesticide applications made over, in, or within 3 feet of water must comply with the conditions of ODOT's NPDES 2300-A Pesticide General Permit.** Water includes, but is not limited to, waterbodies, wetlands, seasonally wet areas, and flowing ditches that are connected waterbodies or wetlands. Contact the IVM Coordinator or refer to pesticide application guidelines in the Blue Book and Maintenance Guide.
- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.16.4.1 STORAGE OF PESTICIDE

5.16.4.1.1 Dry and Liquid Product Storage (all sizes)

- **Products should be stored in pre-selected areas.** Pesticide storage areas should be cool, dry, and well-ventilated. Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Original containers and secondary containers must be labeled.** Original containers are adequately labeled. **Labels on secondary containers and applicator equipment must have the product name and the EPA Registration Number** (EPA Reg ID#) listed; the full EPA label is not required. Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Dry products (e.g. powder, granular) should be stored away from liquids.
- **Containers must be in good condition** (e.g. no damage or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.
- **Containers should be stored on a surface that provides a physical barrier between the container and the soil (e.g. pavement).** The surface should be constructed of a material that will not absorb potential spills.
- **Absorbent materials and/or spill kits should be stored in areas where spills are likely to occur** such as where liquids are stored and handled. Absorbent materials should be protected from the weather. Spill kits should contain materials appropriate for the product (e.g. all-purpose absorbent). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used.
- ***Secondary containment* should be provided for containers of liquid products that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.
- **A pesticide inventory should be kept.** The inventory should include pesticide name, formulation, container size, number of containers, name of person removing pesticide from inventory, and the date. Quantities should be kept to a minimum (e.g. purchase small quantities for specific jobs or seasonal work). Pesticide inventories should be updated when product is supplied or removed.

- **Flammable/combustible liquids must be kept in a *flammables cabinet* where appropriate.** The maximum storage quantities are listed in Table 1 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. **A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 1.**

  The temporary storage of flammable/combustible liquids used for building maintenance, painting, or other similar infrequent maintenance purposes is allowed in amounts exceeding the maximum IF the amount does not exceed a 10-day supply at anticipated use rates.

Table 1: Storage Chart for flammable/combustible adjuvants and stickers		MAXIMUM STORAGE ALLOWED	
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]
Group 1	• Liquids with flashpoint below 73°F and boiling point 95°F or less	25 gallons	60 gallons
Group 2	• Liquids with flashpoint below 73°F and boiling point more 95°F • Liquids with flashpoint equal or greater 73°F and less 140°F	120 gallons	240 gallons
Group 3	• Liquids with flashpoint equal or greater 140°F and less 200°F	120 gallons	660 gallons

[1] Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

5.16.4.1.2 Aerosol Can Storage

See Section 5.1 – Aerosol Cans

5.16.4.2 HANDLING AND USE OF PESTICIDE

- **All pesticides must be used in a manner consistent with labeling.** Pesticide may be used at a rate lower than specified on the label unless the label specifically prohibits deviation from the specified rate.

  The law specifically says to apply in accordance with the label in your possession. Label information may vary. Online versions of labels may be updated quicker than container labels. Carry the label from the container currently in use. Update labels, including supplemental labels, with each shipment. If *adverse incidents* are observed contact the ODOT Statewide Vegetation Management Coordinator.

5.16.4.2.1 In-Use Containers (i.e. opened containers)

Refer to the Storage section of this procedure for additional BMPs.

- **Undiluted pesticide should be transported in the original container.**
- **Diluted pesticide should be transported in the application equipment.**

- **Original containers and secondary containers must be labeled.** Original containers are adequately labeled. Labels on secondary containers and applicator equipment must have the product name and the EPA Registration Number (EPA Reg ID#) listed; the full EPA label is not required. Labels must be intact, visible, and legible.

  The EPA label and SDS should be kept inside the truck while the product is in use. Full or partially full containers must be labeled at the end of the shift. Unlabeled containers may be relabeled if the information is known. Refer to Section 2 – Labels and Sign for guidance on labeling.

- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.

- **Containers must be closed.** Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.

- **Containers should be securely anchored during transport to minimize rolling or sliding.**

- **Pesticide application equipment should be inspected daily during spray operations** by the district IVM Coordinator, individual applicator, or their designee. The inspection should include checking tanks and hoses for leaks; making sure the valves, pumps, nozzles, and flow-monitoring systems are working properly; and checking the overall working condition.

5.16.4.2.2 Mixing and Loading

- **Mixing and loading areas should be sited away from stormdrains and waterbodies,** where practical based on site constraints. Areas should be operated so that spills, overfills, and leaks stay out of nearby waterbodies, stormdrains, soil, or adjacent properties (e.g. cover stormdrains). Cover stormdrains where necessary while mixing or loading.

- **Mixing and loading should be done in a manner that prevents spills** (e.g. use absorbent pads). Containers, including bags, should be handled so that tears, bursts, and punctures are minimized.

- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil.** The surface should be constructed of a material that will not absorb potential spills.

5.16.4.2.3 Onsite Use of Pesticides

Refer to the ODOT Routine Road Maintenance Guide (*Blue Book*) or District Integrated Vegetation (IVM) Plan for application guidelines.

5.16.4.2.4 Truck-Mounted Storage Tanks

Refer to Section 3.2.1 – Poly Transport Tanks for guidance on the purchase, operation, maintenance, and disposal of poly transport tanks. This section provides guidance on product storage.

Transport tanks are considered fleet. ODOT Fleet is responsible for scheduling and conducting annual inspections of transport tanks in conjunction with equipment inspections. Routine inspection and maintenance records of ODOT fleet are kept in FIMS. Contact Fleet Management with questions regarding the maintenance and inspection of fleet.

- **Original containers and secondary containers must be labeled.** Original containers are adequately labeled. Labels on secondary containers and applicator equipment must have the product name and the EPA Registration Number (EPA Reg ID#) listed; the full EPA label is not required. Labels must be intact, visible, and legible.

  The EPA label and SDS should be kept inside the truck while the product is in use. Full or partially full containers must be labeled at the end of the shift. Unlabeled containers may be relabeled if the information is known. Refer to Section 2 – Labels and Sign for guidance on labeling.

- **When equipment is parked with product in the tank, equipment should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Tanks containing product should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).

5.16.4.2.5 Equipment Cleaning and Rinsate

- ***Rinsate* (i.e. water and pesticide mixture from cleaning the interior surfaces of pesticide application equipment or pesticide containers) must be collected.**
- ***Rinsate* should be added as makeup water when making new spray mixtures**, as long as doing so will not violate EPA labeling instructions. The concentration cannot exceed the target application rate for the chemical. Refer to Section 5.16.4.3.1 – Disposal of Waste Pesticide for managing *rinsate* that cannot be used as makeup water or applied as a product.
- **The exterior of spray trucks should be cleaned at ODOT facilities that have wash racks connected to sanitary sewer where practical and allowed by the municipality.** The exterior of equipment may be cleaned at ODOT property not connected to sanitary sewer as long as doing so will not violate the EPA labeling instructions and releases to sensitive areas are avoided.
- **If rinse water cannot be managed according to the EPA label instructions, the water must be collected and managed as pesticide waste.**
- **Where practical application tanks should be thoroughly cleaned before taken to an ODOT equipment shop.** When cleaning is not practical guidance on managing waste pesticide should be provided to the mechanic.

5.16.4.2.6 Off-Season Storage

- **Pesticide equipment should be thoroughly cleaned at the end of the season.** Refer to Section 5.16.4.2.4 – Equipment Cleaning and Rinsate for BMPs on managing wastewater.
- **Pesticide application equipment should be stored in a manner that protects the tanks, valves, nozzles, and flow-monitoring systems.** Equipment should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Refer to Section 5.9 – Equipment and Fleet for additional guidance.
- **Product remaining at the end of the season should be**
    a) Returned to the vendor, OR
    b) Stored onsite in the original package, OR
    c) Transferred to a yard that has storage facilities.

5.16.4.2.7 Storage of Waste Pesticide

Waste pesticide includes any pesticide or pesticide saturated material that can no longer be used for the intended purpose. Examples of waste pesticide include, but are not limited to: canceled or suspended pesticide, absorbent mixed with pesticide, super saturated PPE, soil contaminated with spilled pesticide, used rodenticides, or unlabeled pesticide).

Refer to the Storage section of this procedure for additional BMPs.

- **If possible waste pesticides should be kept in the original container.**
- **Containers that hold waste pesticide that will be managed as universal waste must be clearly marked with all of the following items:**
    — "Universal Waste Pesticide"

- The date the pesticide became a waste (if in separate container) or the date waste were first put into the waste storage container (multiple bags on the same container). This is the *accumulation start date.*

- **If multiple wastes are placed in the same container the wastes should be individually bagged.**
- ***Universal waste* should be removed from the site at least annually.** Accumulation may be longer than one year if additional time is needed to ensure proper disposal so long as the containers or items are properly labeled with the accumulation start date.
- **Containers must be kept closed unless adding or removing wastes.**

5.16.4.3 DISPOSAL OF PESTICIDE

5.16.4.3.1 Disposal of Waste Pesticides

Waste pesticides are any product with an EPA registration number that cannot be used in accordance with the label and will be discarded. Examples include: unlabeled pesticides, unwanted or outdated product, supersaturated PPE, or absorbent used to cleanup pesticide spills.

- **Unopened containers of pesticide should be returned to the vendor or transferred to another ODOT crew where practical.**
- **Waste pesticide (e.g. expired, unlabeled, or unusable) should be sent to a *universal waste* collection center that has been authorized to accept pesticide wastes.** Additional information on managing pesticide as *universal waste* is available on the DEQ Fact Sheets located in located in Appendix I.
  - Contact the Statewide Vegetation Management Coordinator for additional disposal options.
  - Taken to a local waste collection event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies.
    - DEQ sponsored *universal waste* collection event
    - County waste facility that is authorized by DEQ to accept *universal waste*

  Local and DEQ sponsored collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If waste pesticide is not sent to a pesticide collection center (i.e. pesticide is thrown in the trash), the waste must be managed as hazardous waste.** The weight of hazardous waste counts toward the facility's hazardous waste generator status. A facility that generates 220 pounds of hazardous waste in a month is classified as Small Quantity Generator (see Appendix D). Small Quantity Generators are prohibited from throwing hazardous waste in the trash.

5.16.4.3.2 Disposal of Wastes not Registered as Pesticides

- **Disposal of mechanical pest controls (e.g. sticky traps) should be managed as *solid waste*.** EPA registration numbers are not required for mechanical pest controls. Check the label or EPA's label web site to confirm the waste is not classified as a pesticide.
- ***Empty containers* of adjuvants and stickers should be recycled where opportunities are available and practical.** Where recycling is not practical the containers should be managed as *solid waste* (i.e. trash). A list of permitted municipal landfills and transfer stations is located in Appendix J.
- **Adjuvants and stickers should be managed as a product** (instead of a waste). Full containers of unwanted adjuvants and stickers should be returned to the vendor or transferred to another ODOT crew. Where appropriate obtain approval prior to transferring products.

- **Adjuvants and stickers that cannot be used, returned, or transferred must be characterized (e.g. complete an EMS Waste Profile or assume hazardous) prior to disposal.** See Appendix D for additional information on waste characterization.
- **If characterization demonstrates the waste is hazardous one of the following disposal options must be used.**
  - — Picked up by a licensed *hazardous waste* management company, OR
  - — Taken to a local *hazardous waste* event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - o DEQ sponsored *hazardous waste* collection event
    - o County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the waste is non-hazardous, the waste should be managed as *solid waste* (i.e. trash).** Landfills will not take liquids and semi-solids unless the waste is inside a closed container. Non-hazardous liquids may be mixed with an absorbent to assist disposal.
- **Absorbents that have been used to clean up non-hazardous products or wastes should be disposed of a *solid waste*.**

5.16.4.3.3 Disposal of Empty Pesticide Containers

- **Empty single-use containers (e.g. non-aerosol bug repellent or pump bottles of anti-microbial soap) should be managed as *solid waste* (i.e. trash).** The disposal of pesticide containers that are not regulated by the Department of Agriculture follow the empty container rules listed in the definitions section of this document. If the container still contains pesticide refer to Section 5.16-.4.3.1 – Disposal of Waste Pesticide.
- **The cleaning instructions listed on the label must be followed (if present).** Pesticide specific handling requirements must be observed until the container is cleaned, reconditioned, or destroyed. Typically empty rigid pesticide containers are multiple or pressure rinsed with a suitable solvent (e.g. water for pesticides that uses a water carrier). Additional information cleaning pesticide containers is located in Appendix R. Refer to Section 5.16.4.2.4 – Equipment Cleaning and Rinsate for the management of *rinsate* as makeup water or product.

  This BMP typically applies to bulk pesticides regulated by the Department of Agriculture.
- **Refillable pesticide containers should be returned to the pesticide dealer or the chemical company.**
- **Clean containers (e.g. multiple or pressure rinsed) should be recycled where available and allowed.** A recycling statement is printed on the label. Contact the Oregon Agriculture Chemicals and Fertilizer Association (503-370-7024) for more information on pesticide container recycling.
- **Clean containers (e.g. multiple or pressure rinsed) that are not recycled should be managed as *solid waste* (i.e. trash)**. A list of permitted municipal landfills and transfer stations is located in Appendix J. Refer to Section 5.16.4.3.1 – Disposal of Waste Pesticide for the disposal of pesticides containers that cannot be cleaned according to the label.

5.16.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **A daily written record of all ODOT pesticide applications that require a applicator license must be kept.** Daily Spray Report forms (form 734-3494) are available through the ODOT storeroom. The information from the Spray Reports is transferred to the ODOT Pesticide Database. The Statewide Vegetation Management Coordinator reports application information to ODA where appropriate.
- **A record of pesticide applications over, in, or within three feet of waterbodies must be kept to comply with ODOT's NPDES permit.** Send reports to the Statewide Vegetation Management Coordinator for compilation into an annual report to DEQ. Records are in addition to daily spray reports. Include information regarding adverse incidents (if incidents occur).
- **Pesticide inventories should be updated when product is supplied or removed.** Inventory should include pesticide name, formulation, container size, number of containers, name of person removing pesticide from inventory, and the date.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain pesticide products and wastes.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** A spill of more than 200 pounds or 25 gallons of diluted or undiluted pesticide is reportable. Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.
- **The generation of waste pesticide (e.g. pesticide saturated absorbent or expired pesticide) and adjuvants and sticker that were determined hazardous waste must be documented on the EMS Waste Generation Log.** If waste will be taken to a pesticide collection center the waste is considered a *universal waste* and the weight does not count toward the facility's *hazardous waste* generator status. Additional information the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The disposal of waste pesticide and adjuvants and sticker that were determined hazardous waste must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. waste is taken to county waste facility or picked up by a waste disposal company). The documentation must include where the waste went and the method of disposal (e.g. recycled). Additional information on the Waste Disposal Log is located in Appendix D.

Section Divider

Section Divider

5.17 PROPANE

5.17.1 Purpose

This procedure is intended for the storing, handling, and disposing of propane. This procedure covers the management of propane and other liquefied petroleum gases (LPG) routinely used by ODOT Maintenance employees as fuel for structures, equipment, and tools.

This procedure establishes management requirements for propane and other LPGs that protect the environment, minimize incidents (leaks), and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for compressed gases are located in Section 5.6 – Compressed Gas.
- 🕮 Guidelines for propane tanks found along the right-of-way are located in Section 5.16 – Roadwaste.

5.17.2 Regulating Agencies

DEQ and EPA regulate the disposal of propane and LPG containers under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

The Oregon State Fire Marshal's Office regulates the storage of liquefied petroleum gases.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.17.3 Alternatives And Pollution Prevention

- Follow safety regulations to minimize accidental leaks. Propane vapor is heavier than air and can collect in low areas when adequate ventilation is not present.

5.17.4 Propane – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

5.17.4.1 STORAGE OF PROPANE

5.17.4.1.1 Large Tanks in a Fixed Location

Refer to Section 3.1.4 – Propane and Other LPG Tanks for information on purchasing, operation, and disposal of ODOT owned stationary propane tanks. Rented tanks should be maintained by the propane company that owns the tank.

- **Stationary propane tanks and supports should be in good condition** (e.g. free of harmful corrosion and other damage). A licensed propane company should be used to determine if corrosion or damage has harmed the tank.
- **Coatings should be routinely maintained to prevent corrosion.** The coating should be resistant to abrasion, corrosion, and external weathering (e.g. polyurethane). Coatings should be a heat reflective color (e.g. white). Loose or flaking material should be kept off the ground.
- **A protective cover should be kept on the fill valve of a stationary propane tank** to prevent water and debris from entering the valve.

- **Stationary propane tanks must be labeled with the name of the supplier (e.g. Amerigas or Suburban Propane) or product identification (e.g. propane).**
- **Stationary propane tanks must be labeled with the name of the product if more than one gas (i.e. propane and natural gas) is stored in the same area**
- **The nameplate on stationary propane tanks must be attached and readable for continued propane service** (i.e. regulation prohibits filling a propane without a nameplate).
- **Hoses subject to pressure must be marked "LP – Gas," "LPG," or "propane" at least every 10 feet.**
- **"No Smoking" signs must be posted near stationary propane tanks.** Smoking is not allowed within 25 feet of a point of transfer while filling operations are occurring.
- **Vegetation, trash, and other combustible materials must be kept at least 10 feet away from propane tanks.** A *defensible space* should be maintained around propane tanks to aid in fire protection. Contact an ODOT Forester or the local Fire Marshal for assistance or additional information on *defensible space* .
- **Impact protection should be maintained to protect the tank from potential vehicle contact.** In high traffic areas, vehicle impact protection should be provided by a physical barrier (e.g. concrete barrier or guardrail).

5.17.4.1.2 Refillable Portable Cylinders (2 to 420 pound capacity)

- **Portable cylinders should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Empty cylinders should be stored separately from full cylinders.** The cylinders should be marked to identify empty cylinders from full cylinders (e.g. duct tape, collar tags, or collar rings).
- **If the combined quantity of propane storage is greater than 300 pounds the cylinders must be stored outdoors.** Portable cylinders may be stored indoors so long as the combined capacity is less than 300 pounds (fifteen 20-pound cylinders). The entire holding capacity of empty or partially full cylinders must be included when determining the combined capacity. Indoor storage areas must be located away from exits and stairwells.
- **Cylinders (full or empty) must be stored upright with valves closed.** Safety plugs should be used.
- **Cylinders should be stored on a level fireproof surface.** The area should be clear of debris, vegetation, and other combustible materials.
- **Portable cylinders should be stored in a manner that protects the function and integrity of the container.** Cylinders should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Storage areas should be secure to discourage unauthorized use and/or vandalism.** For example small cylinders may be kept in a lockable, ventilated, metal locker or rack that prevents tampering and theft.
- **Portable cylinders and valves must be protected from damage.** Valves must be set into the container to prevent the possibility of the valve being struck if dropped. A ventilation cap or collar must protect the valve. Inserting objects into the cap opening is strongly discouraged as the valve may become damaged and cause a leak.
- ***Incompatible products* should be stored away from each other.** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products* (listed under fuel). Propane cylinders may be stored in the same location as other flammable fuels (e.g. gas cans).

5.17.4.1.3 Disposable (non-refillable) Portable Containers (1 pound capacity)

- **Containers should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containers should be stored in a manner that protects the function and integrity of the container.** Containers should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Storage areas should be secure to discourage unauthorized use and/or vandalism** (e.g. inside building or lockable metal cabinet).

5.17.4.2 HANDLING AND USE OF PROPANE

5.17.4.2.1 Handling Propane

- **Propane fuel hoses should be checked for cracks, cut, and leaks every time the cylinder is exchanged.** Couplings should also be checked. Defects may be detected by sight, sound, or smell.
- **Cylinders should be visually inspected for obvious leaks prior to use.** Visual inspections should include checking for cracks, bulges, dents, defective valves or pressure relief devices, evidence of physical abuse, evidence of fire or heat damage, and rust. Damaged (non-leaking) cylinders should not be used. Additional information on inspections is located in Section 5.17.4.2.2.
- **Empty and partially filled portable propane cylinders must be stored and handled in the same manner as full containers.** Empty propane cylinders contain a small amount of propane. Do not discharge propane into the air or open bleeder valves on equipment cylinders. Propane cylinders should not be vented without the proper equipment and training (i.e. only by licensed propane companies).
- **Cylinders must be secured in an upright position when connected for use.**
- **The valves, connectors, and regulators must be USDOT approved.**
- **Valves should be closed when connecting or disconnecting equipment.**
- **When in use, equipment cylinders should be securely mounted by using brackets.** Valves should be shutoff when the equipment is not in use.
- **Propane cylinders must be protected against damage when placed on a vehicle or trailer** (e.g. within the vehicle frame).

5.17.4.2.2 Leak Tests, Repairs, and Certification

- **A licensed propane company should be used to assess the useful life of rusty propane cylinders.** Portable cylinders have a shorter life span than stationary propane tanks.
- **Leaking cylinders or damaged tanks must be removed from service.** Emergency services (911) should be contacted if cylinders are leaking.
- **USDOT cylinders (e.g. equipment fuel tanks) must be retested 12 years after manufacture and every 5 years thereafter.** The recertification date will be stamped into the cylinder, usually on the collar. Cylinders cannot be refilled if the date has passed, however the cylinder may remain in use until the cylinder is empty. Stationary propane tanks and portable propane cylinders that are manufactured to ASME standards do not require recertification.
- **A leak test must be conducted by a licensed propane company any time there is an interruption of service to a stationary propane tank.**
- **If a leak is suspected the propane tank should be checked for leaks by a licensed propane company.** Stationary propane tanks are certified when constructed. Routine recertification of stationary propane tanks is not required.

- **Repairs and replacement (including connection and disconnection) of propane tanks, piping, and appliances must be completed by a licensed propane fitter.** Repairs to propane fueled engines must be completed by a licensed propane fitter.

5.17.4.2.3 Handling Propane Tanks if there is a Fire Evacuation of the Facility

- **If the *Maintenance yard* is ordered to evacuate for fire danger, the following actions should be taken prior to leaving. These actions should only be taken if time allows.** Always follow fire evacuation orders as given by authorities and safety personnel.
  - — Close the service valve on stationary tanks.
  - — Close all appliance valves and gas valves inside structures and houses.
  - — Move portable propane cylinders away from structures and houses to an area where the fire impact will be minimal. Do not move propane cylinders indoors.
  - — After leaving the area, notify the current propane supplier that the facility has been evacuated.
- **If the flow of gas was interrupted (e.g. turned off) a leak detection test must be completed by a licensed propane company before returning stationary propane tank system to service.** Do not open appliance valves, gas valves, or service valves before the tank is inspected. The area must be immediately evacuated if a gas odor is observed.

5.17.4.2.4 Removal from Service and Disposal of Stationary Propane Tanks

- **Stationary propane tanks must be removed from service if the nameplate is missing.**
- **If a licensed propane company determines a stationary propane tank is unsafe or leaking the tank must be removed from service.**
- **ODOT owned stationary propane tanks should be removed or replaced before leaks or unsafe conditions occur.** The TMM responsible for the facility should determine whether removal or replacement of the tank meets the needs of the facility, District, and agency.
- **Stationary propane tank removal and disposal should be conducted by a licensed propane company.** Propane companies have the tools and materials to properly remove any remaining propane in the tank and the equipment to haul the tank away.

5.17.4.3 Disposal of Propane Cylinders and Tanks (stationary and portable)

- **Stationary propane tank removal and disposal should be conducted by a licensed propane company.** Propane companies can properly remove any propane remaining in the tank and have the equipment to haul the tank away.
- **Propane cylinders should be returned to a licensed propane company for refilling, repair, depressurization, deconstruction, and recycling**. Disposable (1-pound) propane cylinders are not recyclable.
- **Portable propane cylinders that cannot be returned to a licensed propane company must be managed as *hazardous waste*.** Propane cylinders are under some pressure at all times and have the potential to explode if improperly handled. Cylinders that are thrown in the trash could cause damage or injury. Completely empty 1-pound propane cylinders may be thrown in the trash (if the yard is a *CEG* and the generation and disposal are documented).

5.17.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas that contain propane cylinders and tanks.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand (e.g. needed repairs or leaks) must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The generation and disposal of *hazardous waste* (e.g. cylinders that are not returned to the vendor) must be documented on the EMS Waste Generation and Waste Disposal Logs.** Cylinders that are returned to the vendor do not have to be recorded. Additional information on the Waste Generation and Disposal Logs is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.

Section Divider

Section Divider

5.18 ROADWASTE

5.18.1 Purpose

This procedure is intended for the storing, using, and disposing of roadwaste. The procedure covers the management of materials generated from the day-to-day use and maintenance of highways. Roadwaste is broad term that is inclusive of a variety of materials generated through highway maintenance actions.

Roadwaste includes, but is not limited to, litter and trash; personal property from illegal camping; roadkill; roadkill; brush and vegetation; sweepings; cleanings from catch basins, sumps, or stormwater facilities ; ditching materials; landslide material; used sand and gravel; asphalt grindings; and stripe grindings.

This procedure establishes management requirements for the disposal and management of roadwaste that protect Oregon natural resources, minimize waste generation, and encourage a safe and efficient work environment.

5.18.2 Regulating Agencies

EPA and DEQ regulate solid and *hazardous waste* disposal under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

DEQ issues guidance for the reuse of waste and *clean fill*.

The US Army Corps of Engineers (Corps) and the Department of State Lands (DSL) regulate waste management and *clean fill* activities that impact wetlands, waterways, or fish habitat.

Oregon Department of Fish and Wildlife (ODFW) regulates the disposal of edible wildlife.

Local and regional public agencies regulate the management of waste materials within their jurisdictions. Local waste regulations take precedence over federal and state requirements if the local regulations are more stringent or protective of human health and the environment. ODOT regulates the handling of personal property that is deposited, left, or displayed on a state highway.

5.18.3 Alternatives And Pollution Prevention

- Reduce the creation of roadwaste by adjusting maintenance practices (e.g. using chemical deicer instead of sand and gravel to reduce street sweeping volumes).
- Reuse materials as fill where opportunities are available.
- Reuse options for fill-like materials that don't meet clean fill criteria are limited in some areas by contamination levels (i.e. pollutants), difficulty of pollutant removal, management preferences, and local needs. Material specifications should be considered before using waste materials as a structural fill on projects. Materials with high organic content makes a poor structural fill.
- DEQ has approved a Beneficial Use Determination (BUD) for highway shoulder material. Available use options vary by location, depth of soil, and distance from edge of pavement. The specifics can be found in the Beneficial Use Determination (BUD–20181204) in Appendix M.
- Consider taking materials to a disposal or recycling center (rather than onsite storage).
- Consider screening sweepings to recover usable materials. Fines from screening may be used as an absorbent for spill cleanup. Consider using sand and gravel that still meets sanding specifications for winter maintenance activities. Remove litter before reusing.
- Consider increasing the frequency of cleaning to help lower pollutant levels in catch basin cleanings. Pollutants are more likely to bind to sediment in areas with clay or fine soil. Pollutants bind less readily to coarse soil, sand, and gravel.
- Investigate possible partnerships with local jurisdictions for roadwaste management.

5.18.4 Roadwaste - Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively.
- **ODOT directives and guidance on illegal camping must be followed.**

5.18.4.1 STORAGE OF ROADWASTE

Permanently storing roadwaste at locations without the intent of future use, recycling, or disposal requires a DEQ waste treatment permit.

5.18.4.1.1 Storage of Materials that are Intended for Disposal or Recycling (e.g. litter, scrap metal, rubber, or woody debris)

- **Recyclables should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping for additional information.
- **Trash that is brought back to the Maintenance yard should be placed in covered dumpsters.**
- **Abandoned hazardous wastes including drug lab wastes should be left at the location of discovery (i.e. should NOT be stored onsite).** DO NOT MOVE ABANDONED CONTAINERS OF UNKNOWNS. Suspected hazardous roadwaste includes: unlabeled (filled) containers (e.g. 55 gallon or 5 gallon bucket), containers that are labeled hazardous, and 5-gallon propane tanks. Labels or containers may be damaged, spray painted, burned, or have visible blue/green corrosion OR the containers may be labeled and undamaged. Your safety is first priority.
- **Needles and other sharps must be stored in a red plastic, puncture resistant container equipped with a lid.** The container must be labeled with the "biohazard" label. Employees collecting sharps from highways and right-of-way must have received bloodborne pathogen training. Contact the Region Safety Officer for additional information.
- **Wastes should be sorted and separated according to recycling and disposal options.** For example, scrap metal and rubber should be stored separately. The use of individual trash containers (dumpsters) from local disposal companies should be considered to minimize handling the waste multiple times.
- **Storage areas should be located away from stormdrains, stormwater conveyances, and waterbodies (including wetlands) where practical based on site constraints.** Source control (such as berms) or water treatment measures should be implemented where appropriate. Refer to the ODOT Erosion Control Manual for additional guidance.

5.18.4.1.2 Storage of Materials that are Intended for Future Use (e.g. shoulder soil or asphalt)

- **Materials that are intended for future use should be stored in pre-selected areas.** Storage areas should minimize the escape of solid materials. Stockpiles should be free of visible litter and trash. Refer to Section 1 - Good Housekeeping for additional information.
- **Storage areas should be within the boundaries of ODOT owned property.** If a roadwaste is stored at locations that are not owned by ODOT written permission should be obtained from the owner (i.e. lease or other agreement).
- **New storage location and storage areas located near sensitive resources should be reviewed by the Region Environmental Coordinator for environmental, archeological, and historical concerns. Coordinate with the Regional Geologist if roadwaste is stored at a material source or quarry.**

- **Storage areas should be located away from stormdrains, stormwater conveyances, and waterbodies (including wetlands) where practical based on site constraints.** Source control (such as berms) or water treatment measures should be implemented where appropriate. Refer to the ODOT Erosion Control Manual for additional guidance.
- **Roadwaste with known or suspected high levels of pollutants (e.g. contaminated soil or dripping oil) should be stored in a manner that protects the surrounding soil and waterbodies** (e.g. plastic sheeting or under cover). Materials should be stored on paved surfaces where appropriate.
- **Storage sites must meet local zoning and land use requirements.** Contact Region HazMat or the MOB for assistance.
- **Where appropriate storage areas should be sited in a manner that limits nuisance conditions and public access.** Trees or landscaping should be used to screen remote locations from public view where appropriate.

5.18.4.1.3 Storage of Personal Property

Refer to Guidelines for personal property removal on the Maintenance and Operations Branch webpage for information regarding recognition, collection, and retention of personal property. ODOT Lost and Found and Illegal Camping Policies address personal property
http://transnet.odot.state.or.us/hwy/mob/default.aspx

Personal property includes items recognized as belong to individual persons that have apparent utility.

Weapons, drug paraphernalia, and items that reasonably appear to be either stolen or evidence of crime should be turned over to law enforcement.

- **Personal property from Illegal dumping, littering, and areas not reasonably associated with illegal camping are considered a public nuisance should be managed as trash.** Refer to Section 5.18.4.1.1
- **Personal property from illegal camping should be stored in pre-selected areas.** Storage areas should be reasonable likely to protect the property from harm. Storage areas should be reasonably secure.

5.18.4.2 HANDLING AND USE OF ROADWASTE

5.18.4.2.1 Active Management for Recycling or Future Use

- **Roadwaste must be either actively managed or stored onsite for less than six months.** A DEQ permit is required if the materials is not actively managed AND the material is stored longer than six months. Active management can be recognized by the following activities
  - Keeping the material free of visible litter and noxious weeds.
  - Identifying options for recycling or future use.
  - Sorting waste according to recycling or future use options.
  - Maintaining sediment and erosion control (if installed).
- **Where practical grindings, soil, recovered abrasive, slide debris, and other materials should be managed for future use.**

  The following uses have been pre-approved by DEQ; others require a case-by-case review (e.g. street sweepings). Additional information about DEQ's *Beneficial Use* program is located in Appendix M. **DEQ approval is not required for recycling or disposal at permitted landfills.**

Table 1: DEQ Approved Beneficial Use

Roadwaste	Beneficial Use	Conditions on Use
Asphalt pavement or asphalt grindings from road projects	As asphalt and aggregate in new asphalt pavement or as fill within road prisms	Asphalt grindings must be compacted when used within road prisms (Centerline to edge of right-of-way is considered to be the road prism is this approval.)
Street sweeping fines	Spill response absorbent	Follow spill clean-up guidance to determine if hazardous waste disposal is required.
Street sweeping sand from winter storm applications	Road sanding	Swept up within 6 months of application or being re-exposed on the road after snowmelt. Separate sand from street sweepings.
Highway shoulder soils	Fill	Use allowed within ODOT ROW except Portland. Non-residential fill in most areas.

Refer to the Roadwaste Management Chart in Appendix M of the this Manual (or the Routine Road Management Guide) for additional information on rules, concerns, and management strategies.

- **Potentially contaminated roadwaste (e.g. sweepings or sump cleanings) must be characterized prior to use unless preapproved for beneficial use by DEQ (see previous bullet).** Characterization may be based on representative sampling, knowledge of process, or site specific sampling. However, site specific conditions (e.g. crashes, spills, wildfires, or adjacent pollutant sources) may increase contamination levels. The presence of pollutants can eliminate or limit options for later use, if the concentrations pose risks to human health or the environment. Contact the MOB or Region HazMat for assistance with pollutant testing.

5.18.4.2.2 Transfer Ownership of Fill to Private Landowner

Under limited circumstances surplus materials generated through the operation and maintenance of State Highways may be placed on private property with the permission of the landowner. Material must be place in accordance with ODOT guidance. Providing surplus material to private landowners reduces the amount of material placed in state-owned stockpile sites while encouraging reuse and recycling.

Liability risks are associated with the placement of material (e.g. in wetlands) and pollutant contamination.

Under no circumstances should material be given away that has observable signs of contamination. Signs of contamination include: chemical odors; odd colors and stains; or the visible presence of litter, paint chips, or other solid waste.

- **Material must be classified as fill appropriate for the area where the material is being placed**. Highway shoulder soils collect from most physiographic provinces has been pre-approved as non-residential zones (e.g. transportation, commercial, industrial, non-food crop agriculture). Use in residential zones has been pre-approved in a limited locations. See ODOT Roadwaste Management Chart in Appendix M for guidance on determining if fill is appropriate for the location.
- **Prior to placing surplus material on non-ODOT property a "PERMISSION TO PLACE FILL MATERIAL ON PRIVATE PROPERTY" Form must be completed and signed by the property owner.** A copy of the Form is located in Appendix B, Appendix M, and online.
- **Material must be placed in locations not restricted by state or federal fill placement laws.** Employees should be attentive to obvious problems (e.g. wetlands, archeological sites, or high levels of contamination) when delivering material to private property. Property owners should be informed when placement of fill is restricted by federal or state law (e.g. endangered species habitat, wetlands, or archaeological sites). The landowner is responsible for compliance with fill placement regulations and any other applicable state or federal regulation.

- **Photographs of the site should be taken prior to placing materials**.
- **The amount of vegetation or organic material in landslide debris should be limited to 10%.** Organic material cannot be given away even though it is "natural" and does not contain pollutants. The breakdown of large quantities of organic material (brush, grass clippings, weeds) can result in degrading water quality and negatively impacting the environment.

5.18.4.3 DISPOSAL OF ROADWASTE

5.18.4.3.1 Litter and Personal Property Including Abandoned Hazardous Waste

- **Non-hazardous waste (e.g. rubber or wood) collected from the highway or right-of-way should be recycled where opportunities are available and practical**.
- **Litter that is not banned from Oregon landfills should be managed as *solid waste* (i.e. trash).** Wastes that are banned from Oregon landfills (e.g. whole tires or appliances) are discussed in separate bullets
- **Personal property collected from illegal camping that is not classified as hazardous waste and has not been picked up by the owner within required hold time should be managed as solid waste (i.e. trash).**
- **Personal property that is classified as hazardous waste and has not been picked up by the owner within required hold time must be managed as hazardous waste. Examples of personal property that could be classified as hazardous waste include propane cylinders from BBQs; containers of insecticides, cleaners or solvents; or aerosol spray cans. Refer to the disposal section of the tabs for these material groups for disposal options.**
- **Abandoned *hazardous waste* (including drug lab waste and propane tanks) must be managed by certified hazardous waste professionals.** Contact Region HazMat to assist with the management of hazardous or suspected hazardous roadwaste. Maintenance employees should avoid contact with abandoned *hazardous waste*.

  DO NOT MOVE ABANDONED CONTAINERS OF UNKNOWNS. Suspected hazardous roadwaste includes: unlabeled (filled) containers (e.g. 55 gallon or 5 gallon bucket), containers that are labeled hazardous, and 5-gallon propane tanks. Labels or containers may be damaged, spray painted, burned, or have visible blue/green corrosion OR the containers may be labeled and undamaged. Your safety is first priority.
- **Large metal-jacketed appliances (i.e. water heaters, refrigerators, kitchen stoves, dishwashers, washing machines and clothes dryers) are banned from Oregon landfills and must be recycled.** A fee may be charged for certain appliances. One of the following recycling options should be used.
  - — Pick up by a scrap metal recycler, OR
  - — Take to a licensed waste facility that accepts scrap metal for recycling.
- **Whole tires are banned from Oregon landfills and must be either recycled or cut in half.** Tire dealers may charge a fee for accepting used whole tires. Recycling opportunities include:.
  - — Take to a volume tire dealer, OR
  - — Recycle by a waste tire recycling company, OR
  - — Take to a waste facility that is licensed by DEQ to accept waste tires for recycling. A list of permitted facilities is located in Appendix J.

  Scrap rubber (i.e. chipped tires, gators, or tire pieces) should be recycled where opportunities are available. When recycling is impractical scrap rubber may be taken to a landfill.

- **Lead acid batteries are banned from Oregon landfills and must be recycled.** One of the following recycling options should be used.
  - Take to a battery retailer or wholesaler, OR
  - Take to a battery collection or recycling facility
- **Computers, monitors, televisions, and other electronic-wastes are banned from Oregon landfills and must be recycled or returned to the manufacturer.** One of the following recycling options should be used. Electronics that are damaged to the point the waste is no longer recoverable should be managed as solid waste.
  - Take to a county waste collection facilities, local landfill, or transfer station that is authorized by DEQ to accept electronic waste. Contact the local facility to determine if electronic wastes are accepted.
  - Take to a participating Oregon E-Cycles collection site. A current list of e-cycle locations is available on the DEQ website. http://www.deq.state.or.us/lq/ecycle/index.htm
- **Sharps and other biological waste should be taken to a local medical facility or given to emergency medical technicians or ambulance personnel.** Some landfills also accept sharps in leak-proof, rigid, puncture-resistant, red containers that are taped closed or tightly lidded (keep and dispose separate from other trash). Urine containers are not considered a biological hazard. Urine containers should be managed as *solid waste* (i.e. trash).

5.18.4.3.2 Highway Shoulder Soil

DEQ has approved the beneficial use of highway shoulder soil as fill provided the material has not been collected from areas in proximity to contaminate sources. For the purposes of the beneficial use determination, **ODOT and DEQ have defined shoulder soil as soil outside of the highway pavement and within the highway right-of-way** (e.g. ditching). General use limitations and allowances differ by physiographic provinces and d (see Appendix M). Proximity to contaminant sources (e.g. crashes, wildfires, or adjacent pollutant sources) may increase contamination levels. The presence of contaminants can limit or eliminate future use options.

- **Shoulder soils should be used as fill where practical. Examples of fill opportunities include** shoulder rebuilding, leveling stockpile locations, creation of safety berms, safety pullouts, mine reclamation, and construction projects. Shoulder soils may be reused within the ODOT right-of-way without testing unless there are visible signs of pollutants. Shoulder soils may be used as fill in non-residential zones (e.g. transportation, commercial, industrial, non-food crop agriculture) with the following exceptions:
- **Shoulder soil from areas in proximity to potential contaminate sources must be characterized prior to use as fill to ensure acceptable pollutant levels unless the material will be used as fill on ODOT right-of-way.** Characterization may be based on sampling or knowledge of process. Contact Statewide Hazmat or Region HazMat for assistance.
- **Shoulder soils must be either actively managed for future use or stored onsite for less than six months.** A DEQ permit is required if the material is not actively managed AND the material is stored longer than six months. Active management can be recognized by the following activities:
  - Keeping the material free of visible litter and noxious weeds.
  - Identifying options for future use.
  - Sorting waste according to future use options.
  - Maintaining sediment and erosion control (if installed).

- **Maintenance activities that utilize shoulder soils must follow the guidelines in the ODOT Blue Book.** Blue Book guidelines ensure placement will not create an adverse impact to groundwater, surface, water, or public health and safety. Best practices for sediment and erosion control are listed in the Erosion and Sediment Control Handbook and incorporated where appropriate into Blue Book practices.
- **If shoulder soil is used for mine reclamation the material must be used in accordance with an approved DOGAMI permit or reclamation plan.** Material is not suitable for wetland mitigation as part of mine reclamation. The beneficial use determination acts as a DEQ written authorization to allow non-clean fill to be used at a DOGAMI permitted/approved site accepting fill. Refer to the statewide materials contract for additional information.

5.18.4.3.3 Street Sweepings and Recovered Abrasives (material picked up from the pavement)

DEQ has approved the beneficial use of street sweeping fines as a spill response absorbent. Hazardous waste disposal rules apply in the same manner as other absorbents. Refer to the Disposal section of the spilled material.

DEQ has approved the beneficial use of sand recovered from winter storm applications for road sanding. DEQ has pre-approved the use of sand from winter storm applications provided the material is recovered within 6 months of application (or re-exposure after snow melt) and the sand is separated from street sweepings (i.e. meets specifications for sanding rock). The material may not be reused if there a known source of contamination (e.g. fuel spill) within the material.

Sweepings and recovered abrasives have not been pre-approved by DEQ for use as fill.

- **If practical street sweeping fines should be used as spill absorbent.** Street sweeping fines would typically be generated during material sorting processes.
- **Where practical, sand and gravel recovered from the highway that still meets sanding specifications should be placed back on the sand pile and used for winter maintenance activities.** Quick pickup of used sand and gravel reduces the need for screening.
- **Street sweepings including recovered sand and gravel that will not be reapplied as abrasives must be characterized prior to use as fill** to ensure acceptable pollutant levels. Characterization may be based on sampling or knowledge of process. Contact Statewide Hazmat or Region HazMat for assistance.
- **Street sweepings must be screened to remove visual evidence of litter prior to use.** Refer to Section 5.18.4.3.1 for the disposal of litter.
- **Sweepings should be kept in separate piles from shoulder soil.** Shoulder soil typically contain less sand and gravel than sweepings so the material is more likely to meet construction specifications (e.g. compaction standards).
    - **Sweepings must be either actively managed for future use or stored onsite for less than six months.** A DEQ permit is required if the material is not actively managed AND the material is stored longer than six months. Active management can be recognized by the following activities:
    - Keeping the material free of visible litter and noxious weeds
    - Identifying options for future use
    - Sorting waste according to future use options
    - Maintaining sediment and erosion control (if installed)

- **Used sand and gravel collected from areas in proximity to contaminate sources (e.g. chemical spills, roadway accidents, or illicit dumping) should be characterized prior to disposal to determine** to ensure acceptable pollutant levels. Characterization may be based on representative sampling, knowledge of process, or site specific sampling. Contact the MOB or Region HazMat for assistance .
- **Sweepings that are not actively managed for future use must be managed as *solid waste* (i.e. taken to a permitted landfill).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.18.4.3.4 Catch Basin, Sump, and Culvert Cleanings

This section is applicable for sediment recovered from catch basin, sumps, and culverts including sumps at Maintenance yards (e.g. wash rack sumps). The waste is typically not structurally suitable for use as fill. BMPs in this section applies to material that is more than 10% fines and recovered from catch basins or sumps.

Refer to Section 5.18.4.3.3 – Street Sweepings and Recovered Abrasives for guidance on the disposal of sanding material recovered from catch basins and sumps. Recovered sand and gravel has at least 90% coarse grain material.

Material recovered from cleaning catch basins, sumps, and culverts has not been pre-approved by DEQ for use as fill.

- **Where practical, partnerships with local jurisdictions should be created to manage catch basin, sump, and culvert cleanings.** Partnerships could include cooperative construction of decant facilities or shared disposal contracts. Contaminated catch basin and culvert cleanings are primarily an urban issue. Local transportation agencies often share ODOT's need for waste management. Contact the MOB for assistance.
- **Slurries (or similar) from cleaning catch basin, sumps, and culverts must be separated into solid and liquid components prior to disposal**. In some areas, the slurry can be contained in a lined pond until the water evaporates. Ponds should be covered where necessary to prevent rainwater from entering the containment. Water may be discharged to a sanitary sewer with verbal permission from the municipality.
    - **Sediment collected from catch basin, sump, and culvert cleaning must be characterized prior to use as fill** to ensure acceptable pollutant levels. Characterization may be based on sampling or knowledge of process. Contact Statewide HazMat or Region HazMat for assistance. In rare instances, waste collected from oil/water separators or water treatment systems can be hazardous. **Sediment and solids must be either actively managed or stored onsite for less than six months.** A DEQ permit is required if the material is not actively managed AND the material is stored longer than six months. Active management can be recognized by the following activities:

    — Keeping the material free of visible litter and noxious weeds

    — Identifying options for future use

    — Sorting waste according to future use options

    — Maintaining sediment and erosion control (if installed)
- **Solids from catch basin and sump cleaning that are not actively managed for future use must be managed as *solid waste* (i.e. taken to a permitted landfill).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.18.4.3.5 Slide Material

- **Where opportunities are available slide debris should be used as clean fill.** The material is classified as clean fill if litter-free and known not to contain chemical contaminants.
- **Maintenance activities that stockpile or use slide material must follow guidelines in the ODOT *Blue Book*.** use of slide material is site-specific. Coordinate the pre-selection of stockpile locations with the Regional Environmental Coordinator. Contact Region Hazmat for assistance with the disposal of contaminated slide material.

5.18.4.3.6 Stripe Grindings

This waste is generated when the stripe is removed separately from asphalt paving. If highway markings are removed with pavement as part of preparation for resurfacing, refer to Section 5.18.4.3.7 – Asphalt Paving.

- **If the paint (other than lead-free) is being ground out, stripe grindings must be characterized (i.e. laboratory testing or assume hazardous) prior to disposal.** If lead-free paint has been placed on top of lead-containing paint this bullet applies. Stripe grindings may be classified as *hazardous waste* because of the high lead levels in old highway paints.
- **If characterization demonstrates the waste is hazardous, the stripe grindings must be managed as *hazardous waste***; picked up by a licensed *hazardous waste* management company
- **If the stripe is known to be non-hazardous (i.e. lead-, chromium-, and cadmium-free paint) or characterization demonstrates the waste is non-hazardous the grindings should be managed as *solid waste* (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.18.4.3.7 Asphalt Grindings

DEQ has approved the beneficial use of asphalt pavement and asphalt grindings from road projects as fill within the road prism and the use in the production of new asphalt pavement. DEQ's definition of road prism includes from centerline to edge of right-of-way.

Grindings may be stockpiled for future use. See Section 5.18.4.2.1 - Active Management for Recycling or Future Use for management practices.

- **Asphalt grindings should be used where opportunities are available. Examples of material** use opportunities include
  - — Highway and shoulder repair
  - — Chain-up areas and pull outs
  - — Surfacing for outdoor storage areas
  - — Manufacturing new asphalt
- **Maintenance activities that utilize asphalt grindings must follow the guidelines in the ODOT *Blue Book.*** Grindings must be placed in locations that will not create an adverse impact to groundwater, surface, water, or public health and safety.
- **Asphalt grindings must be compacted when used within the road prism.**
- **Asphalt grinding should be used in the production of new asphalt pavement.**
- **Asphalt grindings that are not actively managed for future use must be managed as a solid waste.** A list of permitted municipal landfills and transfer stations is located in Appendix J.

5.18.4.3.8 Brush and Landscape Debris (green waste)

Large quantities of decomposing organic waste are associated with a number of pollutants (especially in water) including bacteria, methane, nitrogen, nutrients, and low oxygen levels. Organic wastes (e.g. green waste and road kill) are regulated as potential health hazards. Local county health departments usually regulate the management of organic wastes and many offer management assistance.

- **If collected, brush and woody debris (including grass clippings) should be recycled or used as an alternative to commercial landscaping materials where opportunities are available.** Waste from landscaping activities (e.g. bulk material from pruning or brushing) should be chipped onsite or taken directly to a recycling facility. Green waste may be used to manufacture compost or mulch. Many commercial compost manufacturers accept green wastes.
- **Brush and woody debris that is burned on ODOT property must comply with state and local burning regulations.** DEQ prohibits burning in certain parts of the State and may restrict open burning anywhere in the state on a day-to-day basis depending on air quality and weather conditions. Raw fuel may not be used as an igniter for burn piles; gasoline fueled torches are acceptable. A DEQ Fact Sheet on Open Burning is located in Appendix I. Additional information including County restrictions are listed on DEQ website http://www.deq.state.or.us/aq/burning/openburning/openburn.asp
- **The use of large woody debris to create fish habitat must be coordinated with the Regional Environmental Coordinator and Oregon Department of Fish and Wildlife.**
- **Brush and landscape debris (including noxious weeds) that is not actively managed for later use or recycling must be managed as *solid waste*** (i.e. trash). A list of permitted municipal landfills and transfer stations is located in Appendix J. Bag noxious weeds prior to placing in dumpsters.
- **The disposal of brush and cuttings from suspected diseased plants and trees must be coordinated with Oregon Department of Agriculture, US Forest Service, or the Oregon Department of Forestry (ODF).** Contact the ODOT Vegetation Management Coordinator, an ODOT Forester, or the local Integrated Vegetation Management (IVM) specialist for additional information on identification of diseased plants and trees.

5.18.4.3.9 Road Kill (organic waste)

Large quantities of decomposing organic waste are associated with a number of pollutants (especially in water) including bacteria, nutrients, and low oxygen levels. Organic wastes (e.g. green waste, human waste, and road kill) are regulated as potential health hazards. Local county health departments usually regulate the management of organic wastes and many offer management assistance.

Disposal options for road kill carcasses are very limited. Burial at ODOT sites is not allowed and many landfills will not accept this special waste. Appendix M contains additional information on burial, composting, and incineration of animal carcasses.

- **Road kill should be dragged and dropped in a secluded area on public right of way if the situation allows.** Locations should be as close as possible to the site where the carcass was found. Where practical, carcasses should be placed 1/2 mile from any dwelling and at least 1/4 mile from any open waterway. Limit the number of carcasses dropped in the same location. Locations should be out of the public view, away from structures, and far enough off the road to reduce the death or injury of scavengers. Refer to the Maintenance Guide (Activity 134) for additional information on the removal and disposal of dead or injured animals.
- **Composting should be considered where allowed and practical.** Information on managing animal carcass composting facilities is located in Appendix M. DEQ permits and land-use authorization may be required. Contact MOB for assistance.

  DEQ does not require a composting permit if composting less than 20 tons of feedstock annually. For deer carcasses this is approximately 1 deer per day if the carcasses average 100-120 pound. The weight will vary depending on the mix of large game and small critters.

- **The use of an onsite commercial incinerator should be considered where allowed and practical.** The availability of municipal waste incinerators is limited. DEQ air quality permits and land-use authorization are required for ODOT managed incinerators. Open burning of carcasses is prohibited. Information on managing animal carcass incinerators is located in Appendix M. Contact MOB for assistance.
- **Disposal at a state licensed landfill should be considered where allowed and practical.** Contact the local landfill to determine availability and associated fees.

5.18.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

Documentation of collection and disposal of personal property is provided in

- **The Monthly Maintenance EMS Field Audit must be used to document the visual inspect roadwaste storage areas at Maintenance yards.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **Documentation of characterization process (sampling or knowledge of process) should be maintained onsite.** Some waste disposal facilities require pollutant testing prior to disposal. Contact local waste disposal facilities to determine pollutant-testing requirements. Contact MOB, the Statewide Hazmat Coordinator, or Region HazMat with questions regarding waste characterization and documentation. Send copies of documentation to MOB.
- **The generation and disposal of hazardous roadwaste that is created as the result of Maintenance activities (e.g. grinding pavement stripes) must be documented on the EMS Waste Generation and Waste Disposal Logs.** Additional information on waste characterization and documentation is located in Appendix D. A quick reference on waste documentation is located in Appendix E.

  Contact Region HazMat to obtain project specific *hazardous waste* identification numbers for hazardous stripe grindings to avoid pushing *Maintenance yard*s above Conditionally Exempt Hazardous Waste Generator limits (more than 220 pounds/month).
- **Fill that is given to the private sector must be documented on the "Permission to Place Fill Material on Private Property" form.** The Form must be completed and signed to document the transfer of ownership. The Form must be kept on file at the District Office for ten years.
- **Hazmat or OSP should be notified of hazardous waste discovered along the right-of-way.**
- **Guidance for the management of personal property, including required documentation, is located on the ODOT website. No EMS documentation is necessary for these items.**

Section Divider

Section Divider

5.19 SOLVENT

5.19.1 Purpose

This procedure is intended for the storing, handling, and disposing of solvents.

The procedure covers solvents, thinners, degreasers, and mineral spirits used by ODOT Maintenance employees to clean and maintain parts, equipment, and tools. This procedure also covers various types of parts washers including aqueous (hot water) and bio-clean washers.

This procedure establishes management requirements for solvents that minimize *hazardous waste* generation, prevent releases to the environment, and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for aerosol solvents are located in Section 5.1 – Aerosol Cans.
- 🕮 Guidelines for steam cleaners are located in Section 5.9 – Equipment and Fleet
- 🕮 Guidelines for cleaners are located in Section 5.5 - Cleaning Products

5.19.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

EPA and DEQ regulate and oversee cleanup actions that result from spills, leaks, storage, and/or disposal of wastes.

The Oregon State Fire Marshal's Office regulates the storage of flammable/combustible materials.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.19.3 Alternatives And Pollution Prevention

- Consider ways to reduce or eliminate the use of solvents. Examples are listed below. A DEQ Fact Sheet – Alternative Cleaning Solvents and Processes is located in Appendix I.
    - Use an aqueous (hot water) parts washer.
    - Avoid using solvent pre-cleaners when using water or green solvents.
    - Use citrus cleaners, instead of solvent, to clean parts.
    - Clean, or pre-clean, parts with a shop towel or wire brush.
    - Drain parts thoroughly over parts washer.
    - Use a small capacity parts washer.
    - Purchase solvent in small quantities for specific jobs.
- Choose non-hazardous (or less hazardous) solvents where possible. Look for solvents that are as safe as possible for people (e.g. do not produce toxic fumes or irritate skin) and the environment (e.g. break down quickly or do not harm fish). For example, water-based and citrus solvents are preferred over toluene or petroleum-based solvents. Look for the words non-toxic, biodegradable, non-VOC, low VOC, or VOC free.
- Reduce or eliminate the use of c*hlorinated products.* See the Definition of Terms section of this Manual for tips identifying chlorinated products.
- Consider recycling non-hazardous solvents frequently to reduce the potential to collect heavy metals and other chemicals that may result in creating a *hazardous waste*.

- Consider using automated parts washers. Automated washers minimize the use of solvents and wash water. Consider using parts washers an alternative to single-use (aerosols) solvents.
- Increase the use of pump or non-aerosol solvents, when available and practical, as a replacement for aerosol products. The use of bulk products may reduce *hazardous waste* generation, increase cost effectiveness, and conserve resources.

5.19.4 Solvent - Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).
- **Absorbent materials and/or spill kits should be located where spills are likely to occur.** Cleanup materials should be appropriate for type of products used or stored in the area (e.g. oil only or all-purpose). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. Absorbent materials should be protected from the weather.
- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.
- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

5.19.4.1 Storage of New Solvent

5.19.4.1.1 Storage of Large Containers (30 – 55 gallons)

- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- **Products should be stored in pre-selected areas that are intended for the storage of solvents.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Original and *secondary containers* must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.19.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers should be stored on a surface that provides a physical barrier between the container and the soil (e.g. pavement).** The surface should be constructed of a material that will not absorb potential spills.
- **Storage areas should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.

- **Containers that hold *flammable/combustible liquid*s should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).
- ***Secondary containment* must be provided for flammable/combustible materials when required.** A flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 1 (below) for limits. Refer to Section 1.6 for additional information on secondary containment.

Table 1: Secondary Containment Chart for Flammable/combustible Materials		*SECONDARY CONTAINMENT* REQUIRED	
		Indoor area	Outdoors or liquid storage room
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a flammables cabinet. containers larger than 55 gallons	All containers if the aggregate liquid storage is more than1,000 gallons All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*		
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	containers larger than 55 gallons	

- ***Secondary containment* should be provided for containers that are stored in locations where an accidental release could endanger an adjoining property or reach a waterbody.** Additional information in *secondary containment* is located in Section 1.6 – Secondary Containment.
- **Absorbent materials and/or spill kits should be stored in areas where spills are likely to occur** such as where liquids are stored and handled. Absorbent materials should be protected from the weather. Spill kits should contain materials appropriate for the product (e.g. general purpose not 'oil only'). Spill kits should be highly visible and labeled "spill kit." Supplies should be replenished as used. 'Oil only' absorbents will not pick up solvents.
- ***Incompatible products* should be stored away from each other.** Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.19.4.1.2 Storage of Small Containers (less than 30 gallons)

- **Storage areas must comply with Oregon Occupational Safety and Health Administration (OR-OSHA) and Oregon Fire Code (OFC) regulations.** The maximum storage quantities of flammable/combustible materials allowed by the OFC are listed in Table 15.19-1 - Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the hazard classification.
- **Flammable/combustible liquids must be kept in a *flammables cabinet* where appropriate.** The maximum storage quantities are listed in Table 1 below: Storage Chart for Flammable/combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable/combustible materials exceeding the quantities listed in Table 2.

  Secondary containment may be required for flammable/combustible materials below the storage limits. Flammables cabinets, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 1.

Table 2: Storage Chart for Flammable/combustible Materials		MAXIMUM STORAGE ALLOWED		
		Per indoor area if NOT stored in a *flammables cabinet*	Per indoor area if stored in a *flammables cabinet*[1]	Outdoors
Group 1	1. Aerosols (all types) 2. Liquids with flashpoint below 73°F and boiling point 95°F or less *(e.g. chlorinated solvents)*	10 gallons (liquids used for the maintenance or operation of equipment) 25 gallons (other flammable/combustible liquids)	60 gallons	No limit 1,100 gallons adjacent to a building
Group 2	1. Liquids with flashpoint below 73°F and boiling point more 95°F 2. Liquids with flashpoint equal or greater 73°F and less 140°F *(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)*	10 gallons (liquids used for the maintenance or operation of equipment) 120 gallons (other flammable/combustible liquids)	240 gallons	No Limit 1,100 gallons adjacent to a building
Group 3	1. Liquids with flashpoint equal or greater 140°F and less 200°F *(e.g. ethylene glycol or immersion solvent)*	120 gallons	660 gallons	No Limit 1,100 gallons adjacent to a building

Up to 120 gallons may be stored in each *flammables cabinet, but the aggregate storage of* group 1 and group 2 materials inside each flammables cabinet must be less than 60 gallons. No more than three cabinets may be located in a one room unless every group of three is separated by 100 feet or more. Indoor areas are separated by a 2-hour fire rated barrier.

- **Containers must be in good condition** (e.g. no harmful rust, damage, or leaks).
- **When products are not stored in the original container the *secondary container* must be compatible with the product** (i.e. last for a long time without damaging the container or product). The use of *secondary container*s is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.

- **Original and *secondary containers* must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.19.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **If the aggregate storage of *flammable/combustible liquid* storage is greater than 1,000 gallons, all containers must have *secondary containment*.** *Secondary containment* includes, but is not limited to spill pallets, curbs, or berms. Refer to Section 1.6 – Secondary Containment for additional information about *secondary containment*.
- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Containers should be stored in a manner that protects the function and integrity of the product.** Products should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold).
- ***Incompatible products* should be stored away from each other (e.g. store solvent away from batteries and bleach).** *Incompatible products* produce a chemical reaction when mixed (e.g. fire, explosion, or toxic gas). Refer to the Chemical Compatibility table located in Appendix G for additional information on storing *incompatible products*. Product specific compatibility information can be found on the product label or *SDS*.

5.19.4.2 HANDLING AND USE OF SOLVENT

5.19.4.2.1 In-use Containers and Fluid Transfers

Refer to the Storage section of this procedure for additional BMPs.

- **Fluid transfers should be performed over a surface that provides a physical barrier between potential spills and the soil (e.g. pavement).** The surface should be constructed of a material that will not absorb potential spills.
- **Absorbents (e.g. spill pads or sand) should be used, where appropriate, to collect drips and assist with cleanup.** 'oil only' absorbent will not pick up solvents.
- **Containers must be closed.** Process containers (e.g. parts washer) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **In-use containers should be stored indoors,** where practical.
- **The entire contents of a container should be used before opening a new one.** Products should be used in a manner that minimizes outdated, spoiled, or unusable products. The management of empty containers and outdated or unusable materials is discussed in the Disposal section.
- **Product that is no longer usable must be managed as a waste**. See the Disposal section of this procedure (Section 5.19.4.3) for additional information.

5.19.4.2.2 Pre-Cleaning and Part Washers

- **Solvent use should be minimized where practical.** When solvents are used, a water-based or biodegradable product is recommended. Cleaning (or pre-cleaning) with a shop towel or wire brush is recommended where appropriate. The use of non-hazardous or less hazardous solvents and cleaners is recommended.
- **Parts washers should be used, instead of aerosol sprays, when washing is required.** Washers that use hot water and detergent are recommended over washers that use solvent. Citrus and other green solvents are recommended over organic solvents such as toluene or acetone. Chlorinated solvents should be avoided.

- **When solvents are not stored in the original container the *secondary container* must be compatible with the product**. Products should be stored in the original containers or the parts washer, where practical. The use of *secondary container*s is recommended where effective for product handling.
- **Original and *secondary container*s must be labeled with product and hazard information.** Labels must be intact, visible, and legible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.19.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Containers must be closed.** Process containers (i.e. parts washer) must be either empty by the end of the process or closed. Pre-cleaning containers and parts washers should have tight fitting lids. Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.
- **Wastes from parts cleaning must be captured and contained.** Parts washers meet this requirement. When parts washers are not used, the washing area must be operated so that cleaning wastes and spills stay out of nearby waterbodies, stormdrains, soil, or adjacent properties.
- **Non-hazardous solvents should be recycled frequently** to reduce the potential to collect heavy metals and other contaminates that may result in the creation of *hazardous waste*.
- **Hazardous solvents should be used until no longer effective.** Hazardous solvents already require *hazardous waste* disposal so the potential collection of heavy metals and other chemical does not affect disposal.
- **Parts washers should have a filter to remove contaminants.** Filtration (removal of solids through a filter) prolongs the life of solvents. Filtration is recommended prior to distillation.
- **Parts washers should be managed in a manner that prevents spills and drips.** Drain boards and drying racks should be used to direct fluids back to holding tanks.

5.19.4.2.3 Storage of Used Solvents and Solvent Containing Waste

Refer to the Storage section (5.19.4.1) of this procedure for additional BMPs.

- **Used solvents should be stored in separate container from other wastes.** Mixing wastes reduces the opportunity for recycling. A small amount of a *chlorinated product* (solvent or pre-cleaner) will turn a non-hazardous waste into a *hazardous waste*. Refer to the Definition of Terms for help identifying *chlorinated products*.
- **The container must be compatible with the waste**. Additional information on *compatible containers* is located in the Definition of Terms.
- **Containers that are used to store spent solvent that is managed as *hazardous waste*, must be labeled with the following information.** Labels must be intact, visible, and legible. See Section 2 - Labels and Signs for additional information on labels.
  - The words "Hazardous Waste"
  - The *accumulation start date*
  - A description of the waste (e.g. "spent solvent")
  - If applicable, a statement of the hazard (e.g. "flammable")
- **Containers that are used to store spent solvent must be kept closed unless adding or removing solvent.** Where practical, use the lid or cover designed for the container. Covers and lids should limit the release of fumes, reduce spill potential, and keep out rainwater.

5.19.4.3 DISPOSAL OF SOLVENT

5.19.4.3.1 Disposal of Solvent and Solvent-Containing Wastes

- **Solvent, solvent sludge, parts washer filters, and waste that contains solvent must be characterized (i.e. laboratory testing or assume hazardous) prior to disposal.** Water and sludge from aqueous or bio-clean parts washers must be characterized before disposal.
- **If characterization demonstrates the waste is hazardous, one of the following disposal options must be used.** Evaporation or air-drying is not allowed prior to disposal. Containers must be kept closed except when adding wastes. Check for area specific requirements.
  - Recycled by a licensed solvent recycler
  - Picked up by a licensed *hazardous waste* management company
  - Taken to a local hazardous waste event or facility if available. Local options vary and some facilities and events may prohibit wastes generated by companies. This option is ONLY available if the yard is a CEG.
    - DEQ sponsored *hazardous waste* collection event
    - County waste facility that is authorized by DEQ to accept *hazardous waste*

  Local and DEQ sponsored *hazardous waste* collection events are listed on the DEQ website. https://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/Technical-Assistance.aspx DEQ and county collection events may have limitations or restrictions.
- **If characterization demonstrates the solvent is non-hazardous, the waste should be recycled where opportunities are available.**
- **Non-hazardous solvent wastes that are not recycled should be managed as *solid waste* (i.e. trash).** Landfills typically do not allow liquid wastes. Non-hazardous liquid waste may be mixed with an inert material (e.g. grease sweep) before disposal at a landfill. Water from aqueous parts washers that has been determined non-hazardous may be released to the sanitary sewer with the written permission of the managing agency.

5.19.4.3.2 Empty Containers

- ***Empty containers* should be managed as *solid waste* (i.e. trash).** Recycling and reuse is recommended where opportunities are available. See Section 1.4 – Empty Containers for BMPs on the storage and disposal of empty drums.

5.19.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit must be used to document the visual inspect solvent storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each location. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons, 500 pounds, or 500 cubic feet. Additional information is located in Appendix N.

- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located in online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.
- **Solvent and solvent-containing waste must be characterized (e.g. laboratory testing or assume hazardous) prior to disposal. The method and result of the characterization must be documented.** Disposal histories that show the waste is non-hazardous should be updated periodically. Additional information on waste characterizing is located in Appendix D.
- **The monthly generation of hazardous solvent waste must be documented on the EMS Waste Generation Log.** *Hazardous waste* must be tracked in pounds. Look for the bulk density on the *SDS* to use as a conversion factor. In general, chlorinated solvents (12–14 lbs/gal) are heavier than non-chlorinated solvents (6–8 lbs/gal). See the Definition of Terms section of this Manual for tips identifying chlorinated products. If the waste is being recycled, the actual weight may be obtained from the waste hauler. **Solvent waste is counted when the solvent is determined ineffective.** Examples are listed below.
  - — Solvent is picked up for recycling (record the entire amount of solvent collected)
  - — Used solvent is poured into a waste container or into the parts washer (record the amount of solvent poured in the waste container each month)
  - — Sludge is removed from the parts washer (record the entire weight of the sludge when the parts washer is serviced. Record solvent on a separate line).

  Additional information on the Waste Generation Log is located in Appendix D. A quick reference on waste documentation is located in Appendix E.
- **The disposal of *hazardous waste* solvent must be documented on the EMS Waste Disposal Log.** Record disposal when the waste leaves the *Maintenance yard* (e.g. parts washer serviced). The documentation must include where the waste went and the method of disposal (e.g. recycled). Additional information on the Waste Disposal Log is located in Appendix D.
- **Used solvent that is recycled (distilled) onsite must be included on the Waste Generation Log unless the used solvent is immediately (cannot be set down) placed inside the still.** For further information, refer to the DEQ Solvent Recycling Counting Guidance or the DEQ Policy - Counting Recycled *Hazardous waste*, located in Appendix I.

Section Divider

Section Divider

5.20 TREATED TIMBER

5.20.1 Purpose

This procedure is intended for the storing, handling, and disposing of treated timbers. This procedure covers various types of treated timbers used by ODOT Maintenance employees in the maintenance and repair of highways and highway features.

Treated timbers include, but are not limited to, guardrail posts, signposts, treated fence posts, and bridge elements. Treated timbers included any wood (new or used) where a preservative has been added through pressure, surface coating, or injection. The preservative process helps wood withstand the elements and wards off termites, microorganisms and fungal decay. Common chemicals used to treat wood are alkaline copper quaternary (ACQ), copper azole (CA), micronized copper azole (MCA), copper azole, triadimefon, propiconazole or acid copper chromate (ACC). Newer preservative formulations are generally less toxic but are still considered treated timber. Treated timber does not include untreated dimensional lumber.

This procedure establishes management requirements for treated timbers that minimize waste generation, protect the environment, and encourage a safe, efficient working environment.

5.20.2 Regulating Agencies

EPA and DEQ regulate the management of solid and *hazardous waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

5.20.3 Alternatives And Pollution Prevention

- Reuse treated timbers when practical.
- Consider using alternatives to treated timbers, such as steel, concrete, or untreated (naturally pest resistant) wood to avoid environmental chemical contamination concerns, where allowed and appropriate.

5.20.4 Treated Timber – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  ODOT Safety has also posted a Safety Advisory (ADV98005) for Pressure Treated Wood.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

5.20.4.1 STORAGE OF TREATED TIMBER (NEW AND USED)

Creosote, pentachlorophenol and chrominated copper arsenate (CCA) are chemical preservatives commonly used in treating timbers. Preservatives are typically applied by pressure, surface coating, or injection. Potential leaching of the chemicals into soil, groundwater, and surface water is a concern with treated timbers.

- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Refer to Section 1 - Good Housekeeping, for additional information.
- **Treated timbers should be stored off the ground.** Store timbers on pallets or on a surface that provides a physical barrier between the timbers and the soil (e.g. pavement). Treated timbers may be used as base supports for large stacks of treated timbers.

- **Treated timbers should be covered or stored indoors.** Covering includes storing under an overhang, tarp, or plastic sheeting.
- **Storage areas should be within the boundaries of ODOT owned property** or at other locations with written permission of the owner (i.e. lease or other agreement).
- **Quantities should be kept to a minimum.** Purchase in small quantities for specific jobs or for seasonal work only.

5.20.4.2 HANDLING AND USE OF TREATED TIMBER

Maintenance activities that utilize these products must follow the guidelines in the ODOT *Blue Book* and from the vendor.

5.20.4.3 DISPOSAL OF TREATED TIMBER

- **Whole pieces of treated timber should be reused where possible.** Reusing posts as landscaping is recommended provided the posts will not be used in or near a waterbody.
- **Usable treated timber, that is not needed by ODOT, should be disposed in accordance with ODOT Surplus Property policies.** ODOT Surplus Property will need the SDSs and product information.
- **Where recycling opportunities are not available, unusable treated timbers should be managed as *solid waste* (i.e. trash).** Timbers should be taken to a permitted municipal landfill or transfer station, a permitted energy recovery facility (hog fuel burner), or a permitted construction and demolition landfill.

  Some landfills are not authorized by DEQ to accept treated timbers. Some landfills require timbers to be separated from other *solid waste* or may require testing to determine leaching potential. Contact the local landfill for availability and specific requirements.
- **Treated timbers should be kept out of stoves.**

5.20.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of storage areas.** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **If samples are required by the local landfill, copies of the laboratory results should be kept onsite.** The Waste Generation and Waste Disposal Logs may be used, at the discretion of the TMM, to document the characterization and disposal of treated timbers.

Section Divider

Section Divider

5.21 WINTER MAINTENANCE

5.21.1 Purpose

This procedure is intended for the storing, handling, and disposing of winter maintenance chemicals and abrasives. This procedure covers the management of various winter maintenance products routinely used by ODOT Maintenance employees to prevent the build-up of ice or to remove ice from highways and properties.

Winter maintenance materials include, but are not limited to, liquid and solid deicers including chemical used on sidewalks and abrasives.

This procedure establishes management requirements for winter maintenance chemicals that protect the environment and encourage a safe, efficient working environment. Other relevant procedures include:

- 🕮 Guidelines for installation, maintenance, and disposal of tanks are located in Section 3 – Tanks.
- 🕮 Guidelines for equipment washing are located in Section 5.9 - Equipment and Fleet

5.21.2 Regulating Agencies

Winter maintenance chemicals must meet the specifications developed by Clear Roads (formerly the *Pacific Northwest Snowfighters* (*PNS*)).

EPA and DEQ regulate the management of *solid waste* under the Resource Conservation and Recovery Act (RCRA) and Oregon waste management regulations.

The Oregon State Fire Marshal's Office regulates the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements.

5.21.3 Alternatives And Pollution Prevention

- Use caution when welding or torch cutting metals significantly coated with deicers. Washing the equipment with water before beginning maintenance operations will completely eliminate any hazard. If welding or cutting is necessary where water is not available, use a water-pressure type fire extinguisher. Refer to Health Exposure Alerts developed by the ODOT Office of Employee Safety for additional information.
  http://transnet.odot.state.or.us/od/employeesafety/Critical%20Incident%20and%20Hazard%20Alerts/Hazard%20Alerts/Hazardous%20Exposure%20Alert-De-icer.pdf

5.21.4 Winter Maintenance – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively. A copy of the ODOT Hazard Communication program is located in Appendix F.

  Product specific management practices listed on labels and *SDSs* (e.g. storage, personal protection practices, and disposal guidance) must be followed. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Spills and leaks must be promptly cleaned up.** Spills must be cleaned up regardless of the quantity. The size, product, and location of the spill will determine the appropriate cleanup response. Where possible, spills should be contained within the yard, kept out of stormdrains, and away from waterbodies. Absorbent should be generously applied to small spills and swept up. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up. The current ODOT *First Responder Guide* to Highway Incident Response (*First Responder Guide*) should be consulted for spill response information.

- **Spill reporting policies and documentation must be followed.** The TMM or Supervisor should be notified of significant spills. Region Dispatch should be asked to make spill notifications when appropriate. MOB and Region HazMat should be informed of reportable spills. Additional information on reportable quantities and notification is located in Appendix H – Spill FAQ Sheet.

  The MOB should be notified of winter maintenance chemical spills greater than 42 gallons and/or any spill that reaches (or have potential to reach) a waterbody.

- **Maintenance activities that utilize these products must follow application guidelines in the ODOT Routine Road Management Water Quality and Habitat Guide (the Blue Book) and District Winter Operations Plans.**

5.21.4.1 STORAGE OF WINTER MAINTENANCE MATERIALS

5.21.4.1.1 Stationary Aboveground Storage Tanks

BMPs for tanks are located in Section 3 – Tanks. The BMPs in Section 3 provide guidance on the purchase, operation, maintenance, and disposal of temporary and permanent tanks. This section provides guidance on product storage.

- **MOB should be notified of the location of aboveground storage tanks.** Notification should include the size and number of tanks. Information should be updated whenever the storage capacity or number of tanks changes.
- **Tanks must be labeled with product information.** Labels should be readable at a reasonable distance. In some fire districts, winter maintenance chemical tanks require a *NFPA 704 diamond*. The local Fire Marshal office should be contacted.
- **Prior to the installation of winter maintenance chemical tanks at new locations, the site must be assessed to determine if *secondary containment* is required.** The Risk Assessment for Deicer Tank Locations form is located in Appendix L – Poly Tanks should be used to determine the risk level for the site.
- **Existing winter maintenance chemical tank locations should be assessed to determine if secondary containment is required.** The Risk Assessment for Deicer Tank Locations form (located in Appendix L – Poly Tanks) should be used to determine the risk level for the site.
- **Winter maintenance tanks that are sited at locations that have been assessed as a high risk must have secondary containment.**
- **If spilled product would flow into a municipal sanitary system, the municipality should be notified of the potential for products entering the system.** A letter to the municipality should be kept onsite, at the *Maintenance yard* responsible for the site, or at the District office.
- **Tanks should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **If multiple tanks are located onsite, the tanks must be plumbed to ensure that if one tank starts leaking the other tanks will not be affected** (tank operations must be isolated). Tank isolation may be achieved by placing valves between the tanks, installing separate pumping systems, or any other method that keeps the contents of one tank from unintentionally flowing into another one.
- **Valves, including valves connecting tanks to each other, must be kept closed** unless transferring product.

- **Tank locations should be secured from theft and vandalism.** Examples of security measures are listed below.
  - Keep tank valves closed and locked when not in use.
  - Locate so that the tank is not visible from road or highway.
  - Light the area or use motion sensitive lighting.
  - Use fences or gates.
  - Regularly inspect the area and equipment for tampering.
- **Tanks should be protected from vehicular damage.** Vehicular damage protection may be provided by either physical barrier (e.g. concrete barrier or guardrail) or by siting the containers away from vehicle movement areas (e.g. inside a shed or storage bay), as appropriate.
- **Tanks must be in good condition (e.g. no harmful rust, damage, or leaks).** Additional information on poly tank inspections is located in sheet titled "Supplemental Information on Inspecting Poly Tanks" located in Appendix L of this document.
  - **Visually inspect the exterior of the tank for obvious defects at least monthly.** Deep cracks, irregular deformations (e.g. bending or swelling), and texture variations (e.g. soft or brittle) should be checked frequently for changes.
  - **The Stationary Poly Tank Inspection Form must be completed at least annually** to document detailed inspections of poly tanks. Detailed poly tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. See Section 5.21.4.2.4 – Routine Maintenance and Inspection of Stationary Poly Tanks.
  - **Tank integrity testing for stationary metal tanks** should be scheduled by the TMM (or designee) based on the guidance in Section 3.1.2 – Stationary Metal Tanks. Excessive wear in steel tanks usually occurs along welds. Do not enter the tank to repair welds.
- **Hose connections should be supported (e.g. put a block under the flange).** The valve area is subject to leaks because of the hydraulic stresses with the hose connections. Alternative methods for reducing stress on the tank from hose connections include:
  - Install the receiving ball valve close to the tank wall.
  - Install flexible hose close to the tank to help absorb impacts from vehicles and/or handling.
  - Use a lightweight hose to minimize stress at the hose/tank connection.
  - Use lightweight valves or connections outside the tank to reduce stress at the hose connection.
  - Use separate port valves to fill and empty the tank to reduce stress at the valve.

5.21.4.1.2 Storage of Dry Bagged Product -all sizes

Bagged salt has minimal risk of migration as long as the bags are in good condition.

- **Bagged salt must be stored indoors** (i.e. fully enclosed). Storage areas should be organized and tidy. Storage areas should be outside of the flood plain. Refer to Section 1 - Good Housekeeping, for additional information.
- **Original bags and *secondary containers* must be labeled with product.** Labels must be intact, visible, and legible. The original vendor label should be used where possible. Unlabeled containers may be relabeled if the information is known. Unlabeled containers that cannot be relabeled must be managed as waste (see Section 5.21.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.

- **Bags should be stored in a manner that protects the function and integrity of the product.** Bags should be stored off the floor. Bags should be protected from the weather and other damaging elements (e.g. moisture, extreme heat, or intense cold). Dry products should be stored away from liquids.
- **Bags and containers must be in good condition** (e.g. no damage or leaks). Routine visual inspections should look for tears and weak spots that might burst when loading or moving. Material from damaged containers may be transferred to other compatible containers. Damaged bags should be repaired as soon as practical.

5.21.4.1.3 Storage of Dry Bulk Product

- **Salt should be stored in a manner that protects the function and integrity of the product.** Product should be protected from the weather and other damaging elements (e.g. moisture, wind). Storage areas should be high and dry.
- **Bulk salt must be stored in a structure that prevents the migration of solid or dissolved salt from entering the adjacent soil, surface water, or groundwater.**
- **Bulk salt storage structures should be located away from stormwater conveyances and waterbodies.** Where possible based on site constraints, the following setbacks should be implemented when siting salt storage buildings:
  - At least 300' from private water wells
  - At least 300' from drywells.
  - At least 300' from waterbodies or wetlands.
  - At least 100' from stormwater conveyances including catch basins and ditches.
  - Outside of the 100-year flood plain.
  - Outside of source areas (groundwater and surface water) for public drinking water
- **The structure should be aligned to minimize salt migration by wind**.
- **Floors and stem walls of salt storage structures must be constructed of a material that will prevent the migration of dissolved salt into the soil below.** Salt will migrate through concrete or asphalt that is not properly sealed. Cracks or gaps in walls or floor will also allow salt to migrate.
- **Floors must be sloped or curbed to retain salt-contaminated runoff within the structure.**
- **Salt structures must be fully enclosed and protect salt from being carried outside of the structure by wind or water.**
- **Salt structures should be tall and large enough to accommodate the annual anticipated amount of solid product and equipment loading/unloading.**
- **Approaches to salt storage structures should be paved and sloped to divert stormwater away from the storage structure.**

5.21.4.1.4 Storage of Abrasives

- **Storage areas should be within the boundaries of the Maintenance yard, stockpile site, or at other locations with written permission of the owner (i.e. lease or other agreement).**
- **Abrasives should be stored away from floor drains, stormwater conveyances, and waterbodies where practical based on site constraints.** Source control (such as berms) or water treatment measures should be implemented where appropriate. The intent is to keep sediment out of stormwater systems and waterbodies. Refer to the ODOT Erosion Control Manual for additional guidance.
- **Abrasives should be covered where necessary to assist with winter operations.**

5.21.4.1.5 Secondary Containment of Winter Maintenance Chemical Tanks

- ***Size specific secondary containment*** **must be able to hold the entire capacity of the largest container within the boundary of the containment plus *sufficient freeboard* to contain precipitation.** *Secondary containment* should prevent a spill from leaving an area by physically confining the product. Preferably, spills should be controlled immediately adjacent to the tank. However, if containment near the tank is not possible due to site constraints, then spills may be directed to a remote containment.
- **Pooled water inside containment should be inspected for the presence of deicer before opening drain valves or pumping water out of containment systems.** The presence of deicer may be identified by one or more of the following indicators:
  - Typically darker than water (brown or yellow brown).
  - Appears thicker than water.
  - May foam when agitated.
  - A sheen on the water.
  - An odor to the water (that smells like the deicer being used).
  - A significantly higher specific gravity (water has specific gravity of 1.00).
  - A decrease in the amount of product in the tank that cannot be accounted for authorized use.
- **The release of clean water from containment structures should be logged**. The log should document the water was free of deicer and the date of the release. If water was not free of deicer the cause of the deicer in the containment and what was done to resolve the issue should be included.
- **Structural modifications to existing drainage systems (e.g. stormwater systems) must be coordinated with ODOT Facilities.**
- **Drain valves on *secondary containment* systems must be kept closed whenever there is product in the tank** (unless draining the stormwater from the system). Containment is not provided when drain valves are open.
- **Drain valves on *secondary containment* systems must be manually operated (not automatic).** Valves are preferred over caps to close drains.
- **The integrity of *secondary containment* systems should be visually checked annually,** preferably before the first delivery of the season. The inspection should be documented on the Monthly Field Audit.

5.21.4.2 HANDLING AND USE OF WINTER MAINTENANCE MATERIALS

Refer to the District Winter Operations Plans for information on the application of winter maintenance chemical to roadways.

5.21.4.2.1 Truck-Mounted Liquid Storage Tanks

Refer to Section 3.2.1 – Poly Transport Tanks for guidance on the purchase, operation, maintenance, and disposal of poly transport tanks. This section provides guidance on product storage.

- **Mixing winter maintenance chemical and the residues of other chemicals (e.g. pesticides) should be avoided**. Refer to the Disposal Section for material guidelines on the management of tank residue.
- **Truck-mounted tanks should be labeled with product information. Baffle balls should be used to reduce liquid surging in large capacity tanks (greater than 1,000 gallons) that do not have internal baffles.** The size of the lid opening on the tanks should be used to determine the size of baffle balls purchased for the tank.

- **When equipment is parked with product in the tank, equipment should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.
- **Tanks containing product should be stored in secure areas or in a manner that discourages vandalism** (e.g. storing inside buildings, using locks, installing fencing, or placing out of public view).

5.21.4.2.2 Storage of Salt Application Equipment

- **Trucks and equipment containing salt must be stored indoors or parked under cover at the end of the shift.** The storage should minimize moisture and protect the integrity of the salt.
- **When equipment is parked with product, equipment should be located away from floor drains, stormwater conveyances, and waterbodies** where practical based on site constraints. Source control (such as berms) or water treatment measures should be implemented where appropriate.

5.21.4.2.3 Loading and Unloading Liquid Winter Maintenance Chemicals

- **Efforts should be made to reduce spills and drips that occur while loading/unloading.** Efforts may include using a bucket to collect chemical from hoses, using a valve, placing hoses in a trench, or using drip-less nozzles.
- **Containers must be labeled and closed.** Process containers (e.g. collection buckets) must be either empty by the end of the process or closed. Where practical, use the lid or cover designed for the container. Covers and lids should reduce spill potential and keep out rainwater.

5.21.4.2.4 Loading and Unloading Dry Product

- **Loading and unloading of solid salt must occur on a paved surface.** The surface should be constructed of a material that will not absorb the product or allow dissolved salt to migrate.
- **Loading and unloading of solid salt must occur indoors** with the following exceptions:
  - Tow plow combination trucks due to their length and maneuverability restrictions. Loading and unloading of tow plow combination trucks must occur as close to the salt storage shed as feasible.
  - Vendors delivering bagged product may park outdoors while bagged salt is moved from the transport truck to the salt storage location. Bagged salt has minimal risk of migration as long as the bags are in good condition.
- **Loading and unloading practices should minimize tracking of salt.** Avoid overfilling and overloading trucks. Where appropriate, employ methods to capture solids before entering the storm system. Solid salt that has escaped the storage area (e.g. tracked from equipment movement) should be swept up as soon as practical.

5.21.4.2.5 Routine Maintenance and Inspection Tanks

Refer to Section 3 - Tanks for guidance on the purchase, operation, maintenance, and disposal of tanks used to store liquid chemical. This section provides guidance on product storage.

Annual inspection of poly tanks and third-party inspections of metal tanks are intended to be more comprehensive and detailed than monthly visual inspections. Best practices and inspection guidance is included in Section 3 – Tanks and Appendix L – Poly Tanks.

Transport tanks are considered fleet. ODOT Fleet is responsible for scheduling and conducting annual inspections of transport tanks in conjunction with equipment inspections. Routine inspection and maintenance records of ODOT fleet are kept in FIMS. Contact Fleet Management with questions regarding the maintenance and inspection of fleet.

- **Mixing winter maintenance chemical and the residues of other chemicals (e.g. pesticides) should be avoided**. Refer to the Disposal Section of the material for guidelines on the management of tank residue.. Standard *magnesium chloride* and cold weather modified *magnesium chloride* can be used in the same tank without cleaning between products.
- **Stationary poly tanks are classified as a confined space and confined space hazards must be assessed before entering the tank (e.g. for washing or repair).** Refer to the ODOT Permit Required Confined Space Program or contact ODOT Safety for Confined Space Awareness Training.
- **Tanks (stationary and transport) and ancillary equipment (distribution lines, supports, etc.) must be visually inspected monthly.** Use the Monthly Maintenance EMS Field Audit form to document the inspection. The inspection checks for obvious defects. Deep cracks, irregular deformations, and texture variations (e.g. soft or brittle) should be checked frequently for changes.
- **A detailed inspection of poly tanks must occur annually.** Use the Stationary Poly Tanks inspection form to document annual inspections of stationary tanks. Records of transport tank inspections are kept in FIMS.

  The absence of stress cracks or other damage does not guarantee the tank is structurally sound. Stress cracks should not be ignored. Adding metal banding at the bottom of the tank will not control deterioration. Additional inspections (e.g. acoustic emission testing or ultrasonic testing) can be performed by professional testing companies.

5.21.4.2.6 Removing Poly Tanks from Service

- **If any of the following critical conditions are observed, the poly tank must be taken out of service.** Additional information on inspecting poly tanks is located in Appendix L – Poly Tanks. The "baseball bat test" may be used on empty tanks to confirm suspected tank failure.
  - Significant stress cracking, OR
  - A deep crack at least 2” long in a stress point, OR
  - A deep crack at least 4” long in a non-stress point, OR
  - Significant brittleness or softness in stress points.
- **Tanks with developing conditions should be replaced as soon as practical. Developing conditions could include: minor stress cracks; minor or moderate damage; short or shallow cracks; some brittleness but still flexible; or shallow cuts.** If a poly tank with developing conditions cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor the status.

5.21.4.2.7 Routine Maintenance and Inspection of Salt Storage Structures

- **Storage structures must be visually inspected monthly** for visual evidence of damage and salt escape.
- **Structures must be repaired or resealed, as needed, to maintain protective condition.**

5.21.4.2.8 Cleaning Application Equipment

- **Winter maintenance chemicals (liquid and dry) should be frequently rinsed from vehicles to protect the vehicle.** Equipment cleaning should follow the BMPs outlined in Section 5.9 – Equipment and Fleet. Where practical, equipment should be allowed to dry indoors.
- **Equipment washing should be done as soon as practical** at the end of each storm. Salt neutralizing products should be used.
- **Where practical chunks of hardened salt should be removed from application equipment prior to washing.** Hardened salt should be swept up and returned to the storage pile or managed as solid waste (e.g. trash).

- **Salt-laden wash water must be either directed to a municipal sanitary sewer or managed without a discharge to soil, surface water, or ground water** (e.g. stored and picked up by a licensed pumper, evaporated from an impermeable surface, or directed to a lined evaporation pond). Refer to Section 5.9 – Equipment and Fleet for additional information.

5.21.4.3 DISPOSAL OF WINTER MAINTENANCE MATERIALS

5.21.4.3.1 Disposal of Recovered and Residual Liquid Product (including recovered spills and tank residue)

- **Recovered liquids that cannot be returned to the tank should be used in other approved operations.** Care should be taken to prevent chemical runoff when treating sand piles. Winter maintenance chemicals may corrode metal support beams of sand sheds. Approved operations include:
    a. Apply to piles of winter abrasives
    b. Deice or anti-ice paved surface around buildings (sidewalks or parking areas)
    c. Dust suppression
- **Recovered liquid product (including absorbent used to clean winter maintenance chemical spills) that cannot be used in other approved operations should be managed as *solid waste* (i.e. trash).**

5.21.4.3.2 Disposal of Dry Product

- **Useable salt that has escaped the storage pile should be swept up and replaced on the pile. Chunks of usable salt should be crushed and blended into the pile.**
- **Unusable salt (i.e. cannot be applied to the highway) should be managed as solid waste** (e.g. trash)**.**

5.21.4.3.3 Disposal of Tanks

- **Tanks that are no longer needed, but are still in good condition, should be transferred to another ODOT crew or disposed in accordance with ODOT's Surplus Property Policy.** Copies of available tank information (tank history including type of tank, purchase date, usage, and damage) should be transferred with the tank The history of the tank (e.g. type of tank, purchase date, usage, and damage) should be transferred with the tank. A poly tank inspection form should accompany the tank.
- **Tanks that are not relocated or are in poor condition should be recycled where opportunities are available.** Poly tanks may need to be broken into smaller pieces prior to disposal. Tanks that are not recycled should be managed as *solid waste* (i.e. trash).

5.21.4.3.4 Disposal or Reuse of Recovered Abrasives

Refer to Section 5.18 – Roadwaste for the management of recovered abrasives. A summary of information on roadwaste management is located in Appendix M.

5.21.5 Documentation

Blank copies of EMS paperwork are located in Appendix B.

- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of areas and tanks used to store winter maintenance products (e.g. salt, abrasives, liquid).** Additional information on the Monthly Field Audit is located in Appendix C.
- **A record of actions that cannot be completed with the Monthly Field Audit in hand must be tracked using the Maintenance EMS Field Audit Corrective Action Sheet.** Proactive actions and preventative maintenance may be documented on the same form at the discretion of the TMM. Additional information on the Corrective Action Sheet is located in Appendix C.
- **A Stationary Poly Tank Inspection Form must be completed at least annually for each stationary poly tank to document the detailed inspection of the tanks, fittings, and pipes.** Detailed tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. Annual inspections should occur before the winter maintenance season. Elevated temperatures can accelerate deterioration and weaknesses. A blank copy of the Stationary Poly Tank Inspection Form is located in Appendix B. Additional information is located in Appendix L – Poly Tanks.
- ***Reportable spill*s that occur at the *Maintenance yard* must be documented on the Spill Response Form for Spills in ODOT Maintenance Yards.** Non-reportable spills may be documented on the same form at the discretion of the TMM. A blank copy of the form is located online, in the ODOT Emergency Operations Manual, and in Appendix B. Additional information on reporting and documenting spills that occur in ODOT Maintenance Yards is located in Appendix H.

  The MOB should be notified of all deicer spills larger than 42 gallons (on the yard or on the road). MOB should also be notified of any spill reported to OERS (i.e. any spill that enters or threaten to enter a waterbody). A phone call or e-mail is sufficient to notify the MOB.
- **The Oregon State Fire Marshal's Hazardous Materials Information Survey must be completed online annually** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate survey must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite (at any time) exceeds the reporting limits set by the Oregon Fire Marshal. The limit is currently set at 500 gallons. Additional information is located in Appendix N.
- **The release of clean water from secondary containment structures should be logged.** The log should document the water was free of deicer and the date of the release. If water was not free of deicer the cause of the deicer in the containment and what was done to resolve the issue should be included on the log.

Section Divider

Section Divider

ACRONYMS

ACE	US Army Corp of Engineers
ADT	Average Daily Traffic
AST	Aboveground Storage Tank
BMP	Best Management Practices
CDL	Commercial Drivers License
CEG	Conditionally exempt generator
CFR	Code of Federal Regulations
CR2K	Community Right to Know
CWA	Clean Water Act
DAS	Oregon Department of Administrative Services
DEQ	Oregon Department of Environmental Quality
DSL	Oregon Department of State Lands
EMS	Environmental Management System
EPA	Environmental Protection Agency
°F	Degrees Fahrenheit
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
GHS	Globally Harmonized System
HazMat	Hazardous materials
HazCom	Hazard communication program
HID	High Intensity Discharge (lamp)
HMIS	Hazardous Material Identification System
IPM	Integrated Pest Management (Integrated Vegetation Management)
IVM	Integrated Vegetation Management
LED	Light-Emitting Diode
LP	Liquefied Petroleum
MOB	Maintenance and Operations Branch (ODOT)
MSDS	Material safety data sheet (currently known as SDS)
MS4	Municipal Separated Storm Sewer System
NFPA	National Fire Protection Association
NOAA	National Oceanic and Atmospheric Administration Fisheries Division
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry

ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OERS	Oregon Emergency Response System
OR-OSHA	Oregon Occupational Safety and Health Administration (State)
ORS	Oregon Revised Statutes
OSFM	Oregon State Fire Marshal
OSHA	Occupational Safety and Health Administration (Federal)
OSP	Oregon State Police
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PNS	*Pacific Northwest Snowfighters*
RCRA	Resource Conservation and Recovery Act
REC	ODOT Region Environmental Coordinator
SARA	Superfund Amendments and Reauthorization Act
SDS	Safety Data Sheet (formerly MSDS)
SPCC	Spill Prevention Control and Countermeasure
SQG	Small Quantity Generator
TMC	ODOT Transportation Maintenance Coordinator
TMM	ODOT Transportation Maintenance Manager
UFC	Uniform Fire Code
UIC	Underground Injection Control
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VOC	Volatile Organic Compound

Section Divider

Section Divider

DEFINITION of TERMS

- A -

Adverse Incident (Pesticide Permit)

An unusual or unexpected incident observed upon inspection or of which you otherwise become aware, in which:

(1) A person or non-target organism has likely been exposed to a pesticide residue, (e.g. direct contact or through drinking water) and

(2) The non-target organism suffered a toxic or adverse effect.

The phrase “toxic or adverse effect” includes effects that occur within waters of the state on non-target plants, fish or wildlife that are unusual or unexpected (e.g., non-target organisms are those not described on the pesticide product label or otherwise not expected to be present) as a result of exposure to a pesticide residue, and may include:

- Distressed or dead juvenile and small fishes
- Washed up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

The phrase, “toxic or adverse effects,” also includes any adverse effects to humans (e.g., skin rashes), or animals that occur either from direct contact with or as a secondary effect (e.g., sickness from consumption of plants or animals containing pesticides) from a discharge to waters of the state and that are temporally and spatially related to exposure to a pesticide residue (e.g. vomiting, lethargy).

Accumulation start date

The date waste was first put into the container. The accumulation start date must be written on *hazardous waste* and *universal waste* containers.

The accumulation start date changes each time a reusable container is emptied.

Active containment measures

Active containment measures require someone to physically deploy or take action to put the containment method or device in place. The measure may be deployed either before an activity or in reaction to a discharge.

The effectiveness of active containment measures depends on the technical aspects (e.g. method of operation or absorption rate) and placement (e.g. skill need to implement the measure, quantity and response time). Active containment measures are more appropriate for spills that are likely to occur only during manned activities, such as those occurring during transfers, an, provided that the measure is capable of containing the oil discharge volume and rate, and is timely and properly constructed/deployed.

Active containment measures include, but are not limited to:

- Placing a properly designed storm drain cover over a drain to contain a potential spill in an area where a transfer occurs, prior to the transfer activity. Storm drains are normally kept uncovered; deployment of the drain cover prior to the transfer activity may be an acceptable active measure to prevent a discharge from reaching navigable waters or adjoining shorelines through the drainage system.
- Placing a storm drain cover over a drain in reaction to a discharge, before the spill reaches the drain. If deployment of a drain cover can reliably be achieved in time to prevent a spill from entering the drain, this may be an acceptable active measure. This method may be risky, however, and is subject to a good engineering judgment based on what is realistically and reliably achievable under adverse circumstances.
- Using spill kits in the event of a spill. The use of spill kits, strategically located and ready action by facility personnel for deployment in the event of a spill, may be an acceptable, in certain circumstances, to prevent a spill movement. This method may be risky and is subject to good engineering judgment. Consider the volume most operations and therefore likely expected to be discharged and proximity to does not require facility navigable waters or adjoining shorelines.
- Use of spill response capability in the event of spill. This may include the emergency construction/deployment of dikes, curbing, diversionary structures, ponds, and other temporary containment methods (such as sorbent materials) so long as the measures can be implemented in time to prevent the spill movement. This method may be risky and is subject to good engineering judgment.
- Closing a valve that controls drainage from an area prior to a discharge. If the valve is normally kept open, closing it before an activity that may result in spill may be an acceptable active measure.

Architectural paint

Architectural paint includes both oil and latex paint used for the interior and exterior of buildings that is sold in containers of 5 gallons or less.

Asbestos-containing

Asbestos is a naturally occurring, highly versatile mineral that was popular in manufacturing and building from about 1860 to the mid-1980s. Asbestos is resistant to heat, electrical, and chemical damage and will absorb sound. Products that contain asbestos have a high tensile strength. However, the inhalation of asbestos fibers can cause serious illnesses, including mesothelioma and asbestosis.

Since the mid 1980s, many uses of asbestos have been banned; however, many products still sold and used contain asbestos.

Asbestos is regulated by both EPA and OSHA. The removal and disposal of asbestos-containing building materials is regulated by State and Federal law. Guidelines for employee who perform brake and clutch repairs are located in Appendix O – Brake and Clutch Work.

Asbestos may be found in the following materials

- drywall joint compound;
- mud and texture;
- ceiling insulation;
- acoustical spray, texture, and panels;
- vinyl floor sheeting and tiles;
- adhesives;
- roofing mastics, tars, felts, and shingles;

- transite panels, siding, and pipes;
- fireproof insulation and drywall;
- caulk;
- heat, fire, and acid resistant gaskets;
- friction materials;
- automatic transmission components;
- brake pads, blocks, linings, and shoes;
- clutch facings and plates;
- fire blankets;
- interior fire doors;
- thermal pipe insulation.

Products that contain asbestos can be identified by contacting the manufacturer or reading the label or *SDS* and looking for any of the following words.

- Asbestos
- Asbetiform
- Chrysotile (most common)
- Serpentine
- Riebeckite
- Cummingtonite-grunerite
- Amosite,
- Crocidolite,
- Tremolite,
- Actinolite,
- Anthophyllite

Automotive UIC

Drywell, french drain, drainfield, or other below ground drainage system that connected to areas with a potential to receive automotive fluids. Typically refers to shop floor drains, grease pit sumps, or drains in vehicle wash area that discharge to drywells or septic systems.

- B -

Ballast

The primary electric component of a fluorescent light fixture.

*Ballast*s contain tar-like oil that is designed to muffle operational noise. The oil in *ballast*s manufactured prior to 1978 is likely to contain polychlorinated biphenyls (PCBs). *Ballast*s that do not contain PCBs are marked "No PCBs" by the manufacturer. *Ballast*s that do not contain this statement should be assumed to contain PCBs.

Beneficial Use

Material that is actively managed for beneficial use is not considered a waste.

In some cases landfill disposal may be more cost effective than sorting and managing for beneficial use. The following criteria distinguishes stockpiles intended for beneficial use.

1. A reasonably likely use for the material has been identified
    - The use is in accordance with applicable standards and practices
    - The material is an effective substitute for commercially available product
2. Storage and use will not create an adverse impact to public or the environment
    - The material is not a hazardous waste
    - Storage practices prevent release to the environment and nuisance conditions (e.g. objectionable odors, dust, unsightliness, or fire)
    - Contamination levels meet one of the following criteria (Sampling may be necessary to determine the levels of contamination; contact the MOB or Region HazMat for assistance with pollutant testing)
        - Do not significantly exceed concentrations in commercially available products
        - Do not exceed background levels
        - Will not exceed acceptable risk levels
    - The use will not increase levels of contamination in sensitive areas or create nuisance conditions

Biofuel

A solid, liquid, or gaseous fuel consisting of (or derived from) recently dead biological material, usually plants. The term typically refers to various blends of biodiesel or ethanol.

Blue Book

A common reference to the ODOT Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices. The *Blue Book* provides direction, BMPs, and technical guidance for routine road maintenance activities.

- C -

Caustic (Caustic Cleaners)

Capable of destroying or eating away by chemical action **:** corrosive. Examples of caustic cleaners include: potassium hydroxide, sodium hydroxide and caustic soda

Clean fill

Material consisting of soil, rock, concrete, brick, building block, tile or asphalt paving, which do not contain contaminants which could adversely impact the waters of the State or public health.

Clean fill does not include litter, organic material (e.g. leaves), construction debris, demolition debris, or industrial waste.

Chlorinated products

Chlorinated compounds are found in aerosol and liquid degreasers, cleaners, solvents, adhesives, paint removers, and insecticides. Some vendors manufacture both a chlorinated and non-chlorinated version of the same product.

Chlorinated compounds are associated with serious health problems including cancer, liver and kidney damage, and impaired immune and nervous systems. Several chlorinated products are suspected of causing damage to the upper atmosphere ozone layer. Chlorinated products and wastes mixed with chlorinated products are frequently classified as hazardous waste.

Chlorinated products can be identified searching label or *SDS* for chemicals that:

1. Contain “chlor” (e.g. tetrachloride, trichloride, trichloroethane, chlorothene, or dichloride).
2. Contain "per", “perc”, or “perk” (e.g. perklone, percosolve, permethrin, or perchloroethylene).
3. Contain a known abbreviation for a chlorinated solvent (e.g. TCA, TCE, PCA, or PCE).

A partial list of chlorinated products have been found at ODOT shops includes: Aeroflex, B-Lube, Brakleen #5089, Brakleen #5088, Dorsban, Down and Out, Dri, Jet Wasp Killer, PEN, POW, TAC 40 Brake Cleaner, Tel-X, Temp 400 Grease, Tri-Ethane, Trump, Zep 45, Zep Aerosolve, Zep Body Solvent, Zep-Aid, and Zynolyte spray lacquer.

Comb*ust*ible liquid

A liquid that meets one of the following characteristics

- Class II combustible liquid: flash point greater than or equal to 100 °F and below 140 °F
- Class IIIA combustible liquid: flash point greater than or equal to 140 °F and below 200 °F
- Class IIIB combustible liquid: flash point greater than or equal to 200 °F

***Very Small Quantity Generator*(*VSQG*)**

A *hazardous waste* generator that meets **all** of the following conditions each calendar month

- Generates 2.2 pounds or less of acute *hazardous waste*, and
- Generates 220 pounds or less of *hazardous waste*, and
- Generates 220 pounds or less of spill cleanup debris classified as *hazardous waste*.

And

- Never has more than 2,200 pounds of *hazardous waste* onsite at any one time.

Compatible container

Compatible containers are not altered by chemical interactions with the product being stored. In general, *corrosive*s will erode steel and solvents will dissolve polyethylene and other plastics.

Compatible containers will hold the product or waste for an extended period without softening, losing strength, or swelling. Weakened containers are easily damaged when moved or emptied.

Product	Carbon Steel	Low-Density Polyethylene (LDPE)	High-Density Polyethylene (HDPE)	Polypropylene (PP)	Polyurethane (PU)	Polyvinyl Chloride (PVC)	Stainless Steel (304)	Stainless Steel (316)
Antifreeze	No info	NA	A	D	D	A	NA	A
Asphalt	B	A	B	B	B	A	B	A
Detergents	A	D	A	A	B	A	A	A
Diesel	A	C	B	A	C	A	A	A
Gasoline	B	NA	A	C	NA	C	A	A
Kerosene	A	C	B	B	B	A	A	A
Lacquer thinner	A	A	D	D	D	D	A	A
Magnesium chloride	C	A	A	D	A	B	D	D
Mineral spirits	A	B	D	D	B	A	A	A
Motor oil	A	C	A	D	B	B	A	A
Salt brine	D	A	A	A	D	A	B	A
Sodium chloride	D	A	A	A	A	A	B	B
Stoddard solvent	A	C	D	C	B	C	A	A
Water, fresh	D	A	A	A	A	B	A	A

Ratings of chemical behavior listed in this chart apply at a 48-hr exposure period.
Ratings - Chemical Effect
A - Excellent
B - Good: Minor Effect, slight corrosion, or discoloration.
C - Fair: Moderate Effect, not recommended for continuous use. Softening or loss of strength, and swelling may occur.
D - Severe Effect: Not recommended for any use.

Cole-Parmer has a (free) database https://www.coleparmer.com/chemical-resistance

Corrosive

A highly reactive substance that causes obvious damage to living tissue. Acids and bases are common *corrosive*s. *Corrosive*s are also referred to as caustics.

Corrosive Hazardous waste *(summary 40 CFR261.22)*

A waste that meets one of the following conditions is classified as a *corrosive hazardous waste*.

- a water-based solution that has a pH $\leq$2 or $\geq$12.5
- a liquid that corrodes steel at a rate greater than 0.25 inch/year

- D -

Defensible space

A perimeter surrounding a structure that will resist the spread of fire from nearby forests.

Disposal Site

Land and facilities used for the disposal, handling, treatment or transfer of or energy recovery, material recovery and recycling from solid wastes, including but not limited to dumps, landfills, sludge lagoons, sludge treatment facilities, disposal sites for septic tank pumping or cesspool cleaning service, land application units (except as exempted by subsection (81)(b) of this rule), transfer stations, energy recovery facilities, incinerators for solid waste delivered by the public or by a collection service, composting facilities and land and facilities previously used for solid waste disposal at a land disposal site;

but the term does not include a facility authorized by a permit issued under ORS 466.005 to 466.385 to store, treat or dispose of both hazardous waste and solid waste; a facility subject to the permit requirements of ORS 468B.050; **a site that is used by the owner or person in control of the premises to dispose of soil, rock, concrete or other similar non-decomposable material,** unless the site is used by the public either directly or through a collection service; or a site operated by a wrecker issued a certificate under ORS 822.110.

- E -

Empty container

Container where all material has been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g. pouring, pumping, and aspirating) AND

- No more than one inch of residue remain on the bottom of the container or inner liner, OR
- No more than 3 percent (by weight) remains in the container or inner liner (containers less than or equal to 119 gallons); Examples are listed below. OR
    a. About 1½ gallons in a barrel
    b. About 3 gallons in 110 gallon tank
- No more than 0.3 percent (by weight) remains in the container or inner liner (containers greater than 119 gallons). Examples are listed below
    c. Less than ½ gallon in 150 gallon tank
    d. Less than 1½ gallons in 500 gallon tank

A container that has held a compressed gas is empty when the pressure in the container approaches atmospheric.

Special rules apply to containers that held pesticides regulated by the Department of Agriculture; see Section 5.16 – Pesticide for more information.

Excluded waste

Wastes that are excluded from the definition of solid or *hazardous waste* under 40 CFR 261.3 and 261.4.

The generation and disposal of three *excluded waste*s (oil, asphalt emulsion, and anti-freeze) are tracked by the EMS Program.

- F -

First Responder Guide

Common reference to the ODOT First Responder Guide to Highway Incident Response. The First Responses Guide is a handbook prepared by the Emergency Preparedness Committee and the Maintenance and Operations Branch that outlines procedures for notifying and responding to an incident or hazardous material spill.

Flammables cabinet

A cabinet that meets one of the following conditions

1. Complies with UL1275

2. A metal cabinet with
   - Walls and door that are constructed of at least 18 gage metal
   - Double walls that have at least 1½" air space between the walls
   - Tight-fitting, riveted or welded joints

3. A wood cabinet with
   - Walls and door that are constructed of at least 1" thick exterior grade plywood
   - Steel or brass door hinges
   - Rabbeted joints fastened in two directions
   - Fire resistant paint

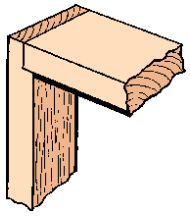


Illustration of rabbeted joint

A *flammables cabinet* must have a self-closing, tight-fitting door equipped with a three-point latch.

The bottom of the cabinet must have a 2" liquid-tight lip or sill.

The combined total of liquids inside each cabinet must be ≤120 gallons.

The cabinet must be conspicuously labeled "FLAMMABLE – KEEP FIRE AWAY" in red letters on a contrasting background.

Flammable gas

A compressed gas with one of the following characteristics

1. Boiling point <68°F at 14.7 psia plus
2. Ignitable at ≤13% mixture with air
3. Flammable at >12% mixture with air

Common flammable compressed gases include

- Acetylene
- Butane
- Carbon Monoxide
- Cyclopropane
- Ethane
- Hydrogen
- Isobutan
- MAPP®
- Methane
- Propane
- Propylene

Flammable liquid

A liquid with one of the following characteristics

- Class IA flammable liquid: A flash point below 73 °F and a boiling point below 100 °F
- Class IB flammable liquid: A flash point below 73 °F and a boiling point greater than or equal to 100 °F
- Class IC flammable liquid: A flash point greater than or equal to 73 °F and below 100 °F (=)

Flammable solid

A solid with one of the following characteristics

1. Capable of causing fire through friction, absorption or moisture, or chemical change
2. Ignition temperature <211°F

Flashpoint

The lowest temperature at which a *flammable liquid* can form an ignitable mixture in air.

- G -

General secondary containment

Secondary containment for the most likely spill. Containment method, design, and capacity are determined by good engineering practices to contain the spill until cleanup occurs.

EPA recommends that a determination of adequate secondary containment consider:

- The reasonably expected sources and causes of a discharge. This could be a failed hose connection; failed valve; overfill of a container, tank truck, or railroad tank car; or breach of a container. Determination should be based on the type of transfer operation, facility experience and spill history, potential for human error, etc.

- The reasonably expected maximum rate of discharge. This is dependent on the mode of failure. The rate may be equal to the maximum rate of transfer or the leakage rate from a breached container.

- The ability to detect and react to the discharge. This is dependent on the availability of monitoring instrumentation for prompt detection of a discharge and/or the proximity of personnel to detect and respond to the discharge.

- The reasonably expected duration of the discharge. This is dependent on the availability of manual or automatic isolation valves, the proximity of qualified personnel to the operation, and other factors that may limit the volume of a discharge.

- The time it would take a discharge to impact navigable waters or adjoining shorelines. This could depend on the proximity to waterways and storm drains, and the slope of the ground surface between the loading area and the waterway or drain.

ODOT has determine appropriate general secondary containment spill volumes for the following activities: oil transfers to and from bulk tanks; fuel dispensing; hose reel transfers into bulk tanks; quick connect transfers into bulk tanks; lube lines; use of a mobile refuelers; and fixed fuel lines from tanks to the dispensers, Copies are located in Appendix H – Spills.

Globally Harmonized System (GHS)

The Globally Harmonized System (GHS) is an international approach to hazard communication, providing agreed criteria for classification of chemical hazards and a standardized approach to label elements and safety data sheets..

Significant difference. For GHS labels, the greater the severity, the ***lower*** the hazard number; whereas with NFPA/HMIS labels, the greater the severity, the ***higher*** the hazard number.

Hazard Communication Standard Pictograms and Hazards

FLAME  Flammables Pyrophorics Self-heating Emits flammable gas Self reactives Organic peroxides	FLAME OVER CIRCLE  Oxidizers	EXPLODING BOMB  Explosives Self reactives Organic peroxides
SKULL AND CROSSBONES  Acute toxicity (fatal or toxic)	CORROSION  Skin corrosives / burns Eye damage Corrosive to metal	GAS CYLINDER  Gases under pressure
HEALTH HAZARD  Carcinogen Mutagenicity Reproductive toxicity Respiratory sensitizer Target organ toxicity Aspiration toxicity	ENVIRONMENT  Aquatic toxicity	EXCLAMATION MARK  Irritant Skin sensitizer Acute toxicity (harmful) Narcotic effects Respiratory tract irritation Hazardous to ozone layer

Green product

A product that minimizes negative environmental impacts. Examples of ways to minimize environmental impacts over the life cycle of the product include conserve energy and water; generate less waste; release less pollutants; made from recycled materials and that can be reused or recycled; use of renewable energy resources such as bio-fuels, solar, and wind power; and use of less hazardous or toxic chemicals.

- H -

Hazard communication program **(HazCom)**

A program provided by ODOT Employee Safety to ensure that information about hazardous chemical hazards and appropriate safeguards is provided to employees and contractors. The program uses MSDSs, labeling, training, and other information to provide information on potential hazards. Refer to Appendix G for program details and requirements.

Hazardous Material (SFM, OAR 437 and DEQ, OAR 453)

Any substance known to present a physical or health hazard to people under normal conditions of use and/or during emergency use. Any chemical or material which is required to have a Safety Data Sheet under OAR 437 and ORS 453, or designated as such by the State Fire Marshal.

Hazardous waste

Wastes that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists. A summary of the EPA *hazardous waste* listed is located in Appendix D.

See additional definitions under each of the four characteristics.

Hazardous Materials Identification System (HMIS) Label

A standardized color-coded bar system that provides chemical hazard information to employees. The system uses color codes to identify the hazard, numeric ratings to indicate the degree of hazard, and alphabetical codes to designate appropriate personal protective equipment (PPE).

Refer to Section 2 – Labels and Signs for additional information on the *HMIS* label.

- I - - J - - K -

Ignitable hazardous waste (summary 40 CFR261.21)

A waste that meets one of the following conditions is classified as an *ignitable hazardous waste*.

- a liquid that has a *flashpoint* less than 140°F
- not a liquid and capable (under standard temperature and pressure) of causing fire through friction, absorption of moisture, or spontaneous chemical change AND when ignited burns so vigorously and persistently that a hazards is created
- an ignitable compressed gas
- an oxidizer

Incandescent lamp

An *incandescent lamp* is a common filament light bulb. An *incandescent lamp* emits light by passing an electric current through a filament. The heated material creates a glow.

Incompatible products

A material (product or waste) that is unsuitable for mixing or storing with another material because the react between the materials forms a hazard. (e.g. bleach and ammonia)

- L -

Land Disposal Site

A *disposal site* in which the method of disposing of solid waste is by landfill, dump, waste pile, pit, pond, lagoon or land application.

Liquid Storage Room (NFPA 251-1969, Standard Methods of Fire Tests of Building Construction and Materials)

Openings to other rooms or buildings shall be provided with non-combustible liquid-tight raised sills or ramps at least 4 inches in height, or the floor in the storage area shall be at least 4 inches below the surrounding floor.

Openings shall be provided with approved self-closing fire doors. The room shall be liquid-tight where the walls join the floor.

A permissible alternate to the sill or ramp is an open-grated trench inside of the room which drains to a safe location. This method may be preferred if there is an extensive need to transfer flammable liquids into and out of the room by means of hand trucks.

Storage in inside storage rooms shall comply with the following:

STORAGE IN INSIDE ROOMS without sprinkler systems		
Fire Resistance	Maximum Floor Area (ft²)	Total Allowable Quantities (gal/ft² floor area)
2 hr.	500	4
1 hr.	150	2

- M -

***Magnesium chloride* (Corrosion Inhibited)**

A winter maintenance chemical that is a *magnesium chloride* based product with a small amount of corrosion inhibitor.

Maintenance yard

A manned or unmanned facility where maintenance actions occur and where the facility includes structures identified by facility numbers If the facility meets one of the following criteria.

- Any facility with a year-round maintenance or specialty crew.
- Any facility where bulk fuel is stored onsite.
- Any seasonally staffed or unstaffed facility with at least one building intended for crew occupancy **IF** bulk deicers are stored onsite.

Material Safety Data Sheet (MSDS)

See Safety Data Sheet.

- N -

NFPA 704 diamond

A standardized, four-quadrant, color-coded system developed by the National Fire Protection Association (NFPA) to provide information to emergency responders about the the risks posed by nearby *hazardous materials*. The system uses color codes to identify the hazard, numeric ratings to indicate the degree of hazard, and alphabetical codes to designate appropriate personal protective equipment (PPE).

Refer to Section 2 - Labels and Signs for additional information on the *NFPA 704 diamond*.

Non-rechargeable batteries

Non-rechargeable (or disposable) batteries are designed to be used once and discarded. Non-rechargeable batteries are commonly used in portable devices with that have a low current drain, are only used intermittently, or are used well away from an alternative power source. Non-rechargeable batteries cannot be reliably recharged, since the chemical reactions are not easily reversible. The most common non-rechargeable battery is the alkaline battery. Lithium, silver-oxide, and zinc–carbon batteries are also non-rechargeable.

- O -

Organic Solvent

A solvent is any substance that is capable of dissolving or dispersing one or more other substances. Organic solvents are carbon-based solvents (i.e. contain carbon in the molecular structure). Organic solvents are used in such products as paints, varnishes, lacquers, adhesives, glues, and degreasing/cleaning agents. Many organic solvents are recognized by NIOSH as carcinogens (e.g., benzene, carbon tetrachloride, trichloroethylene), reproductive hazards (e.g., 2-ethoxyethanol, 2-methoxyethanol, methyl chloride), and neurotoxins (e.g., n-hexane, tetrachloroethylene, toluene). *(Center for Disease Control website)*

List of Common Organic Solvents

- acetone
- benzene
- t-butyl alcohol
- ethanol
- ethyl alcohol
- ethylene glycol
- heptane
- methanol
- methyl ethyl ketone
- propanol
- pyridine
- toluene
- trichloroethylene

- P - - Q -

***Pacific Northwest Snowfighters* (*PNS*)**

The *PNS* Association is a group of technical experts from five western states and British Columbia. The group evaluates and establishes specifications for winter maintenance deicing products that emphasize safety, environmental preservation, infrastructure protection, cost effectiveness, and performance.

Pesticide

Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant.

The following types of products or articles are not considered to be pesticides unless a pesticidal claim is made on the label or in connection with the sale and distribution:

(a) Deodorizers, bleaches, and cleaning agents;
(b) Products not containing toxicants, intended only to attract pests for survey or detection purposes, and labeled accordingly;
(c) Products that are intended to exclude pests only by providing a physical barrier against pest access, and which contain no toxicants, such as certain pruning paints to trees.

Pesticide residue

A hazardous waste that is generated from pesticide operations and pesticide management, such as, from pesticide use, repackaging, mixing, and spills. Pesticide residue includes, but is not limited to: unused commercial pesticides; tank or container bottoms or sludges; pesticide spray mixture; container rinsing; and pesticide equipment washings.

Pesticide residue does not include pesticide containing materials that are used according to label instructions, and substances such as treated soil, treated wood, and treated seeds where pesticides were applied according to label instructions.

- R -

Reactive hazardous waste *(summary 40 CFR261.23)*

A waste that meets one of the following conditions is classified as a *reactive hazardous waste*.

- normally unstable and readily undergoes violent change without detonating
- reacts violently with water
- forms potentially explosive mixtures with water
- a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment
- capable of detonation or explosive if subjected to a strong initiating source or if heated under confinement
- readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure
- a forbidden, Class A, or Class B explosive

Rechargeable batteries

A rechargeable battery, also known as a storage battery, is a group of two or more secondary cells that can be restored to full charge by the application of electrical energy.

Common *rechargeable batteries* are lead acid, gel cell, sulfuric acid, nickel cadmium (NiCd), nickel metal hydride (NiMH), lithium ion (Li-ion), and lithium ion polymer (Li-ion polymer).

Rechargeable batteries are currently used for automobile starters, portable consumer devices, tools, and uninterruptible power supplies. Emerging applications in Hybrid electric vehicles and electric vehicles are driving the technology to improve cost, reduce weight, and increase lifetime. *Rechargeable batteries* have been in use since the lead acid battery invented in 1859.

Reportable quantity (DEQ, OAR 340-142-0050)

(1) Spills and releases, or threatened spills or releases of oil or *hazardous materials* as defined by OAR 340-142-0005(9) in quantities equal to or greater than the following amounts must be reported:

(a) Any quantity of radioactive material or radioactive waste;

(b) Any oil to a waterbody that has or could produce a visible film, sheen, oily slick, oily solids, or coat aquatic life, habitat, or property with oil

(c) Any oil over 42 gallons on the ground surface that is not likely to escape into waters of the state;

(d) An amount equal to or greater than the quantity listed in 40 CFR Part 302 - Table 302.4 (List of Hazardous Substances and Reportable Quantities) and amendments adopted prior to July 1, 2002

(e) 10 pounds or more of a hazardous product or waste not listed as having a different *reportable quantity*

(f) Any quantity of chemical agent (such as nerve agents GB or VX, blister agent HD, etc.);

(g) 200 pounds (25 gallons) of diluted or non-diluted pesticide;

(h) Any quantity of a material regulated as a Chemical Agent under ORS 465.550;

(i) Any quantity of a material used as a weapon of mass destruction, or biological weapon;

(j) One pound (1 cup) or more of dry cleaning solvent, including perchloroethylene, spilled or released outside the designed containment by a dry cleaning facility regulated under ORS 465.505(4).

(2) Spills or releases of products, mixtures or solutions containing oil or *hazardous materials* for which reporting is required must also be reported if the total quantity of all the *hazardous materials* in the mixture or solution (in pounds) exceeds the lowest *reportable quantity* referenced in this rule for any one of the *hazardous materials* in the mixture or solution. A person may rely upon actual knowledge and readily available information such as material safety data sheets (MSDS), shipping papers, *hazardous waste* manifests and container labels, to determine the presence and concentration of *hazardous materials* in a mixture or solution.

(3) The quantity determination required by section (1) of this rule will be the quantity of oil or hazardous material spilled or released before contacting or mixing with any other material or substance (e.g., with soil, water, sawdust, etc.). In the case of a threatened spill or release, the applicable quantity is the amount of oil or hazardous material in the container or tank from which a spill or release is likely and imminent.

An amount of oil or hazardous material which if spilled, released, or threatens to spill or release, in quantities equal to or greater than those specified in OAR 340 which would trigger CERCLA and SARA Title III emergency release reporting requirements.

Reportable spill (DEQ, OAR 340)

An amount of oil or hazardous material which if spilled, released, or threatens to spill or release, in quantities equal to or greater than those specified in OAR 340 which would trigger CERCLA and SARA Title III emergency release reporting requirements.

Restricted Use Pesticide:

A pesticide may be classified (under FIFRA regulations) for restricted use if the pesticide requires special handling because of toxicity. Restricted used pesticides may be applied only by trained, certified applicators or those under their direct supervision.

Rinsate

The liquid product resulting from rinsing out a container (typically a pesticide container). Typically rinsate contains water and residue from the rinsed container.

- S -

Safety data sheets (SDS) – formerly MSDS *(HazCom definition)*

Information sheets provided by the chemical manufacturer or distributor for hazardous products. In a standardized format of 16 sections with consistent headings in a specified sequence, the *SDS* lists the hazardous ingredients, physical properties and health hazards, emergency and first aid procedures, the manufacturers name and phone number, and other useful information.

Secondary container (HazCom definition)

A container (can, bottle, pan, tank, etc.) used to hold products that do not have the original product information label. Examples include portable gas cans, parts cleaning tanks, squirt bottles, etc.

Secondary containment

A structure, container, or system that holds or stops the movement of a liquid if the primary container fails. *Secondary containment* must be watertight and must hold at least the entire capacity of the largest container within the boundaries of the containment. Examples include:

- Retaining walls, concrete bunkers, or other enclosures
- Curbs, berms, or other barriers
- Culverts, valves, or other drainage systems
- Vaults, sumps, or other collection systems
- Double-walled tanks or containers
- Sorbent materials

Segregation

Incompatible products and wastes are considered segregated if the separation meets one of the following criteria. Aggregate quantities that are less than 5 pounds or ½-gallon do not normally require *segregation*.

- Separation by 20 feet or more; OR
- Isolation by a non-combustible partition extending at least 18" above and to each side; OR
- Storage inside a flammables cabinet; OR

- Storage inside a gas cabinet or exhausted enclosure.

***Small Quantity Generator* (SQG)**

A facility is classified as a *small quantity generator* if

- More than 220 pounds but less than 2,200 pounds of *hazardous waste* is generated in a calendar month. OR
- More than 220 pounds but less than 2,200 pounds of spill cleanup debris classified as *hazardous waste* is generated in a calendar month. OR
- Between 2,200 and 12,000 pounds of *hazardous waste* is stored onsite at any one time.

Solid waste

(Common definition)
A *solid waste* is any material (solid, liquid, or contained gas) that is no longer needed or useful (to the generator) and will be discarded. *Solid waste* is typically called garbage or trash.

(OAR 340-093-0030 (82))
Solid waste means all useless or discarded putrescible and non-putrescible materials, including but not limited to garbage, rubbish, refuse, ashes, paper and cardboard, sewage sludge, septic tank and cesspool pumpings or other sludge, useless or discarded commercial, industrial, demolition and construction materials, discarded or abandoned vehicles or parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid materials, dead animals and infectious waste. The term does not include:

(a) *Hazardous waste* as defined in ORS 466.005;

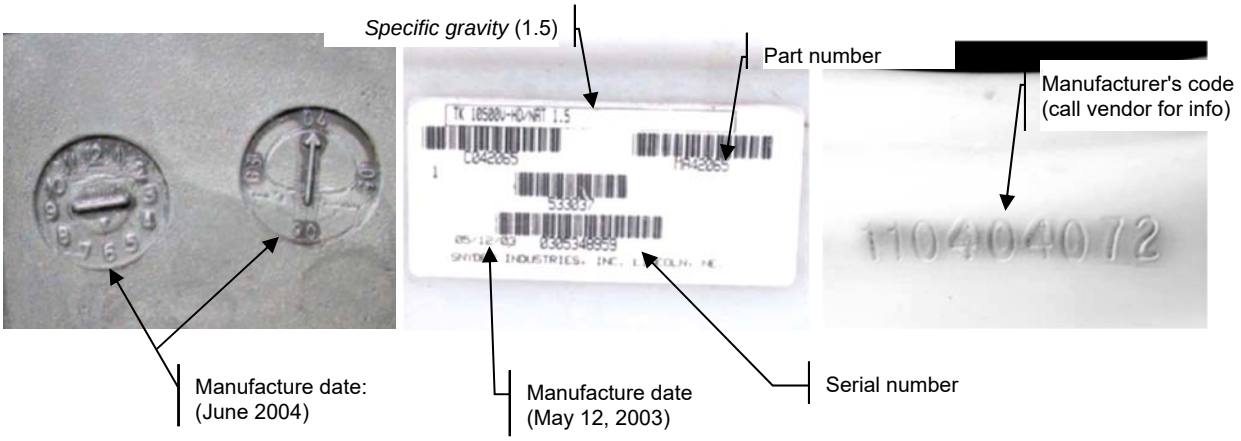
(b) Materials used for fertilizer, soil conditioning, humus restoration, or for other productive purposes or which are salvageable for these purposes and are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, provided the materials are used at or below agronomic application rates.

Specific gravity

Specific gravity is a measurement of density, given as a ratio from a standard (in the case of poly tanks the standard is water). Tanks with a *specific gravity* of 1 are designed to hold water (or other liquids about the same weight). A tank with a *specific gravity* of 1.5 is designed to hold liquids 1½ times the weight of water (about 12.5 pounds per gallon). In general tanks with higher *specific gravity* ratings are stronger and better able to withstand hydrostatic stress (outward pressure from the liquid on the tank), so the tank lasts longer.

Specific gravity and manufacture date are impossible to guess based on the tank's appearance. If purchasing a new tank, make sure to ask the vendor for a tank specification sheet and keep a copy on file. Contact the tank manufacturer or vendor for tank specifications and recommendations before purchasing and new tank.

Poly tank manufacturers code the tanks, so sometimes information can be obtained from the tank. If the information is stamped into the tank, the codes are usually located on the side or the top (near the opening). Bar code stickers seem to be more common, however the stickers fall off or become damaged.



Spill bucket

A spill bucket a component of an underground tank system. Spill buckets are installed at the fill pipe to contain drips and spills that occur when the delivery hose is uncoupled from the fill pipe. Spill buckets typically range from 5-gallons to 25-gallons and the lids are usually 1 to 2 feet in diameter.

Liquids (fuel or water) should not be in the spill bucket. Lids should create a watertight seal.

Periodically remove debris (e.g. soil, rocks, trash) from the spill bucket.

Walls, seals, and lids should be in good condition.

Spill Prevention Control and Countermeasure (SPCC) plan

A document required by the Oil Pollution Prevention Act that details the equipment, workforce, procedures, and steps taken by facilities to prevent, control, and provide adequate countermeasures to keep oil out of navigable water. The document is required for facilities that store more than 1,320 gallons of oil (including fuel) in 55 gallons drums or greater and are located in areas where an oil release could impact navigable water.

Stormwater conveyance

Refers to natural or fabricated structures used to transport water. Includes pipes, culverts, ditches, catch basins, or any other type of channel.

Surfactant

Surfactants are compounds that lower surface tension. Surfactants may be marketed as soaps, detergents, wetting agents, emulsifiers, foaming agents, and dispersants.

Surfactant can be identified searching label or SDS for chemicals that contain the words: sulfate, sulfonate, sulfonic acid, phosphate, sodium stearate, perfluorononanoate (PFOA), perfluorooctanoate (PFO).

- T -

Toxic hazardous waste (summary 40 CFR261.24)

A waste is classified as a *toxic hazardous waste* if the results of a Toxicity Characteristic Leaching Procedure (TCLP) test shows that the waste contains contaminant concentrations greater than allowed by EPA.

- U - - V -

***Underground Storage Tank* (*UST*)**

A tank that has 10 percent or greater volume beneath the ground surface and used to store fuel or other regulated substances. Connected underground pipes are included in the volume calculation.

Universal waste

Any of the following *hazardous waste* that is managed under the *universal waste* requirements (40 CFR 273):

- batteries,
- pesticides,
- mercury containing thermostats, and
- mercury containing lamps.

Hazardous waste that is subject to a specific set of streamlined management standards for the purpose of encouraging collection for proper recycling and disposal of the waste.

- W - - X - - Y - - Z –

Waste treatment

Any method, technique, or process (including neutralization) designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to:

a. Neutralize such waste,
b. Recover energy or material resources from the waste;
c. Render such waste non-hazardous or less hazardous;
d. Make it safer for transport, storage, or disposal; or
e. Make it amenable for recovery, amenable for storage, or reduce its volume.

Section Divider

Section Divider

CROSS REFERENCE

- A -

Abandoned hazardous waste ..... Section 5.18 - Roadwaste

Abrasives.....

- Storage..... Section 5.21 – Winter Maintenance
- Recovered..... Section 5.18 - Roadwaste

Absorbent..... Section 1 – Good Housekeeping

Acetone ..... Section 5.19 - Solvent

Acetylene..... Section 5.6 – Compressed Gas

Adhesives

- Bulk ..... Section 5.8 – Epoxy
- Spray ..... Section 5.1 – Aerosol Cans
- Tubes ..... Section 5.8 – Epoxy

Adverse incidents

- Reporting..... Section 5.16 – Pesticide
- Lethargic Fish or Distressed Turtles ..... Definition of Terms

Air conditioning..... Section 5.3 – Automotive Fluids and Parts

Alkaline battery..... Section 5.4 – Batteries

Alternative Cleaning Solvents ..... Appendix I – DEQ Fact Sheets

Ant bait ..... Section 5.16 – Pesticide

Anti-freeze ..... Section 5.3 – Automotive Fluids and Parts

Anti-microbial soaps..... Section 5.16 - Pesticide

Argon (argon/carbon dioxide)..... Section 5.6 – Compressed Gas

Asbestos

- Awareness Training ..... Contact Office of Employee Safety
- Brake pads ..... Section 5.3 – Automotive Fluids and Parts
- General information..... Definition of Terms
- Identification and removal ..... Contact Facilities Management Services
- Landfills that take asbestos waste ..... Appendix O – Brake and Clutch Work
- Work practices recommendations..... Appendix O – Brake and Clutch Work

Asphalt cement ..... Section 5.2 – Asphalt Paving

Asphalt / diesel mix ..... Section 5.2 – Asphalt Paving

Asphalt grindings..... Section 5.18 - Roadwaste

All-terrain vehicles (ATVs)..... Section 5.9 – Equipment and Fleet

Automatic transmission fluid ..... Section 5.3 – Automotive Fluids and Parts

Audits
Blank form ..... Appendix B
Description of types of EMS Audits ..... Introduction
Example ..... Appendix C
Instructions ..... Appendix C
Schedule and expectations ..... Introduction
Training ..... Contact the Maintenance and Operations Branch

- B -

Ballast ..... Section 5.12 – Lighting
Barrier ..... Section 1 – Good Housekeeping
Bat .....
Hazard of wet blasting surfaces coated with bat guano ..... Section 5.14 Paint
Instructions for testing the integrity of poly tanks ..... Appendix L
Tanks that fail the baseball bat test ..... Section 3.1.6 – Stationary Poly Tanks
Bathroom cleaner .....
Liquids ..... Section 5.5 – Cleaning Products
Aerosols ..... Section 5.1 – Aerosol Cans
Beneficial use
Asphalt grindings ..... Section 5.18 - Roadwaste
Definition ..... Definition of Terms
Highway shoulder soils ..... Section 5.18 - Roadwaste
Recovered abrasives ..... Section 5.18 - Roadwaste
Big orange ..... Section 5.5 – Cleaning Products
Bio-fuel ..... Section 5.11 - Fuel
Bio slide ..... Section 5.2 – Asphalt Paving
Bleach ..... Section 5.5 – Cleaning Products
Blasting .....
Disposal of landslide and rock fall debris ..... Section 5.18 – Roadwaste
Explosives ..... Contact MOB
Media blasting ..... Section 5.14 – Paint
Blowers ..... Section 5.9 – Equipment and Fleet
Brake fluid ..... Section 5.3 – Automotive Fluids and Parts
Brake pads ..... Section 5.3 – Automotive Fluids and Parts
Burn piles ..... Section 5.18 - Roadwaste
Butane ..... Section 5.6 – Compressed Gas
Buttons ..... Section 5.15 – Pavement Marking

- C -

Calcium magnesium acetate (CMA) ..... Section 5.21 – Winter Maintenance
Carbon dioxide ..... Section 5.6 – Compressed Gas
Car wash / wax ..... Section 5.5 – Cleaning Products
Caulk ..... Section 5.8 – Epoxy
Caustic
    Cleaners ..... Section 5.5 – Cleaning Products
    Spray ..... Section 5.1 – Aerosol Cans
Cell phones ..... Section 5.7 – Electronic Equipment
Cement ..... Section 5.8 – Epoxy
Chain saw ..... Section 5.9 – Equipment and Fleet
Chemical treated post ..... Section 5.20 – Treated Timber
Cinders ..... Section 1 – Good Housekeeping
Citrus cleaner ..... Section 5.5 – Cleaning Products
Chlorinated products .....
    How to identify ..... Definition of Terms
    Minimization ..... Section 5.5 – Cleaning Products
CMA (calcium magnesium acetate) ..... Section 5.21 – Winter Maintenance
Cold mix ..... Section 5.2 – Asphalt Paving
Compatible containers ..... Definition of Terms
Computers ..... Section 5.7 – Electronic Equipment
Concrete barrier ..... Section 1 – Good Housekeeping
Copiers ..... Section 5.7 – Electronic Equipment
Community Right to Know Act ..... Appendix N
Compost
    Animal Carcass Composting ..... Section 5.18 - Roadwaste
    Fertilizer ..... Section 1 – Good Housekeeping
Compressed gas
    Capacity of cylinders ..... Section 5.6 - Compressed Gas
    Examples of flammable gas ..... Definition of Terms
    Reporting to the Fire Marshal ..... Appendix N – Oregon Fire Marshal
Computers ..... Section 5.7 – Electronic Equipment
Coolant ..... Section 5.3 – Automotive Fluids and Parts
Containment ..... See Secondary containment
Coveralls ..... Section 1 – Good Housekeeping
Crack filler ..... Section 5.2 – Asphalt Paving

Creosote treated pole ..... Section 5.20 – Treated Timber
CSS – 1 ..... Section 5.2 – Asphalt Paving
Culvert ..... Section 1 – Good Housekeeping

- D -

Deer (dead) ..... Section 5.18 – Roadwaste
Deet ..... Section 5.16 – Pesticide
DEF ..... Section 5.11 - Fuel
Deicer (liquid and solid) ..... Section 5.21 – Winter Maintenance
Detergent ..... Section 5.5 – Cleaning Products
Diesel ..... Section 5.11 – Fuel
Diesel Exhaust Fluid (DEF) ..... Section 5.11 - Fuel
Disinfectant ..... Section 5.5 – Cleaning Products
Disposal
- Absorbent ..... Section 1 – Good Housekeeping
- Aerosol cans ..... Section 5.1 – Aerosol Cans
- Batteries ..... Section 5.4 – Batteries
- Empty containers ..... Section 1 – Good Housekeeping
- Fluorescent tubes ..... Section 5.12 – Lighting
- Light bulbs ..... Section 5.12 – Lighting
- Litter (from the highway) ..... Section 5.18 – Roadwaste
- Oil / water separator filters ..... Section 4 – Drainage and Water Quality
- Sweepings ..... Section 5.18 – Roadwaste
- Tanks ..... Section 3 – Tanks
- Used oil ..... Section 5.13 – Oil
- What goes on the EMS paperwork ..... Appendix D

Ditching materials (shoulder soils) ..... Section 5.18 – Roadwaste
Drain opener ..... Section 5.5 – Cleaning Products
Drywell ..... Section 4.1.5 – Underground Injection Control
Dura-Stripe ..... Section 5.15 – Pavement Marking
DVD player ..... Section 5.7 – Electronic Equipment

- E -

Eco blocks ..... Section 1 – Good Housekeeping
Elk .....
- Description ..... Definition of Terms
- Disposal ..... Section 5.18 – Roadwaste

Emulsion ..... Section 5.2 – Asphalt Paving
Equipment
Repairs ..... Section 5.3 – Automotive Fluids and Parts
Storing propane fueled equipment indoors ..... Section 5.17 – Propane
Washing ..... Section 5.9 – Equipment and Fleet

- F -

Fax Machines ..... Section 5.7 – Electronic Equipment
Fertilizer ..... Section 1 – Good Housekeeping
Fiberglass ..... Section 5.8 – Epoxy
Fill ..... Appendix M - Roadwaste
Filler ..... Section 5.8 – Epoxy
Filters .....
Air filters ..... Section 5.3 – Automotive Fluids and Parts
Catch basin filters ..... Section 4 – Drainage and Water Quality
Coolant filters ..... Section 5.3 – Automotive Fluids and Parts
Fuel filters ..... Section 5.3 – Automotive Fluids and Parts
Oil filters ..... Section 5.3 – Automotive Fluids and Parts
Oil / water separator filters ..... Section 4 – Drainage and Water Quality
Paint booth ..... Section 5.14 - Paint
Fire Marshal reporting ..... Appendix N – Oregon State Fire marshal
Flammable storage .....
Aerosol cans ..... Section 5.1 – Aerosol Cans
Flares ..... Section 5.12 - Lighting
Paint thinner, acetone, or mineral spirits ..... Section 5.19 – Solvent
Propane cylinders ..... Section 5.17 – Propane
Saw gas ..... Section 5.11 – Fuel
Storage Chart – Limits ..... Section 1 – Good Housekeeping
Welding gases ..... Section 5.6 – Compressed Gas
Flammables cabinet ..... Definition of Terms
Flares (fusee) ..... Section 5.12 – Lighting
Floor drains ..... Section 4.3 - Wastewater Discharges
Fluorescent light ..... Section 5.12 – Lighting
Forklifts ..... Section 5.9 – Equipment and Fleet
French drain ..... Section 4.1.5 – Underground Injection Control
Freon ..... Section 5.3 – Automotive Fluids and Parts
Freeze-Guard Zero ..... Section 5.21 – Winter Maintenance

Fuel .....
Aboveground fuel tank ..... Section 3.1.1 – Aboveground Bulk Fuel Tanks
Burn piles .....Section 5.18 - Roadwaste
Burners..... Section 5.13 - Oil
Diesel additives .....Section 5.11 - Fuel
Disposal of unwanted fuel .....Section 5.11 – Fuel
Fueling area .....Section 5.11 – Fuel
Gas can .....Section 5.11 - Fuel
Signs for fueling area ..... Section 2 – Labels and Signs
Training .....Appendix P
Transport (and other truck mounted) tank .....Section 5.11 – Fuel
Underground fuel tank.....Section 3.1.3 – Underground Bulk Fuel Tanks
Vapor discharge permit.....Appendix P

- G -

Gases .....See Compressed Gas
Gasoline (unleaded).....Section 5.11 – Fuel
Gear oil.....Section 5.13 – Oil
Generators
Diesel fuel .....Section 5.11 - Fuel
Hazardous waste ..... Appendix D
Tanks for diesel fuel ..... Section 3.1.1 – Aboveground Bulk Fuel Tanks
Portable .....Section 5.9 – Equipment and Fleet
Propane fuel..... Section 5.17 – Propane
Give-away Program .....Section 5.18 - Roadwaste
Glass wipe..... Section 5.5 – Cleaning Products
Glow stick ..... Section 5.12 – Lighting
GM barrier .....Section 1 – Good Housekeeping
Grease.....Section 5.13 – Oil
Green products .....Definition of Terms
Grindings
Asphalt .....Section 5.2 – Asphalt Paving
Metal.....Section 5.3 – Automotive Fluids and Parts
Grout .....Section 5.8 – Epoxy
Guardrail.....Section 1 – Good Housekeeping
Guardrail posts..... Section 5.20 – Treated Timber

- H -

Hand cleaner ..... Section 5.5 – Cleaning Products
Handy-Kleen ..... Section 5.5 – Cleaning Products
HazCom
- Labeling ..... Section 2 - Labels
- ODOT program ..... Contact Office of Employee Safety

Heating oil ..... Section 5.11 – Fuel
Herbicide ..... Section 5.16 – Pesticide
Highway safety spheres ..... Section 5.15 – Pavement Marking
Highway shoulder soils ..... Section 5.18 - Roadwaste
Hot water parts washer ..... Section 5.19 – Solvent
Hydraulic fluid ..... Section 5.13 – Oil

- I -

Ice removal pellets ..... Section 5.21 – Winter Maintenance
Illegal camping ..... Section 5.18 - Roadwaste
Insecticides
- Bulk ..... Section 5.16 – Pesticide
- Spray ..... Section 5.1 – Aerosol Cans

Inspections
- Fuel tanks (aboveground) ..... Section 3.1.1 – Aboveground Bulk Fuel Tanks
- Fuel tanks (underground) ..... Section 3.1.3 – Underground Bulk Fuel Tanks
- Monthly visual (audit) ..... Appendix C
- Oil tanks ..... Section 3.1.2 – Stationary Metal Tanks
- Poly tanks ..... Appendix L
- Regional Audit ..... Appendix C
- Risk Assessment for deicer tank locations ..... Appendix L
- Septic tanks and drainfields ..... Section 4.2 – Septic Systems

- J -

JB-Weld ..... Section 5.8 – Epoxy
Jersey barrier ..... Section 1 – Good Housekeeping

- K -

Kerosene ..... Section 5.11 – Fuel

- L -

Labels
- Globally harmonized system (GHS) pictograms ..... Definition of Terms
- Fertilizer ..... Section 1 – Good Housekeeping

Lacquer thinner ..... Section 5.19 – Solvent

Landfills
- Accept asbestos waste ..... Appendix O
- Compost and woody debris ..... Appendix J
- Recycle waste tires and scrap rubber ..... Appendix J
- Trash ..... Appendix J

Latex paint ..... Section 5.14 – Paint

Lead-acid battery ..... Section 5.4 – Batteries

LED (light emitting diode) ..... Section 5.12 – Lighting

Legends ..... Section 5.15 - Pavement Marking

Light fixtures ..... Section 5.12 – Lighting

Light sticks ..... Section 5.12 – Lighting

Lime ..... Section 1 – Good Housekeeping

Litter ..... Section 5.18 – Roadwaste

Loop sealant ..... Section 5.8 – Epoxy

Lubricants
- Bulk ..... Section 5.13 – Oil
- Spray ..... Section 5.1 – Aerosol Cans

Lumber ..... Section 1 – Good Housekeeping

- M -

Magnesium chloride ..... Section 5.21 – Winter Maintenance

MAPP gas ..... Section 5.6 – Compressed Gas

Mercury lamp ..... Section 5.12 – Lighting

Metal grinding ..... Section 5.3 – Automotive Fluids and Parts

Monitors ..... Section 5.7 – Electronic Equipment

Mortar ..... Section 5.8 – Epoxy

Motor Oil ..... Section 5.13 – Oil

MSDS ..... Appendix F

- N –

Needles ..... Section 5.18 – Roadwaste

- O -

Off highway vehicles (OHVs) ..... Section 5.9 – Equipment and Fleet
Oil / water separator ..... Section 4 – Drainage and Water Quality
Oil burner ..... Section 5.13 – Oil
Organic peroxide ..... Section 5.19 – Solvent
Oxygen (carbon dioxide/oxygen) ..... Section 5.6 – Compressed Gas

- P -

Paint ..... Section 5.14 – Paint
Parts washer ..... Section 5.19 – Solvent
Parts ..... Section 5.3 – Automotive Fluids and Parts
Pavement crack sealer ..... Section 5.2 – Asphalt Paving
Penetrant (oil-based) ..... Section 5.3 – Automotive Fluids and Parts
Personal property from illegal camping ..... Section 5.18 - Roadwaste
Power steering fluid ..... Section 5.3 – Automotive Fluids and Parts
Pressure treated wood ..... Section 5.20 – Treated Timber
Pressure washers ..... Section 5.9 – Equipment and Fleet
Printers ..... Section 5.7 – Electronic Equipment
Propane ..... Section 5.17 – Propane
Propane fueled equipment ..... Section 5.17 – Propane

- Q -

Quarry reclamation ..... Appendix M - Roadwaste
Quick set ..... Section 5.8 – Epoxy

- R -

Radios ..... Section 5.7 – Electronic Equipment
Radio batteries ..... Section 5.4 - Batteries
Rags ..... Section 1 – Good Housekeeping
Resin ..... Section 5.8 – Epoxy
Risk Assessment for deicer tank locations ..... Appendix L
Road kill ..... Section 5.18 – Roadwaste
Rubber asphalt ..... Section 5.2 – Asphalt Paving

- S -

Salt ..... Section 5.21 – Winter Maintenance
Sand ..... Section 5.21 – Winter Maintenance

Sandblasting ..... Section 5.14 – Paint
Sanitizer ..... Section 5.5 – Cleaning Products
Scrap
Metal ..... Section 1 – Good Housekeeping
Rubber (from the highway) ..... Section 5.18 – Roadwaste
Signs ..... Section 1 – Good Housekeeping
Tires (from ODOT fleet) ..... Section 5.9 – Equipment and Fleet
Wood ..... Section 1 – Good Housekeeping
Sealant
Non-aerosol ..... Section 5.8 – Epoxy
Spray ..... Section 5.1 – Aerosol Cans
Secondary Containment
Active containment measure ..... Definition of Terms
Choosing appropriate containment ..... Section 4 – Drainage and Water Quality
Deicer tank ..... Section 5.21 – Winter Maintenance
Flammable and combustible ..... Section 1 – Good Housekeeping
Fuel tank (aboveground) ..... Section 3.1.1 – Aboveground Bulk Fuel Tanks
Fuel tank (underground) ..... Section 3.1.3 – Underground Bulk Fuel Tanks
Fueling area ..... Section 5.11 – Fuel
Oil tank ..... Section 3 – Tanks
Passive containment measures ..... Definition of Terms
Types of containment ..... Section 4 – Drainage and Water Quality
Sharps ..... Section 5.18 – Roadwaste
Shop Dri ..... Section 1 – Good Housekeeping
Shoulder soils ..... Section 5.18 – Roadwaste
Signs ..... Section 1 – Good Housekeeping
Silicone ..... Section 5.8 – Epoxy
Soap ..... Section 5.5 – Cleaning Products
Soy oil ..... Section 5.2 – Asphalt Paving
Space heater ..... Section 5.13 – Oil
Spill Prevention Control and Countermeasure (SPCC) Plans
List of yards with SPCC plans ..... MOB website
Summary of SPCC requirements ..... Appendix K
Training ..... Contact the Maintenance and Operations Branch
Spray paint ..... Section 5.1 – Aerosol Cans
Spray solvent ..... Section 5.1 – Aerosol Cans
Steelmix ..... Section 5.6 – Compressed Gas

Stencils ..... Section 5.15 – Pavement Marking Products
Stick-n-stomps ..... Section 5.15 – Pavement Marking Products
Sticky traps ..... Section 5.16 – Pesticide
Storage
Aerosol cans ..... Section 5.1 – Aerosol Cans
Compatibility chart ..... Appendix G
Drums ..... See specific product
Equipment ..... Section 5.9 – Equipment and Fleet
Separation distance for incompatible products ..... Definition of Terms
Stove oil ..... Section 5.11 – Fuel
Street sweeping ..... Section 5.18 – Roadwaste
Sumps
Discharging water from shop drains ..... Section 4.3 – Wastewater Discharges
Disposal of solids ..... Section 5.18 – Roadwaste
Routine maintenance ..... Section 4 – Drainage and Water Quality

- T -

Televisions ..... Section 5.7 – Electronic Equipment
Terry towels ..... Section 1 – Good Housekeeping
Thinner ..... Section 5.19 – Solvent
Tires ..... Section 5.9 – Equipment and Fleet
Traffic line thinner ..... Section 5.19 – Solvent
Traffic paint ..... Section 5.15 – Pavement Marking
Training .....
Bloodborne pathogens ..... Contact Region Safety
Can popper usage ..... Section 5.1 – Aerosol Cans
Confined space ..... Contact Region Safety
EMS ..... Contact the MOB
Hazard communication ..... Appendix F
Job or equipment ..... Section 1 – Good Housekeeping
Safe fueling ..... Appendix P
SPCC ..... Contact the MOB
Spill response ..... Appendix H
Underground storage tank ..... Section 5.11 - Fuel
Transmission fluid ..... Section 5.13 – Oil

- U -

UIC (underground Injection control) ..... Section 4 - Drainage
Ultrasorb ..... Section 1 – Good Housekeeping
Urea-based Diesel Additive ..... Section 5.11 - Fuel
Urethane ..... Section 5.8 – Epoxy
URE-Fast ..... Section 5.8 – Epoxy
Universal waste .....
- Batteries ..... Section 5.4 - Batteries
- Documenting generation and disposal ..... Appendix D
- Labeling ..... Section 2 – Labels and Signs
- Mercury Lamps ..... Section 5.12 – Lighting
- Pesticide ..... Section 5.16 – Pesticide

Used oil .....
- Aboveground tank ..... Section 3.1.1 – Aboveground Fuel Tanks
- Absorbent used to pick up oil spills ..... Section 1 – Good Housekeeping
- Recycling ..... Section 5.13 – Oil
- Space heater ..... Section 5.13 – Oil
- Transporting to another yard ..... Section 5.13 – Oil
- Used Oil Transport Log ..... Appendix Q

- V -

Vactor® waste ..... Section 5.18 – Roadwaste
VCR (video cassette recorder) ..... Section 5.7 – Electronic Equipment
Vegetable oil ..... Section 5.2 – Asphalt Paving

- W -

Washing .....
- Buildings ..... Section 4.3 – Wastewater Discharges
- DEQ Permits for wash water ..... Section 5.9 – Equipment and Fleet
- Disposal of sump solids ..... Section 5.18 - Roadwaste
- Equipment ..... Section 5.9 – Equipment and Fleet
- Mag Trucks ..... Section 5.21 – Winter Maintenance
- Paving equipment ..... Section 5.2 – Asphalt Paving
- Pesticide containers ..... Appendix R
- Pesticide spray tanks ..... Section 5.16 – Pesticide
- Rinsing dirt from truck beds ..... Section 5.9 – Equipment and Fleet
- Salt application equipment ..... Section 5.21 – Winter Maintenance

Striping trucks ..... Section 5.15 – Pavement Marking
Sweepers ..... Section 5.9 – Equipment and Fleet
Treating wash water ..... Contact MOB or Region HazMat or Region Environmental
Vehicles and fleet ..... Section 5.9 – Equipment and Fleet
Wasp spray ..... Section 5.1 – Aerosol Cans
Waste .....
Characterization ..... Appendix D
Cheat Sheet ..... Appendix E
Documentation ..... Appendix D
Hazardous waste generators ..... Appendix D
Recycling ..... Appendix J
Training ..... Contact the MOB
Waste oil ..... Section 5.13 – Oil
Water softener ..... Section 5.5 – Cleaning Products
WD 40
Bulk ..... Section 5.3 – Automotive Fluids and Parts
Spray ..... Section 5.1 – Aerosol Cans
Weed and feed ..... Section 5.16 - Pesticide
Welding gases ..... See Compressed Gas
Winter sentry ..... Section 5.21 – Winter Maintenance
Wood ..... Section 1 – Good Housekeeping
Wrecked vehicle storage ..... Section 5.9 – Equipment and Fleet

Section Divider

Section Divider

Appendix A - Legal Citations

List of Federal and State Regulations associated with the EMS Procedures

LEGAL CITATIONS

Category	Regulated	Agency	Citation
Aerosol Cans	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Use	State Fire Marshal	OAR 837 Division 40 – Fire and Life Safety Regulations. (Local rules may be more stringent)
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Storage	State Fire Marshal	OFC Chapter 51 - Aerosols
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 273 – Standards for Universal Waste Management
Asphalt Paving	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	EPA	40 CFR Part 112 – Oil Pollution Prevention
	Spills	EPA	40 CFR Part 110 – Discharge of Oil
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	EPA	40 CFR Part 279 - Standards for the Management of Used Oil
	Disposal	DEQ	OAR 340 Division 111 – Used Oil Management
Automotive Fluids	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Storage	State Fire Marshal	OFC Chapter 23 - Motor Fuel Dispensing Facilities and Repair Garages
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 260 - Refrigerant Recycling and Ozone-Depleting Substance Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste

Category	Regulated	Agency	Citation
Batteries	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 113 – Universal Waste Management
	Disposal	EPA	40 CFR Part 273 - Standards for Universal Waste Management
Cleaning Products	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Compressed Gas	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 53 - Compressed Gas
	Use	State Fire Marshal	OFC Chapter 35 - Welding and Other Hot Work
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Drainage	Construction	DEQ	OAR 340 Division 44 - Construction and Use of Waste Disposal Wells and Other Underground Injection Activities
	Construction	WRD	OAR 690 Division 240 - Construction, Maintenance, Alteration, Conversion, and Abandonment of Monitoring Wells, Geotechnical Holes and Other Holes in Oregon
	Disposal	DEQ	OAR 340 Division 40 - Groundwater Quality Protection
	Disposal	DEQ	OAR 340 Division 45 - Regulations Pertaining to NPDES and WPCF Permits
	Disposal	DEQ	OAR 340 Division 71 - Onsite Sewage Disposal Systems
	Disposal	DEQ	ODOT NPDES MS4 Permit
Electronics	Disposal	DEQ	ORS Chapter 459A – Reuse and Recycling
	Disposal	DEQ	OAR 340 Division 90 – Recycling and Waste Reduction
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions

Category	Regulated	Agency	Citation
	Disposal	DEQ	OAR 340 Division 98 – Solid Waste: Electronics Recycling
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
Epoxy	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Fertilizer & Lime	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Fuel	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Storage	State Fire Marshal	OFC Chapter 23 - Motor Fuel Dispensing Facilities and Repair Garages
	Storage	EPA	40 CFR Part 112 – Oil Pollution Prevention
	Storage	DEQ	OAR 340 - Division 150 - Underground Storage Tank Rules
	Storage	DEQ	OAR 340 Division 151 - Financial Responsibility for USTs
	Use	DEQ	OAR 340 Division 244 - Oregon Federal Hazardous Air Pollutant Program
	Use	DEQ	OAR 340 Division 240 – Rules for Areas with Unique Air Quality Needs
	Use	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Spills	EPA	40 CFR Part 110 – Discharge of Oil
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements

Category	Regulated	Agency	Citation
	Disposal	EPA	40 CFR Part 279 - Standards for the Management of Used Oil
	Disposal	DEQ	OAR 340 Division 111 – Used Oil Management
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management System: General
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Lighting	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 59 - Flammable Solids
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 110 - Polychlorinated Biphenyls (PCBs)
	Disposal	DEQ	OAR 340 Division 113 – Universal Waste Management
	Disposal	EPA	40 CFR Part 273 - Standards for Universal Waste Management
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
Oil	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	EPA	40 CFR Part 112 – Oil Pollution Prevention
	Spills	EPA	40 CFR Part 110 – Discharge of Oil
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	EPA	40 CFR Part 279 - Standards for the Management of Used Oil
	Disposal	DEQ	OAR 340 Division 111 – Used Oil Management
Paint	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste

Category	Regulated	Agency	Citation
Pavement Marking	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Pesticides	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Use	EPA	40 CFR Part 171 - Certification of Pesticide Applicators
	Use	EPA	40 CFR Part 156 - Labeling Requirements for Pesticides and Devices
	Disposal	DEQ	OAR 340 Division 109 - Management of Pesticide Wastes
	Disposal	DEQ	OAR 340 Division 113 – Universal Waste Management
	Disposal	EPA	40 CFR Part 273 - Standards for Universal Waste Management
	Disposal	EPA	40 CFR Part 165 - Pesticide Management and Disposal
Propane	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 61 - Liquefied Petroleum Gases
	Use	State Fire Marshal	OAR 837 Division 30 - Liquefied Petroleum Gas
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Roadwaste	Use	DSL	OAR 141 Division 85 - Administrative Rules Governing the Issuance and Enforcement of Removal-Fill Authorizations within Waters of Oregon Including Wetlands
	Use	ACE	Federal Water Pollution Control Act (Clean Water Act) Section 404
	Disposal	DEQ	ORS Chapter 459 – Solid Waste Management
	Disposal	DEQ	ORS Chapter 459A – Reuse and Recycling

Category	Regulated	Agency	Citation
	Disposal	DEQ	OAR 340 Division 90 – Recycling and Waste Reduction
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Solvent	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Storage	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Use	State Fire Marshal	OFC Chapter 57 - Flammable and Combustible Liquids
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Treated Timber	Use	NOAA	50 CFR Part 223—Threatened Marine and Anadromous Species
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions
	Disposal	DEQ	OAR 340 Division 100 – Hazardous Waste Management
	Disposal	DEQ	OAR 340 Division 101 – Identification and Listing of Hazardous Waste
	Disposal	DEQ	OAR 340 Division 102 – Standards Applicable to Generators of Hazardous Waste
	Disposal	EPA	40 CFR Part 260 - Hazardous Waste Management System: General
	Disposal	EPA	40 CFR Part 261 - Identification and Listing of Hazardous Waste
	Disposal	EPA	40 CFR Part 262 - Standards Applicable to Generators of Hazardous Waste
Winter Maintenance	CR2K reporting	State Fire Marshal	OAR 837 Division 85 - Community Right-To-Know Survey And Compliance Programs
	Spills	DEQ	OAR 340 Division 142 – Oil and Hazardous Materials Emergency Response Requirements
	Disposal	DEQ	OAR 340 Division 93 – Solid Waste: General Provisions

Section Divider

Section Divider

Appendix B - Blank EMS Documents

Electronic copies of EMS documentation may be downloaded at
http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml

Monthly Maintenance EMS Field Audit

Maintenance EMS Field Audit Corrective Action Sheet

EMS Waste Profile

EMS Waste Generation Log

EMS Waste Disposal Log

Emergency Notification for Spills in ODOT Maintenance Yards

Spill Response Form for Spills in ODOT Maintenance Yards

Stationary Poly Tank Inspection

Used Oil Transfer Form

Documentation Retention Schedule

MONTHLY MAINTENANCE EMS FIELD AUDIT

Yard **Date**

Notify the Maintenance and Operations Branch of significant changes (e.g. install a new tank, modify drainage, change water treatment systems, put in a building, or build a wash rack)

OPERATIONAL AREAS – including fuel stations, service bays, wash areas, mixing areas, and loading/unloading areas

1	Are operations only occurring in established areas?	☐ Yes	☐ No	☐ NA
2	Are areas free of visual evidence (e.g. product or absorbent) of spills, tracking, or leaks?	☐ Yes	☐ No	☐ NA
3	Are spill kits or granular absorbents accessible and adequately stocked?	☐ Yes	☐ No	☐ NA
4	Are posted warning signs and operating instructions legible?	☐ Yes	☐ No	☐ NA
5	Are fuel dispensers and other delivery/distribution systems in good repair?	☐ Yes	☐ No	☐ NA
6	Are delivery/distribution lines closed or capped when not in use?	☐ Yes	☐ No	☐ NA
7	Are drip buckets and drain pans either a) actively in-use or b) closed and labeled?	☐ Yes	☐ No	☐ NA
8	Are efforts to keep potential pollutants out of stormwater well maintained?	☐ Yes	☐ No	☐ NA

Notes:

TANKS, TOTES, and STORAGE AREAS –storage areas include storage bays, pole buildings, cargo containers, closets, bulk storage, parked slip-ins, and onsite stockpiles

9	Are storage areas tidy (e.g. clean, organized, random containers put away)?	☐ Yes	☐ No	☐ NA
10	Does each container, tank, and tote have a visible, intact, and legible label?	☐ Yes	☐ No	☐ NA
11	Are containers, tank, and totes closed (e.g. lids on, covers shut, boxes tops folded)?	☐ Yes	☐ No	☐ NA
12	Are tanks, totes, and containers undamaged - in good repair?	☐ Yes	☐ No	☐ NA
13	Are surfaces free of product and has saturated absorbent been picked up?	☐ Yes	☐ No	☐ NA
14	Are supports to minimize stress on fittings and tanks in-place and in good condition?	☐ Yes	☐ No	☐ NA
15	Can empty containers be visually identified from full ones?	☐ Yes	☐ No	☐ NA
16	Is secondary containment available for products stored near sensitive resources?	☐ Yes	☐ No	☐ NA
17	Is secondary containment currently in use – are containers on/in containment?	☐ Yes	☐ No	☐ NA
18	Are containers stored indoors or covered if stored outdoors?	☐ Yes	☐ No	☐ NA
19	Are gas cans, flammable liquids, and aerosols stored in flammable cabinets where needed?	☐ Yes	☐ No	☐ NA
20	Are storage areas secured –additional actions aren't needed to discourage vandalism?	☐ Yes	☐ No	☐ NA
21	Are products usable, current, and wanted?	☐ Yes	☐ No	☐ NA
22	Is there sufficient available capacity in tanks and containers used to store wastes?	☐ Yes	☐ No	☐ NA

Notes:

MONTHLY MAINTENANCE EMS FIELD AUDIT

Yard Date

	DRAINAGE –outfalls, ditches, catch basins, floor drains, pit drains, wash drains, oil/water separators, swales			
23	Are catch basins and outfalls free of visible pollutants (e.g. sheen, sediment, and trash)?	☐ Yes	☐ No	☐ NA
24	Is the ground/floor/pavement around catch basins free of spills?	☐ Yes	☐ No	☐ NA
25	Is the volume of sediment in catch basins and sumps below the outflow pipe?	☐ Yes	☐ No	☐ NA
26	Is erosion or sediment control installed where needed?	☐ Yes	☐ No	☐ NA
27	Are water treatment measures in good working order?	☐ Yes	☐ No	☐ NA
28	Do water treatment and control measures appear maintained?	☐ Yes	☐ No	☐ NA

Notes:

	SECONDARY CONTAINMENT And Monitoring Equipment – including deicer bunkers, salt sheds, lined ponds, fuel delivery containment, berms, double-walled tanks, and spill pallets.			
29	Is secondary containment free of product and spills?	☐ Yes	☐ No	☐ NA
30	Is the area around the containment free of product and evidence of spills?	☐ Yes	☐ No	☐ NA
31	Are drainage control valves and drain mats accessible and operational?	☐ Yes	☐ No	☐ NA
32	Are drainage control valves closed while providing containment?	☐ Yes	☐ No	☐ NA
33	Is the space between the walls of double-walled tanks free of liquids?	☐ Yes	☐ No	☐ NA
34	Are tank gauges or monitoring systems operational?	☐ Yes	☐ No	☐ NA
35	Does secondary containment appear to be intact/undamaged?	☐ Yes	☐ No	☐ NA

Notes:

Annual or Routine practices that were completed this month – varies by site			
☐ Yes	☐ NA	Completed the Stationary Poly Tank Inspection. (annual)	Notes:
☐ Yes	☐ NA	Inspected poly tanks at secondary site that does not need monthly audits.	
☐ Yes	☐ NA	Determined containment is water-tight. (annual) ☐ bulk fuel delivery ☐ deicer ☐ salt ☐ lined pond ☐ other	
☐ Yes	☐ NA	Visually inspected the septic system and drainfield. (annual)	
☐ Yes	☐ NA	Tested the emergency shut-off for the fuel tank. (annual)	
☐ Yes	☐ NA	Completed SPCC training / spill response briefing. (annual)	
☐ Yes	☐ NA	Completed UIC training. (annual – if facility has drywells)	
☐ Yes	☐ NA	Repaired or responded to fluid level monitoring or leak detection equipment. ☐ fuel ☐ deicer ☐ other	
☐ Yes	☐ NA	3rd party tank inspection: ☐aboveground ☐underground	
☐ Yes	☐ NA	Cleaned drains: ☐wash bay ☐stormwater ☐other	
☐ Yes	☐ NA	Cleaned /maintained sediment control, containment, or water treatment: ☐ oil/water separator ☐ swale/pond ☐ catch basins insert ☐ carbon/media barrels ☐ swept parking lot ☐ other	

The answers on this audit are True and Complete to the best of my ability.

Name **Date** **Title**

Signature

MAINTENANCE EMS FIELD AUDIT CORRECTIVE ACTION SHEET

Yard **Year** **Page** **of**

SECTION 1

Match the question number from the Monthly Field Audit with the month the issue was observed. Track the entire year. List details in the section below or on additional sheets.

Question #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
January																																			
February																																			
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June																																			
July																																			
August																																			
September																																			
October																																			
November																																			
December																																			

SECTION 2

Describe the issue. Include a Corrective Action for each checked shaded box on the Monthly Field Audit. Write the action or actions taken to solve the issue. Some issues may require multiple actions. Use extra sheets as needed. Issues may carry over to following months without re-writing. When the issue has been resolved the TMM or Coordinator should initial the row. If the TMM determines an issue cannot be solved at a crew level (e.g. capital improvement) the reason should be noted in the corrective action column.

Question #	Date Observed	Problem Description *(be specific)*	Corrective Action *(what was done to fix the problem)*	Date Completed	TMM Initials

MAINTENANCE EMS FIELD AUDIT CORRECTIVE ACTION SHEET – PAGE 2

Yard **Year** **Page** **of**

SECTION 2

Describe the issue. Include a Corrective Action for each checked shaded box on the Monthly Field Audit. Write the action or actions taken to solve the issue. Some issues may require multiple actions. Use extra sheets as needed. Issues may carry over to following months without re-writing. When the issue has been resolved the TMM or Coordinator should initial the row. If the TMM determines an issue cannot be solved at a crew level (e.g. capital improvement) the reason should be noted in the corrective action column.

Question #	Date Observed	Problem Description *(be specific)*	Corrective Action *(what was done to fix the problem)*	Date Completed	TMM Initials

EMS WASTE PROFILE

Name, Trade Name, or Waste Description	**Code Box** *(Answers the Question "Is this a Hazardous Waste?)* ☐ No ☐ Yes - List Codes
List Components of Mixture (e.g. Dura Stripe Part A & Part B)	**Use / Description** (primary use)

☐ **This Waste Profile was completed using the MSDS.** ☐ **This Waste Profile was completed using lab analysis.**

INSTRUCTIONS

Complete this form using the SDS or the results of lab testing to determine if a waste is classified as hazardous. Complete one profile for each waste. Additional information on characterizing waste is located in Appendix D of the EMS Manual.

Answer ALL questions. If a SDS is used to complete this form the CAS numbers should be used to verify that the correct substance has been identified. "CAS numbers" are assigned by the Chemical Abstract Service. Each specific chemical compound is given a separate number. The CAS number will remain the same even when substances are listed by trade names.

If the answer to any of the questions is "yes" the waste must be tracked on the EMS Waste Generation and Waste Disposal Logs.

If the answer to any of questions 3- 13 is "yes" the waste is considered hazardous; check "yes" in the Code Box (above). The amount of hazardous waste generated each month is used to determine the yard's hazardous waste generator status. For additional information on hazardous waste generator requirements, refer to Appendix D of the EMS Manual.

If the answers to ALL questions are "no" the waste is non-hazardous; check "no" in the Code Box (above). **Non-hazardous wastes may have disposal restrictions** (e.g. liquids have to be in sealed containers). Non-hazardous wastes should be managed according to the options listed in the disposal section of the EMS Procedure for the product.

Attach a copy of the SDS(s) and/or laboratory results. Keep onsite.

Waste Profile Questions	***Answers***
1. Is this waste one of the excluded wastes below **and** is the waste managed according to the EMS Procedure? - Used oil - Asphalt emulsion or emulsion mixtures (e.g. diesel fuel and tack) - Used Anti-freeze	☐ No ☐ Yes. Check "no" in Code box and write **"excluded"**. List item(s) below.– *stop here*
2. Is this one of the universal wastes listed below **and** is the waste managed according to the EMS Procedure? - Batteries - Waste pesticides - Mercury-containing lamps - Mercury thermostats	☐ No ☐ Yes. Check "yes" in Code box and write **"universal."** List item below.– *stop here*
3. Is this waste a solvent, used as a degreaser, **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Carbon tertrachloride (CAS # 56-23-5) - Chlorinated fluorocarbons - Methylene chloroide (CAS # 75-09-2) - Tetrachloroethylene (CAS # 127-18-4) - 1,1,1-Trichloroethane (CAS # 71-55-6) - Tricholorethylene (CAS # 79-01-6)	☐ No ☐ Yes. Write **"F001"** in the Code box. List substance(s) below.
4. Is this waste a solvent (not used as a degreaser) **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Chlorobenzene (CAS # 108-90-7) - o-Dichlorobenzene (CAS # 95-50-1) - Methylene chloroide (CAS # 75-09-2) - 1,1,1-Trichloroethane (CAS # 71-55-6) - 1,1,2-Trichloro-1,2,2-trifluoroethane (CAS # 76-13-1) - 1,1,2-Trichloroethane (CAS # 79-00-5) - Tetrachloroethylene (PCE or Perc) (CAS # 127-18-4) - Trichlorofluoromethane (CAS # 75-69-4) - Tricholorethylene (TCE) (CAS # 79-01-6)	☐ No ☐ Yes. Write **"F002"** in the Code box. List substance(s) below.

List the "Name" from Page 1 (in case the pages become separated).

5.	Is this waste a solvent **and** does it contain a) 100% of any of substances listed below; **or** b) one of these substances **and** 10% or greater of any of the substances listed in Ouestion 4. 5. 7. or 8. - Acetone (CAS # 67-64-1) - n-Butyl alcohol (CAS # 71-36-3) - Cyclohexane (CAS # 108-94-1) - Ethyl acetate (CAS # 141-78-6) - Ethyl benzene (CAS # 100-41-4) - Ethyl ether (CAS # 60-29-7) - Methanol (CAS # 67-56-1) - Methyl isobutyl ketone (CAS # 108-10-1) - Xylene (CAS # 1330-20-7)	☐ No ☐ Yes. Write **"F003"** in the Code box. List substance(s) below.
6.	Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Cresols/cresyllic acid (CAS # 1319-77-3) - Nitobenzene (CAS # 98-95-3)	☐ No ☐ Yes. Write **"F004"** in the Code box. List substance(s) below.
7.	Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Benzene (CAS # 71-43-2) - Carbon disulfide (CAS # 75-15-0) - 2-Ethoxyethanol (CAS # 110-80-5) - Isobutanol (CAS # 78-83-1) - Methyl ethyl ketone (CAS # 78-93-3) - 2-Nitropropane (CAS # 79-46-9) - Pyridine (CAS # 110-86-1) - Toluene (CAS # 108-88-3)	☐ No ☐ Yes. Write **"F005"** in the Code box. List substance(s) below.
8.	Does this waste contain 3% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "P"? (See EMS Appendix D) *Do not include substances that have already been listed (in questions 3-7).*	☐ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
9	Does this waste contain 10% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "U? *Do not include substances that have already been listed (in questions 3-8).*	☐ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
10.	Does this waste contain more that the regulatory level of any substance on the Listed Hazardous Waste sheet that has a code number that starts with a "D"? *Do not include substances that have already been listed (in questions 3-9).*	☐ No. ☐ Yes. Write **code** in the Code box. List substances(s) below
11.	Is this waste ignitable? a) a liquid with a flash point less than 140°F (60°C); **or** b) a solid or a gas that is capable of igniting at normal temperatures (can cause fire through friction, absorption of moisture, or spontaneous chemical change); **or** c) an oxidizer or ignitable compressed gas	☐ No ☐ Yes. Write **"D001"** in the Code box. List letter below.
12.	Is this waste corrosive? a) a water-based liquid that has a pH equal to or less than 2; **or** b) a water-based liquid that has a pH equal to or greater than 12.5; **or** c) a liquid that corrodes steel	☐ No ☐ Yes. Write **"D002"** in the Code box. List letter below.
13.	Is this waste reactive? a) normally unstable; **or** b) reacts violently with water; **or** c) capable of explosion or detonation	☐ No ☐ Yes. Write **"D003"** in the Code box. List letter below.

The answers on this Waste Profile are True and Complete to the best of my ability.		
Name	**Signature**	
Yard	**Position**	**Date**

EMS WASTE GENERATION LOG

Yard **Year** **EPA Generator Number**

Use this document to track **hazardous waste, universal waste, or excluded waste** created at the yard or by Maintenance actions.

A list of typical wastes is located on the back of this page. Do not include waste generated by the motoring public. Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information. Contact HazMat for help with hazardous waste disposal contractors, lab analysis, or other waste characterization questions.

Hazardous waste must be recorded in pounds. A conversion chart is located in Appendix D or the weight may be estimated by using an 8 pound/gallon conversion factor. An empty aerosol can weighs about ¼ pound.

Separate EMS Waste Generation Logs may be used at yards with multiple crews. However, the total weight of hazardous waste generated by all crews based at facility address will determine the yard's hazardous waste generation status. The goal is to stay under 220 pounds of hazardous waste generation each month.

Name or Description	Type of Waste			Method of Characterization				Monthly Generation *(include units of measurement)*												Annual Total
	Hazardous	Universal	Excluded	Assumed hazardous	Lab analysis	Waste Profile	Knowledge / Waste Sheet	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Monthly Total Hazardous Waste *Call Office of Maintenance if approaching 220 lbs.*																				

Hazardous waste	Universal waste	Excluded waste

May include but not limited to. . .
• Un-popped aerosol can
• Residue inside a can popper
• Unleaded fuel filter
• Solvent
• Parts washer sludge
• Can popper filter
• Anti-freeze that isn't recycled
• Rechargeable batteries or high mercury lamps thrown in the trash or taken to landfill
• Hazardous epoxy or paint (e.g. flash point less than 140°F or contains 10% or more of toluene, xylene, or methyl methacrylate)
• Flammable stickers
• Propane and compressed gas cylinder not returned to a vendor
• Unknown waste (e.g. unlabeled container)
• Mixed waste (e.g. chlorinated solvent in oil)
	• Batteries (rechargeable and other non-alkaline that are recycled)
	• Mercury-containing lamps that are recycled (examples listed below)
	  o Fluorescent
	  o Mercury vapor
	  o Metal halide
	  o High-pressure sodium
	• Waste pesticide (e.g. outdated bulk pesticide or pesticide saturated absorbent)
	• Mercury thermostats and switches
		• Used oil that is recycled or burned for fuel
		• Asphalt emulsion that is recycled
		• Anti-freeze that is recycled
		• Unusable fuel that is recycled

EMS WASTE DISPOSAL LOG

Yard **From** **To** **EPA Generator Number**

When a waste listed on the Waste Generation Log leaves the yard use this form to document disposal or delivery to another location. Records of hazardous waste disposal should have both a manifest number and a certificate of disposal.

The disposal of wastes not listed on the Waste Generation Log may also be tracked on this form at the discretion of the TMM.

Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information.

Date of Disposal	Description of Waste	Quantity	Method of Disposal (e.g. recycled, HazWaste incinerator, or landfill)	Disposal Company	Manifest or Receipt Number

EMERGENCY NOTIFICATION FOR SPILLS IN ODOT MAINTENANCE YARDS

Yard **Yard phone** **Yard fax**

Yard address

Contacts for this Yard

Name	**Title**	**Contact Numbers**		
	District Manager			
	Assistant District Manager			
	Transportation Maintenance			
	Transportation Maintenance			
Transportation Operations Center (TOC) - Dispatch				

If a Spill Occurs at an ODOT Maintenance Yard

1. **Evaluate the Hazard – remove employees if necessary**

2. **If possible STOP THE RELEASE** (e.g. close the valve, turn off the pump, plug the hole)

3. **Notify ODOT Supervisor**

4. **If possible Control or Contain the spill**

5. **Notify the Dispatch of the situation** where appropriate. Dispatch can notify Incident Response, HazMat, Environmental, other agencies, or contractors when asked.

6. **Refer to the "Employee Guide to Hazardous Incidents and Hazardous Material Spill Response" and the Safety Data Sheet (SDS) for response actions.**

7. **If the spill**

   - **reaches or has potential to reach a waterbody (any quantity); OR**
   - **is more than 42 gallons of oil or fuel on the ground (OERS only); OR**
   - **is more than 200 pounds or 25 gallons of diluted or undiluted pesticide; OR**
   - **is a hazardous product or waste**

   Notify

   Oregon Emergency Response (OERS) 1-800-452-0311

   National Response Center (NRC) 1-800-424-8802

   - Notify OERS of potential spills that would be reportable if a release occurred (like a tanker rollover, a collapsing tank, or unstable hazardous cargo). When in doubt, report the spill. TOC may be asked to make notifications.
   - Notify the **Maintenance and Operations Branch and Region HazMat of spills that occur at an ODOT Maintenance yard that are reported to OERS or DEQ even <u>if the cleanup is contracted</u>**.
   - Notify the **Maintenance and Operations Branch of deicer spills larger than 42 gallons**.

8. **After the situation has been resolved, complete a "Spill Response Notification Form for Spills in Maintenance Yards" form** (if the spill was reportable). Blank forms are in the EMS Manual.

SPILL RESPONSE FORM FOR SPILLS IN ODOT MAINTENANCE YARDS

Yard	**Date**
Address	**Phone**

Release Information

Date of spill	**Person who discovered the spill**
Time spill started	**Time spill was stopped**
Material spilled *Attach a copy of the SDS (safety data sheet).* *Mark the location of the spill and the direction of flow on a site drawing*	**Estimated amount released**
Was there a threat to public safety?	☐ No ☐ Yes
Is there a potential for future release?	☐ No ☐ Yes
Did anyone come in direct contact with the spill? If yes, describe	☐ No ☐ Yes
Describe how the release occurred. Include details such as the source of the release, the cause, contributing factors, weather, activities occurring prior to or during the release, and the dates and time of the activities	
The release impacted (check all that apply) ☐ Surface water ☐ Groundwater ☐ Soil ☐ Air Describe any impacts from the release (such as fish kill, evacuation, etc.)	

Response Action

Who was notified and when did the notification occur.
Describe actions taken in response to the release. Include details such as actions taken to contain the release, actions taken by the first responders, and other immediate actions to protect people or the environment.

Yard **Date**

Recovery Action

Who performed the site cleanup

If ODOT did not perform the cleanup, list the cleanup company's

Name

Address

Phone Project manager

Describe cleanup activities. Include what actions were taken and when the actions were taken.

Were soil or water samples collected? ☐No ☐Yes

If yes, who collected the samples?

Mark the sample collection and locations on a copy of the site map. Attach copies of the sample results.

How much contaminated soil was removed from the site (estimate volume)?

Has all the contamination been removed from site? ☐No ☐Yes

Estimated volume of contaminated soil remaining, if any

Was a hazardous waste determination made? ☐No ☐Yes

List hazardous substances

Were contaminated materials taken off-site for disposal? ☐No ☐Yes

If yes, attach copies of receipts and/or documentation for disposal.

List the name and address of the disposal location

Facility phone Facility contact

These answers are True and Complete to the best of my ability.

Name **Date** **Position**

Signature

Keep this form and all related documentation on file at the yard

Accompanying documentation

- ☐ A copy of the SDS for the spilled product
- ☐ A site map that shows the location of spill and the flow direction
- ☐ A site map that shows the location of samples
- ☐ Receipts for disposal of hazardous material
- ☐ Receipts and/or documentation for disposal of contaminated material (such as soil)

Section Divider

Section Divider

Appendix C - Maintenance EMS Monthly Audit

Overview of EMS Audits

Instructions for Completing the Monthly Maintenance EMS Field Audit

Monthly Maintenance EMS Field Audit (form)

Maintenance EMS Field Audit Corrective Action Sheet (form)

OVERVIEW OF EMS AUDITS

The EMS Program has three levels of audits. The first level is a monthly visual inspection of the yard that is completed by Maintenance employees. The second level is completed by District management and consists of a periodic review of EMS paperwork and program implementation. The third level is provided by a technical advisory team that reviews global issues and provides program updates.

Monthly Maintenance EMS Field Audit – Critical of Yard

The Monthly Field Audit should be completed by someone familiar with the yard.

Goal: Take a critical look how EMS BMPs are implemented at the yard

Guiding principals:

Monthly Field Audit

- Identify compliance issues
- Should take a minimal of time to complete
- Should be easy to understand
- Should give opportunity to document positive changes

Corrective Action Sheet

- Provide a place to document actions taken to correct issue discovered during the Field Audit
- Should allow for non-action with justification
- Should show response time to correct issues and changes from month to month
- Ensure items identified on the Field Audit are brought to yard management
- Encourage capital improvements needs are brought to the appropriate people

Maintenance EMS Regional Audit – Critical of Process

Regional Audits are completed by a District Manager (or Assistant District Manager) and a representative from either Region HazMat or the Maintenance and Operations Branch. Representatives from Facilities, Safety, and/or Environmental may be added to the Audit team at the discretion of the District Manager.

ODOT Maintenance yards are audited once in a 3-year period. *Winter maintenance sites* and *dry storage facilities* are audited in coordination with the Regional Audit of the *maintenance yard* that supervises the site. Each EMS Procedure is audited at least once per year per Region. Regional Audits are scheduled from March to October. The Maintenance and Operations Branch provides a list of yards and Procedures to the District Managers.

Goal: To document changes across the system, demonstrate implementation, and identify Program elements that are confusing.

Guiding principals:

Regional Audit

- Ensure the corrective action that can be taken is taken
- Ensure onsite documentation is accurate and complete
- Identify widespread issues and themes
- Identify issues that need capital funding
- Identify statewide policy needs, such as things that don't fit the procedures
- Should emphasize improvement
- Identify and document changes from prior audits including yard modification
- Report progress to statewide auditor and yard management

Procedure Audits

- Ensure "Musts" have been completed
- Ensure "Should" are completed where appropriate
- Identify roadblocks
- Identify innovations that can be taken to other areas

Maintenance EMS Statewide Audit – Changes to Process

Goal: To identify and resolve process issues the EMS Program. Determine if the EMS Program is effective.

Guiding principals:
Reporting/Modification/Tracking

- Provide tools for program implementation including training
- Identify gaps in procedures. Adapt program as necessary.
- Ensure yards and procedures are audited according to schedule.
- Ensure annual reports are written and submitted.
- Ensure the program (including the procedures and audits) are updated as needed.
- Share information, technology, and regulatory changes.
- Provide a liaison between regulatory agencies (e.g. EPA and DEQ) and Maintenance.
- Provide feedback to District and Region representatives.

INSTRUCTIONS FOR THE MONTHLY MAINTENANCE EMS FIELD AUDIT

Review the questions on the Field Audit before starting. The Field Audit requires looking at many things at one time while walking around the yard. If the person completing the Field Audit is familiar with the EMS Procedures or has attended EMS training the questions will be easier to answer. EMS training is offered by the Maintenance and Operations Branch at least twice a year.

Use separate Field Audit forms (where helpful) for multiple areas. If using multiple Field Audit forms, make sure the areas are identified the same way each month.

- **Walk around the yard. The Monthly Field Audit is a visual inspection.**
- Question 1-8 are about areas where activities occur (e.g. vehicle washing, mixing, or loading).
- Questions 9-22 are about storage areas and containers. Inspect storage areas inside and outside the buildings. Include tanks, barrels, aerosols, gas cans, and stockpiles.
- Questions 23-28 are about drainage. Includes piped systems, sheet flow, and infiltration. Look at stormwater movement through storage and activity areas. Notice that some of these are also inspected in other sections. The activities questions will ask treatment measures are necessary used and this section will the treatment is working.
- Questions 29-35 are about secondary containment and monitoring equipment. Includes double-walled tanks, bunker, spill pallets, drainage control valves. Notice that some of these are also inspected in other sections. The storage questions will ask secondary containment is used and this section will ask if the containment is in good condition.
- Check the appropriate box. The answers should represent the entire yard (or area if using multiple forms).
- Answers in shaded boxes (NOs) require some kind of action. Write these items on the Corrective Action Sheet. If the issue can be resolved with the audit in hand then the YES box can be checked.
- Log annual or routine practices that were completed this month that are completed each month at the bottom of the form. .

INSTRUCTIONS FOR THE CORRECTIVE ACTION SHEET

- Each year use one Page 1 and as many Page 2s as necessary to document the issues discovered that year.
- For each checked shaded box on the Field Audit there should be a box in Section 1 (at the top of page 1) of the Corrective Action Sheet that match the question numbers and the month the issues was observed.
- Use Section 2 to provide details of the actions taken to resolve issues identified by the Field Audit. Write the question number, the date observed, and a description of the issue. Be specific (e.g. "used oil tank needs to be labeled" rather than "labeling").
- Write what was done to correct the issue or why action cannot be taken at this time (e.g. capital improvement).
- The TMM's initials document that management is aware of the problem and approves of the solution.
- There should be a least one line in Section 2 of the Corrective Action Sheet for each checked shaded box on the Field Audit.
- Note the date the action was completed.

MONTHLY MAINTENANCE EMS FIELD AUDIT

Yard **Date**

Notify the Maintenance and Operations Branch of significant changes (e.g. install a new tank, modify drainage, change water treatment systems, put in a building, or build a wash rack)

OPERATIONAL AREAS – including fuel stations, service bays, wash areas, mixing areas, and loading/unloading areas

1	Are operations only occurring in established areas?	☐ Yes	☐ No	☐ NA
2	Are areas free of visual evidence (e.g. product or absorbent) of spills, tracking, or leaks?	☐ Yes	☐ No	☐ NA
3	Are spill kits or granular absorbents accessible and adequately stocked?	☐ Yes	☐ No	☐ NA
4	Are posted warning signs and operating instructions legible?	☐ Yes	☐ No	☐ NA
5	Are fuel dispensers and other delivery/distribution systems in good repair?	☐ Yes	☐ No	☐ NA
6	Are delivery/distribution lines closed or capped when not in use?	☐ Yes	☐ No	☐ NA
7	Are drip buckets and drain pans either a) actively in-use or b) closed and labeled?	☐ Yes	☐ No	☐ NA
8	Are efforts to keep potential pollutants out of stormwater well maintained?	☐ Yes	☐ No	☐ NA

Notes:

TANKS, TOTES, and STORAGE AREAS –storage areas include storage bays, pole buildings, cargo containers, closets, bulk storage, parked slip-ins, and onsite stockpiles

9	Are storage areas tidy (e.g. clean, organized, random containers put away)?	☐ Yes	☐ No	☐ NA
10	Does each container, tank, and tote have a visible, intact, and legible label?	☐ Yes	☐ No	☐ NA
11	Are containers, tank, and totes closed (e.g. lids on, covers shut, boxes tops folded)?	☐ Yes	☐ No	☐ NA
12	Are tanks, totes, and containers undamaged - in good repair?	☐ Yes	☐ No	☐ NA
13	Are surfaces free of product and has saturated absorbent been picked up?	☐ Yes	☐ No	☐ NA
14	Are supports to minimize stress on fittings and tanks in-place and in good condition?	☐ Yes	☐ No	☐ NA
15	Can empty containers be visually identified from full ones?	☐ Yes	☐ No	☐ NA
16	Is secondary containment available for products stored near sensitive resources?	☐ Yes	☐ No	☐ NA
17	Is secondary containment currently in use – are containers on/in containment?	☐ Yes	☐ No	☐ NA
18	Are containers stored indoors or covered if stored outdoors?	☐ Yes	☐ No	☐ NA
19	Are gas cans, flammable liquids, and aerosols stored in flammable cabinets where needed?	☐ Yes	☐ No	☐ NA
20	Are storage areas secured –additional actions aren't needed to discourage vandalism?	☐ Yes	☐ No	☐ NA
21	Are products usable, current, and wanted?	☐ Yes	☐ No	☐ NA
22	Is there sufficient available capacity in tanks and containers used to store wastes?	☐ Yes	☐ No	☐ NA

Notes:

MONTHLY MAINTENANCE EMS FIELD AUDIT

Yard Date

	DRAINAGE –outfalls, ditches, catch basins, floor drains, pit drains, wash drains, oil/water separators, swales			
23	Are catch basins and outfalls free of visible pollutants (e.g. sheen, sediment, and trash)?	☐ Yes	☐ No	☐ NA
24	Is the ground/floor/pavement around catch basins free of spills?	☐ Yes	☐ No	☐ NA
25	Is the volume of sediment in catch basins and sumps below the outflow pipe?	☐ Yes	☐ No	☐ NA
26	Is erosion or sediment control installed where needed?	☐ Yes	☐ No	☐ NA
27	Are water treatment measures in good working order?	☐ Yes	☐ No	☐ NA
28	Do water treatment and control measures appear maintained?	☐ Yes	☐ No	☐ NA

Notes:

	SECONDARY CONTAINMENT And Monitoring Equipment – including deicer bunkers, salt sheds, lined ponds, fuel delivery containment, berms, double-walled tanks, and spill pallets.			
29	Is secondary containment free of product and spills?	☐ Yes	☐ No	☐ NA
30	Is the area around the containment free of product and evidence of spills?	☐ Yes	☐ No	☐ NA
31	Are drainage control valves and drain mats accessible and operational?	☐ Yes	☐ No	☐ NA
32	Are drainage control valves closed while providing containment?	☐ Yes	☐ No	☐ NA
33	Is the space between the walls of double-walled tanks free of liquids?	☐ Yes	☐ No	☐ NA
34	Are tank gauges or monitoring systems operational?	☐ Yes	☐ No	☐ NA
35	Does secondary containment appear to be intact/undamaged?	☐ Yes	☐ No	☐ NA

Notes:

		Annual or Routine practices that were completed this month – varies by site	
☐ Yes	☐ NA	Completed the Stationary Poly Tank Inspection. (annual)	Notes:
☐ Yes	☐ NA	Inspected poly tanks at secondary site that does not need monthly audits.	
☐ Yes	☐ NA	Determined containment is water-tight. (annual) ☐ bulk fuel delivery ☐ deicer ☐ salt ☐ lined pond ☐ other	
☐ Yes	☐ NA	Visually inspected the septic system and drainfield. (annual)	
☐ Yes	☐ NA	Tested the emergency shut-off for the fuel tank. (annual)	
☐ Yes	☐ NA	Completed SPCC training / spill response briefing. (annual)	
☐ Yes	☐ NA	Completed UIC training. (annual – if facility has drywells)	
☐ Yes	☐ NA	Repaired or responded to fluid level monitoring or leak detection equipment. ☐ fuel ☐ deicer ☐ other	
☐ Yes	☐ NA	3rd party tank inspection: ☐aboveground ☐underground	
☐ Yes	☐ NA	Cleaned drains: ☐wash bay ☐stormwater ☐other	
☐ Yes	☐ NA	Cleaned /maintained sediment control, containment, or water treatment: ☐ oil/water separator ☐ swale/pond ☐ catch basins insert ☐ carbon/media barrels ☐ swept parking lot ☐ other	

The answers on this audit are True and Complete to the best of my ability.

Name **Date** **Title**

Signature

MAINTENANCE EMS FIELD AUDIT CORRECTIVE ACTION SHEET

Yard **Year** **Page** **of**

SECTION 1

Match the question number from the Monthly Field Audit with the month the issue was observed. Track the entire year. List details in the section below or on additional sheets.

Question #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
January																																			
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June																																			
July																																			
August																																			
September																																			
October																																			
November																																			
December																																			

SECTION 2

Describe the issue. Include a Corrective Action for each checked shaded box on the Monthly Field Audit. Write the action or actions taken to solve the issue. Some issues may require multiple actions. Use extra sheets as needed. Issues may carry over to following months without re-writing. When the issue has been resolved the TMM or Coordinator should initial the row. If the TMM determines an issue cannot be solved at a crew level (e.g. capital improvement) the reason should be noted in the corrective action column.

Question #	Date Observed	Problem Description *(be specific)*	Corrective Action *(what was done to fix the problem)*	Date Completed	TMM Initials

MAINTENANCE EMS FIELD AUDIT CORRECTIVE ACTION SHEET – PAGE 2

Yard **Year** **Page** **of**

SECTION 2

Describe the issue. Include a Corrective Action for each checked shaded box on the Monthly Field Audit. Write the action or actions taken to solve the issue. Some issues may require multiple actions. Use extra sheets as needed. Issues may carry over to following months without re-writing. When the issue has been resolved the TMM or Coordinator should initial the row. If the TMM determines an issue cannot be solved at a crew level (e.g. capital improvement) the reason should be noted in the corrective action column.

Question #	Date Observed	Problem Description *(be specific)*	Corrective Action *(what was done to fix the problem)*	Date Completed	TMM Initials

Section Divider

Section Divider

Appendix D - Waste Logs and Waste Characterization

Summary of Hazardous Waste Generator Requirements

EMS Waste Generation Log (form)
Example of a Completed EMS Waste Generation Log

EMS Waste Disposal Log (form)
Example of a Completed Waste Disposal Log

EMS Waste Profile (form)
Example of a Completed EMS Waste Profile (includes sample SDS)
Hazardous Waste Codes (sorted alphabetically by substance)
Hazardous Waste Codes (sorted numerically by CAS number)

Waste Hauling (flow chart)

EPA Hazardous Waste Generator Regulatory Summary

The Resource Conservation and Recovery Act (RCRA) regulations establish basic hazardous waste management standards for persons who produce hazardous waste, called hazardous waste generators. These standards are found in title 40 of the Code of Federal Regulations (CFR) in part 262. The generator regulations ensure that hazardous waste is appropriately identified and handled safely to protect human health and the environment, while minimizing interference with daily business operations.

Summary Table

The table below provides a summary of requirements for each class of hazardous waste generator. This is not an exhaustive list of all of the requirements for generators and should be used as just a guide. Generators are responsible for all applicable requirements in 40 CFR part 262. Additionally, hazardous waste generators should check with their state regulatory agency because certain states have additional or more stringent requirements than the federal government.

Requirement	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
Accumulation Requirements Manage hazardous waste in compliance with certain technical standards.	None	Basic requirements with technical standards for containers, tanks, drip pads or containment buildings §§262.16(b)(2)-(5)	Full compliance for management of containers, tanks, drip pads or containment buildings §§262.17(a)(1)-(4)
Accumulation Time Limits Determine amount of time hazardous waste is allowed to accumulate on site.	None	≤180 days or ≤270 days (if transporting greater than 200 miles) §§262.16(b)-(d)	≤90 days §262.17(a)
Air Emissions Control hazardous air emissions from tanks and containers	Not required	Not required	Required Part 265 subparts AA, BB and CC from §262.17(a)(1) and (2)

Requirement	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
Biennial Report Report data from off-site shipments of waste during the previous calendar year	Not required	Not required	Required §262.41
Closure Close equipment, structures, soils and units by meeting specified performance standards and disposal and decontamination requirements	Not required	Required for tanks, drip pads and containment buildings - Tanks only §262.16(b)(3)(vi) Unit specific Part 265, subpart W and DD for drip pads and containment buildings	Required - General §262.17(a)(8) - Unit specific Part 265, subpart W for drip pads
Contingency Plan and Emergency Procedures Develop procedures to follow during an unplanned major event.	Not required	Basic planning required §§262.16(b)(9)	Full plan required Part 262 subpart M (from §262.17(a)(6))
EPA ID Number Acquire a unique EPA identification number that identifies generators by site.	Not required	Required §262.18	Required §262.18

Requirement	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
Exception and Additional Reporting Report if any required copies of signed manifests are not received back Provide information on quantities and disposition of wastes upon request	Not required	Required §§262.42(b) and 262.43	Required §§262.42 and 262.43
Facility Type Send off-site shipments to appropriate facilities for management	Facilities noted in §§262.14(a)(5)	RCRA permitted/interim status facility Parts 264/265, 266/267 and 270	RCRA permitted/interim status facility Parts 264/265, 266/267 and 270
Land Disposal Restrictions Meet standards for placing on the land and associated requirements for certifications, notifications, and waste analysis plans	Not required	Required Part 268 from §262.16(b)(7)	Required Part 268 from §262.17(a)(9)
Manifest Tracking hazardous waste shipments using the multiple-copy manifest - required by the Department of Transportation (DOT) and EPA	Not required	Required Part 262 subpart B	Required Part 262 subpart B

Requirement	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
On-Site Accumulation Quantity Determine amount of hazardous waste generators are allowed to "accumulate" on site without a permit.	≤1,000 kg or ≤1 kg acute hazardous waste or ≤100 kg of acute spill residue or soil §§262.14(a)(3) and (4)	≤6,000 kg §262.16(b)(1)	No limit
Personnel Training Ensure appropriate personnel complete classroom or on-the-job training to become familiar with proper hazardous waste management and emergency procedures for the wastes handled at the facility.	Not required	Basic training required §262.16(b)(9)(iii)	Required §262.17(a)(7)
Pre-Transport Requirements Package and label hazardous waste for shipment off site to a RCRA facility for treatment, storage, or disposal	Only if required by the DOT or the state	Required §§262.30-262.33	Required §§262.30-262.33
Preparedness and Prevention Develop procedures to follow in the event of an emergency.	Not required	Required §262.16(b)(8)-(9)	Required Part 262 subpart M (from §262.17(a)(6))

Requirement	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
Quantity Limits The amount of hazardous waste generated per month determines how a generator is categorized and what regulations must be complied with.	≤100 kg/month, and ≤1 kg/month of acute hazardous waste, and ≤100 kg/month of acute spill residue or soil §260.10	>100 and <1,000 kg/month §260.10	≥1,000 kg/month, or >1 kg/month of acute hazardous waste, or >100 kg/month of acute spill residue or soil §260.10
Recordkeeping Maintain records of waste testing, manifests, biennial reports and exception reports	Not required	Required (except biennial reports) §262.11(f) and §262.40(a) and (d)	Required §262.11(f) and §262.40
Waste Minimization Certify steps taken to reduce or eliminate the generation of hazardous waste	None	Good faith effort required §262.27	Program in place required §262.27

EMS WASTE GENERATION LOG

Yard **Year** **EPA Generator Number**

Use this document to track **hazardous waste, universal waste, or excluded waste** created at the yard or by Maintenance actions.

A list of typical wastes is located on the back of this page. Do not include waste generated by the motoring public. Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information. Contact HazMat for help with hazardous waste disposal contractors, lab analysis, or other waste characterization questions.

Hazardous waste must be recorded in pounds. A conversion chart is located in Appendix D or the weight may be estimated by using an 8 pound/gallon conversion factor. An empty aerosol can weighs about ¼ pound.

Separate EMS Waste Generation Logs may be used at yards with multiple crews. However, the total weight of hazardous waste generated by all crews based at facility address will determine the yard's hazardous waste generation status. The goal is to stay under 220 pounds of hazardous waste generation each month.

Name or Description	Type of Waste			Method of Characterization				Monthly Generation *(include units of measurement)*												Annual Total
	Hazardous	Universal	Excluded	Assumed hazardous	Lab analysis	Waste Profile	Knowledge / Waste Sheet	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Monthly Total Hazardous Waste *Call Office of Maintenance if approaching 220 lbs.*																				

Hazardous waste	Universal waste	Excluded waste

May include but not limited to. . .
• Un-popped aerosol can
• Residue inside a can popper
• Unleaded fuel filter
• Solvent
• Parts washer sludge
• Can popper filter
• Anti-freeze that isn't recycled
• Rechargeable batteries or high mercury lamps thrown in the trash or taken to landfill
• Hazardous epoxy or paint (e.g. flash point less than 140°F or contains 10% or more of toluene, xylene, or methyl methacrylate)
• Flammable stickers
• Propane and compressed gas cylinder not returned to a vendor
• Unknown waste (e.g. unlabeled container)
• Mixed waste (e.g. chlorinated solvent in oil)
	• Batteries (rechargeable and other non-alkaline that are recycled)
	• Mercury-containing lamps that are recycled (examples listed below)
	  o Fluorescent
	  o Mercury vapor
	  o Metal halide
	  o High-pressure sodium
	• Waste pesticide (e.g. outdated bulk pesticide or pesticide saturated absorbent)
	• Mercury thermostats and switches
		• Used oil that is recycled or burned for fuel
		• Asphalt emulsion that is recycled
		• Anti-freeze that is recycled
		• Unusable fuel that is recycled

EXAMPLE - EMS WASTE GENERATION LOG

Yard ODOT Maintenance Yard **Year** 2019 **EPA Generator Number** None

Use this document to track **hazardous waste, universal waste, or excluded waste** created at the yard or by Maintenance actions.

A list of typical wastes is located on the back of this page. Do not include waste generated by the motoring public. Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information. Contact HazMat for help with hazardous waste disposal contractors, lab analysis, or other waste characterization questions.

Hazardous waste must be recorded in pounds. A conversion chart is located in Appendix D or the weight may be estimated by using an 8 pound/gallon conversion factor. An empty aerosol can weighs about ¼ pound.

Separate EMS Waste Generation Logs may be used at yards with multiple crews. However, the total weight of hazardous waste generated by all crews based at facility address will determine the yard's hazardous waste generation status. The goal is to stay under 220 pounds of hazardous waste generation each month.

Name or Description	Type of Waste			Method of Characterization				Monthly Generation *(include units of measurement)*											Annual Total
	Hazardous	Universal	Excluded	Assumed hazardous	Lab analysis	Waste Profile	Knowledge / Waste Sheet	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Used Oil			x				x	75 gal	120 gal	80 gal	50 gal	30 gal	30 gal	50 gal	50 gal	150 gal	70 gal	95 gal	80 gal	**880 gal**
Aerosol cans	x						x	10 lbs	7 lbs	5 lbs	0.5 lb	5 lbs	5 lbs	1 lb	1.5 lb	2 lb	5 lb	10 lb	12 lb	**64 lbs**
Fluorescent tubes		x					x			2 tubes			10 tubes			5 tubes				**17 tubes**
Used anti-freeze			x				x	5 gal	25 gal	10 gal	1 gal	1 gal	3 gal	1 gal	6 gal	15 gal	5 gal	7 gal	15 gal	**94 gal**
Solvent - parts washer	x			x								200 lbs								**200 lbs**
Batteries (rechargeable)		x					x			12 pieces						24 pieces				**36 pieces**
old epoxy tubes	x					x		2 lb												**2 lbs**
unlabeled bucket	x				x				40 lbs											**40 lbs**
paint with solvent	x			x										160 lbs						**160 lbs**
Drained gasoline filter	x				x			1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1 lb	1lb	**12 lb**
Monthly Total Hazardous Waste *Call Office of Maintenance if approaching 220 lbs.*								**13 lbs**	**48 lbs**	**6 lbs**	**1.5 lb**	**206 lbs**	**6 lbs**	**162 lbs**	**2.5 lbs**	**3 lbs**	**6 lbs**	**11 lbs**	**13 lbs**	

Hazardous waste	Universal waste	Excluded waste
May include but not limited to. . . — Un-popped aerosol can — Residue inside a can popper — Unleaded fuel filter — Solvent — Parts washer sludge — Can popper filter — Anti-freeze that isn't recycled — Rechargeable batteries or high mercury lamps thrown in the trash or taken to landfill — Hazardous epoxy or paint (e.g. flash point less than 140°F or contains 10% or more of toluene, xylene, or methyl methacrylate) — Flammable stickers — Propane and compressed gas cylinder not returned to a vendor — Unknown waste (e.g. unlabeled container) — Mixed waste (e.g. chlorinated solvent in oil)	— Batteries (rechargeable and other non-alkaline that are recycled) — Mercury-containing lamps that are recycled (examples listed below) o Fluorescent o Mercury vapor o Metal halide o High-pressure sodium — Waste pesticide (e.g. outdated bulk pesticide or pesticide saturated absorbent) — Mercury thermostats and switches	— Used oil that is recycled or burned for fuel — Asphalt emulsion that is recycled — Anti-freeze that is recycled — Unusable fuel that is recycled

EMS WASTE DISPOSAL LOG

Yard **From** **To** **EPA Generator Number**

When a waste listed on the Waste Generation Log leaves the yard use this form to document disposal or delivery to another location. Records of hazardous waste disposal should have both a manifest number and a certificate of disposal.

The disposal of wastes not listed on the Waste Generation Log may also be tracked on this form at the discretion of the TMM.

Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information.

Date of Disposal	Description of Waste	Quantity	Method of Disposal (e.g. recycled, HazWaste incinerator, or landfill)	Disposal Company	Manifest or Receipt Number

Example - EMS WASTE DISPOSAL LOG

Yard ODOT MAINTENANCE YARD **From** 1/01/19 **To** 12/30/19 **EPA Generator Number** none

Use this form to document the disposal of **hazardous universal, and excluded waste**. All wastes listed on the Waste Generation Log should be listed on this form when the waste leaves the yard. The disposal of wastes not listed on the Waste Generation Log may also be tracked on this form, at the discretion of the TMM.

Records of hazardous waste disposal should have both a manifest number and a certificate of disposal.

Refer to the EMS Procedures, Appendix D – Waste Paperwork, or Appendix E - Waste Cheat Sheet for additional information.

Date of Disposal	Description of Waste	Quantity	Method of Disposal (e.g. recycled on-site, re-used, collected by vendor)	Disposal Company	Manifest or Receipt Number
3/25/19	Used Oil	200 gal	Fuel for space heater	Took to ODOT Brothers Maintenance yard	None
5/10/19	Solvent	200 lbs	Collected by HazWaste company Recycles the solvent and anti-freeze Incinerates other hazardous wastes	Philip Services Corporation	123987
	epoxy tubes	10 tubes			
	bucket unknown waste	5 gal (40 lbs)			
	anti-freeze	50 gals			
6/15/19	Aerosol cans	100 cans	Can popper (recycle scrap metal)	Took to ODOT The Dalles Maintenance yard	None
6/20/19	fluorescent tubes	12 tubes	Recycled	County Landfill (HazWaste collection day)	None
	batteries	20 pieces			
Various	Gasoline fuel filters	< 8 per month	Drained and thrown in the trash	Marion County Sanitation	None

EMS WASTE PROFILE

Name, Trade Name, or Waste Description	**Code Box** *(Answers the Question "Is this a Hazardous Waste?)* ☐ No ☐ Yes - List Codes
List Components of Mixture (e.g. Dura Stripe Part A & Part B)	**Use / Description** (primary use)

☐ **This Waste Profile was completed using the MSDS.** ☐ **This Waste Profile was completed using lab analysis.**

INSTRUCTIONS

Complete this form using the SDS or the results of lab testing to determine if a waste is classified as hazardous. Complete one profile for each waste. Additional information on characterizing waste is located in Appendix D of the EMS Manual.

Answer ALL questions. If a SDS is used to complete this form the CAS numbers should be used to verify that the correct substance has been identified. "CAS numbers" are assigned by the Chemical Abstract Service. Each specific chemical compound is given a separate number. The CAS number will remain the same even when substances are listed by trade names.

If the answer to any of the questions is "yes" the waste must be tracked on the EMS Waste Generation and Waste Disposal Logs.

If the answer to any of questions 3- 13 is "yes" the waste is considered hazardous; check "yes" in the Code Box (above). The amount of hazardous waste generated each month is used to determine the yard's hazardous waste generator status. For additional information on hazardous waste generator requirements, refer to Appendix D of the EMS Manual.

If the answers to ALL questions are "no" the waste is non-hazardous; check "no" in the Code Box (above). **Non-hazardous wastes may have disposal restrictions** (e.g. liquids have to be in sealed containers). Non-hazardous wastes should be managed according to the options listed in the disposal section of the EMS Procedure for the product.

Attach a copy of the SDS(s) and/or laboratory results. Keep onsite.

Waste Profile Questions	***Answers***
1. Is this waste one of the excluded wastes below **and** is the waste managed according to the EMS Procedure? - Used oil - Asphalt emulsion or emulsion mixtures (e.g. diesel fuel and tack) - Used Anti-freeze	☐ No ☐ Yes. Check "no" in Code box and write **"excluded"**. List item(s) below.– *stop here*
2. Is this one of the universal wastes listed below **and** is the waste managed according to the EMS Procedure? - Batteries - Waste pesticides - Mercury-containing lamps - Mercury thermostats	☐ No ☐ Yes. Check "yes" in Code box and write **"universal."** List item below.– *stop here*
3. Is this waste a solvent, used as a degreaser, **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Carbon tertrachloride (CAS # 56-23-5) - Chlorinated fluorocarbons - Methylene chloroide (CAS # 75-09-2) - Tetrachloroethylene (CAS # 127-18-4) - 1,1,1-Trichloroethane (CAS # 71-55-6) - Tricholorethylene (CAS # 79-01-6)	☐ No ☐ Yes. Write **"F001"** in the Code box. List substance(s) below.
4. Is this waste a solvent (not used as a degreaser) **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Chlorobenzene (CAS # 108-90-7) - o-Dichlorobenzene (CAS # 95-50-1) - Methylene chloroide (CAS # 75-09-2) - 1,1,1-Trichloroethane (CAS # 71-55-6) - 1,1,2-Trichloro-1,2,2-trifluoroethane (CAS # 76-13-1) - 1,1,2-Trichloroethane (CAS # 79-00-5) - Tetrachloroethylene (PCE or Perc) (CAS # 127-18-4) - Trichlorofluoromethane (CAS # 75-69-4) - Tricholorethylene (TCE) (CAS # 79-01-6)	☐ No ☐ Yes. Write **"F002"** in the Code box. List substance(s) below.

List the "Name" from Page 1 (in case the pages become separated).

5.	Is this waste a solvent **and** does it contain a) 100% of any of substances listed below; **or** b) one of these substances **and** 10% or greater of any of the substances listed in Ouestion 4. 5. 7. or 8. - Acetone (CAS # 67-64-1) - n-Butyl alcohol (CAS # 71-36-3) - Cyclohexane (CAS # 108-94-1) - Ethyl acetate (CAS # 141-78-6) - Ethyl benzene (CAS # 100-41-4) - Ethyl ether (CAS # 60-29-7) - Methanol (CAS # 67-56-1) - Methyl isobutyl ketone (CAS # 108-10-1) - Xylene (CAS # 1330-20-7)	☐ No ☐ Yes. Write **"F003"** in the Code box. List substance(s) below.
6.	Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Cresols/cresyllic acid (CAS # 1319-77-3) - Nitobenzene (CAS # 98-95-3)	☐ No ☐ Yes. Write **"F004"** in the Code box. List substance(s) below.
7.	Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Benzene (CAS # 71-43-2) - Carbon disulfide (CAS # 75-15-0) - 2-Ethoxyethanol (CAS # 110-80-5) - Isobutanol (CAS # 78-83-1) - Methyl ethyl ketone (CAS # 78-93-3) - 2-Nitropropane (CAS # 79-46-9) - Pyridine (CAS # 110-86-1) - Toluene (CAS # 108-88-3)	☐ No ☐ Yes. Write **"F005"** in the Code box. List substance(s) below.
8.	Does this waste contain 3% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "P"? (See EMS Appendix D) *Do not include substances that have already been listed (in questions 3-7).*	☐ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
9	Does this waste contain 10% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "U? *Do not include substances that have already been listed (in questions 3-8).*	☐ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
10.	Does this waste contain more that the regulatory level of any substance on the Listed Hazardous Waste sheet that has a code number that starts with a "D"? *Do not include substances that have already been listed (in questions 3-9).*	☐ No. ☐ Yes. Write **code** in the Code box. List substances(s) below
11.	Is this waste ignitable? a) a liquid with a flash point less than 140°F (60°C); **or** b) a solid or a gas that is capable of igniting at normal temperatures (can cause fire through friction, absorption of moisture, or spontaneous chemical change); **or** c) an oxidizer or ignitable compressed gas	☐ No ☐ Yes. Write **"D001"** in the Code box. List letter below.
12.	Is this waste corrosive? a) a water-based liquid that has a pH equal to or less than 2; **or** b) a water-based liquid that has a pH equal to or greater than 12.5; **or** c) a liquid that corrodes steel	☐ No ☐ Yes. Write **"D002"** in the Code box. List letter below.
13.	Is this waste reactive? a) normally unstable; **or** b) reacts violently with water; **or** c) capable of explosion or detonation	☐ No ☐ Yes. Write **"D003"** in the Code box. List letter below.

The answers on this Waste Profile are True and Complete to the best of my ability.		
Name	**Signature**	
Yard	**Position**	**Date**

Example – Of Completed Waste Profile

Name, Trade Name, or Waste Description Salt Neutralizer	**Code Box** *(Answers the Question "Is this a Hazardous Waste?")* ☐ No ☒ Yes - List Codes D002
List Components of Mixture (e.g. Dura Stripe Part A & Part B) NA	**Use / Description** (primary use) Rinse aid.

☒ **This Waste Profile was completed using the MSDS.** ☐ **This Waste Profile was completed using lab analysis.**

INSTRUCTIONS

Complete this form using the MSDS or the results of lab testing to determine if a waste is classified as hazardous. Complete one profile for each waste. Additional information on characterizing waste is located in Appendix D of the EMS Manual.

Answer ALL questions. If a MSDS is used to complete this form, the CAS numbers should be used to verify that the correct substance has been identified. "CAS numbers" are assigned by the Chemical Abstract Service. Each specific chemical compound is given a separate number. The CAS number will remain the same even when substances are listed by trade names.

If the answer to any of the questions is "yes" the waste must be tracked on the EMS Waste Generation and Waste Disposal Logs.

If the answer to any of questions 3- 13 is "yes" the waste is considered hazardous; check "yes" in the Code Box (above). The amount of hazardous waste generated each month is used to determine the yard's hazardous waste generator status. For additional information on hazardous waste generator requirements, refer to Appendix D of the EMS Manual.

If the answers to ALL questions are "no" the waste is non-hazardous; check "no" in the Code Box (above). **Non-hazardous wastes may have disposal restrictions** (e.g. liquids have to be in sealed containers). Non-hazardous wastes should be managed according to the options listed in the disposal section of the EMS Procedure for the product.

Attach a copy of the MSDS(s) and/or laboratory results and file onsite.

Waste Profile Questions	***Answers***
1. Is this waste one of the excluded wastes below **and** is the waste managed according to the EMS Procedure? - Used oil - Asphalt emulsion or emulsion mixtures (e.g. diesel fuel and tack) - Used Anti-freeze	☒ No ☐ Yes. Check "no" in Code box and write **"excluded"**. List item(s) below.– *stop here*
2. Is this one of the universal wastes listed below **and** is the waste managed according to the EMS Procedure? - Batteries - Waste pesticides - Mercury-containing lamps - Mercury thermostats	☒ No ☐ Yes. Check "yes" in Code box and write **"universal."** List item below.– *stop here*
3. Is this waste a solvent, used as a degreaser, **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Carbon tertrachloride (CAS # 56-23-5) - Chlorinated fluorocarbons - Methylene chloroide (CAS # 75-09-2) - Tetrachloroethylene (CAS # 127-18-4) - 1,1,1-Trichloroethane (CAS # 71-55-6) - Tricholorethylene (CAS # 79-01-6)	☒ No ☐ Yes. Write **"F001"** in the Code box. List substance(s) below.
4. Is this waste a solvent (not used as a degreaser) **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** one of the substances listed below has the highest concentration. - Chlorobenzene (CAS # 108-90-7) - o-Dichlorobenzene (CAS # 95-50-1) - Methylene chloroide (CAS # 75-09-2) - 1,1,1-Trichloroethane (CAS # 71-55-6) - 1,1,2-Trichloro-1,2,2-trifluoroethane (CAS # 76-13-1) - 1,1,2-Trichloroethane (CAS # 79-00-5) - Tetrachloroethylene (PCE or Perc) (CAS # 127-18-4) - Trichlorofluoromethane (CAS # 75-69-4) - Tricholorethylene (TCE) (CAS # 79-01-6)	☒ No ☐ Yes. Write **"F002"** in the Code box. List substance(s) below.

List the "Name" from Page 1 (in case the pages become separated). Lacquer Thinner

5. Is this waste a solvent **and** does it contain a) 100% of any of substances listed below; **or** b) one of these substances **and** 10% or greater of any of the substances listed in Ouestion 4. 5. 7. or 8. - Acetone (CAS # 67-64-1) - n-Butyl alcohol (CAS # 71-36-3) - Cyclohexane (CAS # 108-94-1) - Ethyl acetate (CAS # 141-78-6) - Ethyl benzene (CAS # 100-41-4) - Ethyl ether (CAS # 60-29-7) - Methanol (CAS # 67-56-1) - Methyl isobutyl ketone (CAS # 108-10-1) - Xylene (CAS # 1330-20-7)	☒ No ☐ Yes. Write **"F003"** in the Code box. List substance(s) below. Methanol methyl Isobutyl ketone
6. Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Cresols/cresyllic acid (CAS # 1319-77-3) - Nitobenzene (CAS # 98-95-3)	☒ No ☐ Yes. Write **"F004"** in the Code box. List substance(s) below.
7. Is this waste a solvent **and** does it contain a) 10% or greater of any of the substances below; **or** b) a total of 10% or greater of any of the substances listed in questions 4-8 **and** that one of the substances listed below has the highest concentration. - Benzene (CAS # 71-43-2) - Carbon disulfide (CAS # 75-15-0) - 2-Ethoxyethanol (CAS # 110-80-5) - Isobutanol (CAS # 78-83-1) - Methyl ethyl ketone (CAS # 78-93-3) - 2-Nitropropane (CAS # 79-46-9) - Pyridine (CAS # 110-86-1) - Toluene (CAS # 108-88-3)	☒ No ☐ Yes. Write **"F005"** in the Code box. List substance(s) below. Toluene Methyl Ethyl Ketone
8. Does this waste contain 3% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "P"? (See EMS Appendix D) *Note: Do not include substances that have already been listed (in questions 3-7).*	☒ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
9 Does this waste contain 10% or more of any of substance on the Listed Hazardous Waste sheet that has a code number that starts with a "U? *Note: Do not include substances that have already been listed (in questions 3-8).*	☒ No ☐ Yes. Write the **code** in the Code box. List code, substance and percent below
10. Does this waste contain more that the regulatory level of any substance on the Listed Hazardous Waste sheet that has a code number that starts with a "D"? *Note: Do not include substances that have already been listed (in questions 3-9).*	☒ No. ☐ Yes. Write **code** in the Code box. List substances(s) below
11. Is this waste ignitable? a) a liquid with a flash point less than 140°F (60°C); **or** b) a solid or a gas that is capable of igniting at normal temperatures (can cause fire through friction, absorption of moisture, or spontaneous chemical change); **or** c) an oxidizer or ignitable compressed gas	☒ No ☐ Yes. Write **"D001"** in the Code box. List letter below. -5C
12. Is this waste corrosive? a) a water-based liquid that has a pH equal to or less than 2; **or** b) a water-based liquid that has a pH equal to or greater than 12.5; **or** c) a liquid that corrodes steel	☐ No ☒ Yes. Write **"D002"** in the Code box. List letter below.
13. Is this waste reactive? a) normally unstable; **or** b) reacts violently with water; **or** c) capable of explosion or detonation	☒ No ☐ Yes. Write **"D003"** in the Code box. List letter below.

The answers on this Waste Profile are True and Complete to the best of my ability.

Name Jon Smith	**Signature**	
Yard ODOT Maintenance Yard	**Position** TMC	**Date** 2/19/2020

SECTION 1 - IDENTIFICATION

Product: · SALT NEUTRALIZER™

Recommended use of the chemical and restrictions on use:

Uses: Ice Melt Rinse Aid, Undercarriage Wash, and Descaling Cleaner.
List of advices against: Not available.

Details of the supplier of the Safety Data Sheet:

Momar, Inc.
1830 Ellsworth Industrial Dr.
Atlanta, Ga. 30318
404-355-4580
800-556-3967
www.momar.com

Emergency Telephone Number (INFOTRAC): North America: 1-800-535-5053
International: 1-352-323-3500

SECTION 2 – HAZARD IDENTIFICATION

Classification: Eye Damage/Irritation: 2A
Skin Corrosion/Irritation: 2
Specific Target Organ Toxicity(Single Exposure): 3

Signal Word: Warning.

Hazard Statements: Causes serious eye irritation.
Causes skin irritation.
May cause respiratory irritation.

Pictograms:

Precautionary Statements:

Prevention: Wash hands and all exposed skin thoroughly after handling.
Wear eye protection/face protection. Wear protective gloves.
Avoid breathing fume/gas/mist/vapors/spray.

Response: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If on skin: Wash with water / soap.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center/doctor/hospital if you feel unwell.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal: Dispose of contents/container to approved waste disposal plant in accordance with federal, state, and local regulations.

Other Hazards: None known.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Percent Weight
Glycolic Acid	79-14-1	4-15
Sulfamic Acid	5329-24-6	4-15

SECTION 4 – FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water, remove contact lenses, and continue to flush for at least 15-20 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Get medical attention immediately.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing. Wash clothing and shoes before reuse. Get medical attention if irritation persists.

Inhalation: Remove from exposure. If not breathing, give artificial respiration. If breathing is difficult, get medical attention.

Ingestion: Get medical attention immediately. Do not induce vomiting. If victim is conscious and alert, give large amounts of water. Discontinue water if victim feels like they may vomit. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects:

Acute: Severe eye irritation.

Delayed: Prolonged or excessive contact with skin could cause damage or dermatitis.

Indication of Any Immediate Medical Attention and Special Treatment Needed: None known.

SECTION 5 – FIREFIGHTING MEASURES

Extinguishing Media: Use media appropriate to the surrounding fire.

Specific Hazards Arising From the Substance or Product: None

Hazardous Combustion Products: Oxides of carbon, oxides of sulfur dioxide, and ammonia.

Protective Equipment and Precautions for Firefighters: Wear a self-contained breathing apparatus in pressure- demand mode, and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Avoid contact with skin and eyes. Wear protective clothing, see Section 8.

Environmental Precautions: Keep out of sewers, drains, and bodies of water. Spills should be diked and absorbed.

Methods and Materials for Containment and Cleaning Up: Absorb in vermiculite, dry sand, or earth, and place in containers. Collect and reclaim or dispose of in sealed containers in a licensed waste facility. Liquid material may be removed with vacuum collection. Containers with spillage must be properly labeled with correct contents and hazard symbol.

SECTION 7 – HANDLING AND STORAGE

Precautions for Safe Handling: Avoid spilling, skin, and eye contact. Wash thoroughly after handling. Use only with adequate ventilation. For industrial or professional use only. Do not cut or weld empty container. KEEP OUT OF REACH OF CHILDREN.

Conditions for Safe Storage: Store in a cool dry place. Keep from freezing.

Incompatibilities: Metals, strong oxidizers, cyanides, sulfides.

SECTION 8 – EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits and Recommendations:

Chemical Name	OSHA PEL	ACGIH TLV	Other Exposure Limits
None			

Engineering Controls: Normal ventilation.

Personal Protection Measures:

Respiratory Protection: Normally not needed. If needed, use NIOSH approved mask and filter for organic vapor.

Skin and Body: Chemical resistant gloves recommended. Chemical resistant apron, as needed.

Eye Protection: Safety glasses/goggles recommended.

Other Recommendations: None.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor:	Clear, green liquid with acrid odor.
Odor Threshold:	Not determined.
pH:	1-2.
Freezing Point:	-4°C or 25°F
Boiling Point:	212°F
Flash Point:	No flash at boiling.
Evaporation Rate (BUAC=1):	Slower.
Flammability:	Not flammable.
Flammability or Explosion Limits:	**Upper:** Not applicable. **Lower:** Not applicable.
Vapor Pressure:	Not determined.
Specific Gravity:	1.070
Solubility in Water:	Complete.
Solubility in Other Solvents:	Not determined.
Partition Coefficient (n-octanol/water):	Not determined.
Auto-ignition Temperature:	Not determined.

Decomposition Temperature: Not determined.
Viscosity: Not determined.
Other Information: Not determined.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.
Chemical Stability: Stable under normal temperature conditions and recommended use.
Possible Hazardous Reactions: Not available.
Conditions to Avoid: Contact with incompatible materials.
Incompatible Materials: Metals, strong oxidizers, cyanides, sulfides.
Hazardous Decomposition Products: Oxides of carbon, oxides of sulfur dioxide, and ammonia.

SECTION 11 – TOXICOLOGICAL INFORMATION

Routes of Exposure:

Inhalation	Ingestion	Skin	Eye
		X	X

Physical, Chemical and Toxicological Effects:
Symptoms: Irritation to skin and eyes.
Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure:
Sensitization: Not a skin sensitizer.
Germ Cell Mutagenicity: Not classified.
Carcinogenicity: No components of this product are listed by NTP, IARC, or OSHA.
Reproductive Toxicity: Not classified.
Specific Target Organ Toxicity: Eyes
Numerical Measures of Toxicity:
Product: Not determined.

Component:

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Glycolic Acid	Not determined	Not determined	3.6 ppm – 4hr (rat)
Sulfamic Acid	3160 mg/kg (rat)	Not determined	Not determined

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Glycolic Acid:
Fish: Zebra Fish LC50 = 5000 mg/L, 96 hr.
Sulfamic Acid:
Fish: Fathead Minnow LC50 = 70.3 mg/L, 96 hr.
Daphnia: Water Flea EC50 = 1815 mg/L, 24 hr.

Persistence and Degradability: Not expected to persist in the environment.
Bioaccumulation: Not expect to be a bioaccumulator.
Mobility: Not expected to have mobility.
Other Adverse Effects: This product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Treatment Methods:
Disposal of Wastes: Dispose of product in accordance with local, state, and federal regulations.
Contaminated Packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.
Other Information: None.

SECTION 14 – TRANSPORTATION INFORMATION

DOT:
UN Number: 3265
Proper Shipping Name: Corrosive Liquid, Organic Acid, n.o.s. (Glycolic Acid)
Hazard Class: 8, Corrosive
Packing Group: III

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations:
TSCA: All ingredients of this product are listed in the TSCA inventory.
SARA 313: This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and Title 40 CFR 372.

Chemical Name	CAS Number	Percent Weight
None		

US State Regulations:
California: **This product contains the following chemical or chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm:** None.

SECTION 16 – OTHER INFORMATION

Issue Date: February 9, 1993
Revision Date: July 17, 2019

Health	Flammability	Reactivity	Personal Protection
2	0	0	B

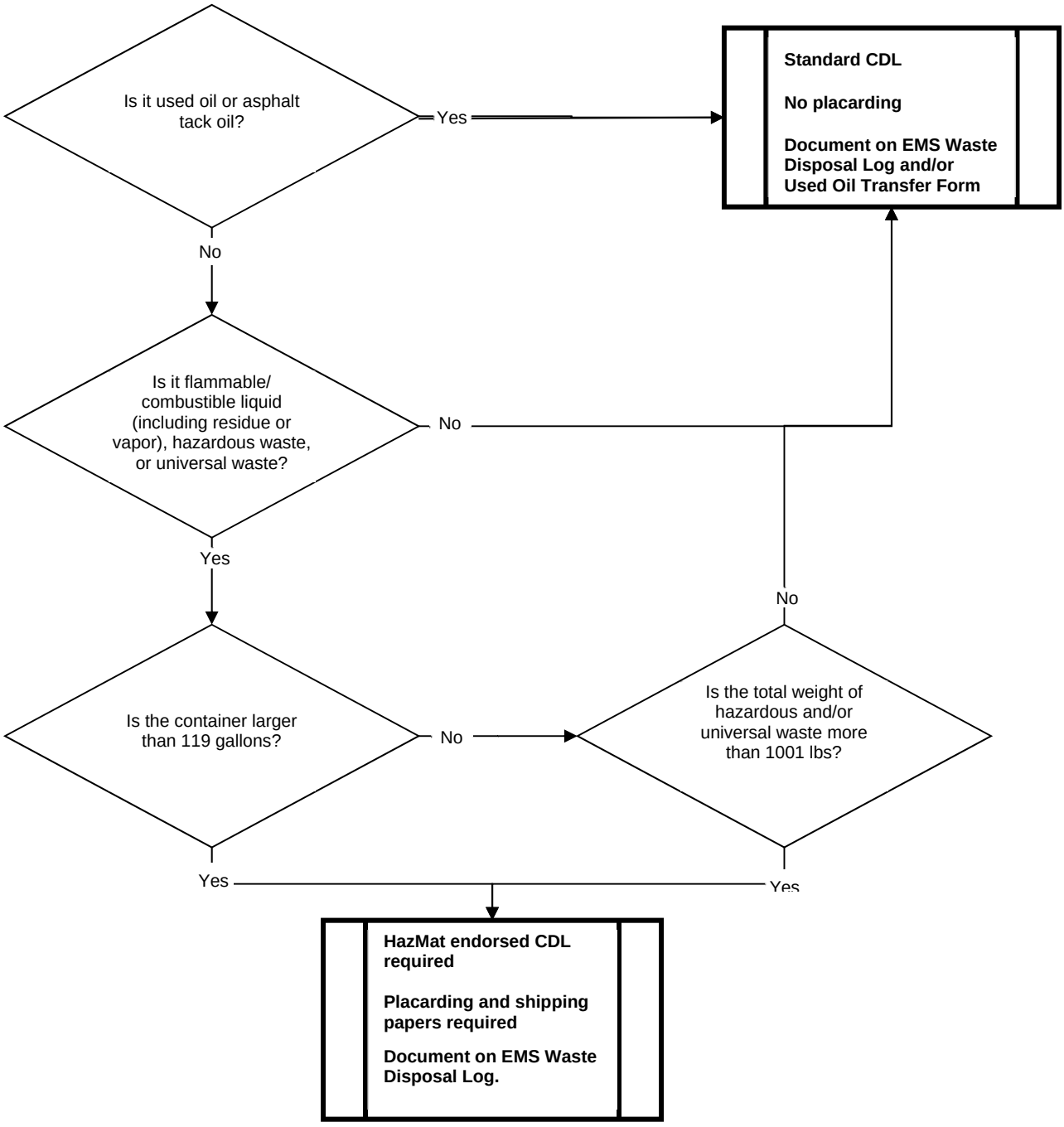
All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate at the time of publication, Momar, Incorporated makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Momar, Incorporated's control; and therefore, users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes; and they assume all risks of their use, handling, and disposal of the product or from the publications or use of, or reliance upon, information contained herein. This information relates only to the product designed herein and does not relate to its use in combination with any other material or in any other process.

SDS for Example Waste Profile

HAULING HAZARDOUS MATERIALS

State and Local governments are not subject to Hazardous Materials regulation per 171.1(d)(5). Therefore, there is no requirements for HazMat endorsements for ODOT employees operating for the State of Oregon. However, ODOT employees typically follow the regulations even though exempted.

Folks who are subject to the regulations (e.g. contractors) or ODOT drivers required to follow the regulation may use this flow chart to determine if a HazMat endorsement or placarding is required for transporting. Examples of transporting include but are not limited to transferring used oil to a yard with an used oil burner; moving waste to another yard for future pick up by a hazardous waste hauler; transporting a fuel trailer to a work site, or transporting hazardous waste or used oil to a non-ODOT facility such as a local landfill, another agency or municipal, or a commercial facility.



Section Divider

Section Divider

Appendix E - Waste Cheat Sheet

Quick Reference for Documenting Waste Management

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
1 Good Housekeeping	Guardrail, culvert, and metal sign posts that are not reused	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Scrap metal hauler or landfill
	Lumber, fencing, and untreated sign posts (See section 5.20 for the disposal of treated timbers)	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Wood recycler or landfill
	Concrete barrier that is not reused	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Construction debris or landfill
	Empty container	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Recycler, landfill or transfer station
	Absorbent or disposable rags used to cleanup oil or fuel spills (no free liquids)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Absorbent or disposable rags used to non-hazardous spills (coolant or coffee)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Absorbent or disposable rags used to hazardous spills (solvent)	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Absorbent or disposable rags used to cleanup pesticide spills (no free liquids)	No	**YES**	Universal	Knowledge	Estimate weight	No	**YES**	Incineration or HazWaste landfill	Universal waste or HazWaste hauler
	Unwanted or unusable fertilizer (that does not contain pesticide) or lime *Note: see pesticide for fertilizers with pesticide*	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Spilled fertilizer or lime that is used as a product (soil amendment)	No	No	Not a waste	NA	NA	NA	No	Reuse	ODOT
	Aluminum signs that are no longer needed	No	No	Solid	Knowledge	NA	NA	No	Recycle	ODOT Surplus

[1] Consult the EMS Policy and Procedures Manual for information on waste characterization methods. If characterization determines the waste is hazardous use the waste disposal guidance listed in the top half of the spilt row. Use the bottom half of the spilt row if the waste is determined non-hazardous. Do not assume wastes are non-hazardous. Where necessary, contact Region HazMat for assistance with waste sampling.

[2] Disposal options are listed even when the waste does not have to be tracked on the Waste Disposal Log. Refer to the EMS Manual for detailed information on waste disposal options. A list of permitted landfills and transfer stations is located in Appendix J – Permitted Landfills. For the disposal of trash look for a municipal landfill or transfer station (will say municipal in the class column of the table).

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
4 Drainage	Absorbent from carbon-based water treatment systems (i.e. drums or SD25)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Skimmers and booms used to remove oil in oil/water separator vaults	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Sludge and sump deposits from vaults, trenches, and evaporators	See Section 5.18 - Roadwaste								
5.1 Aerosol Cans	Punctured aerosol can	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Scrap metal hauler or landfill
	Can popper residue- (if aerosol cans are popped immediately and not counted as hazardous waste)	No	**YES**	Hazardous	Knowledge	Weight of residue in pounds (1 oz per can)	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Un-popped aerosol cans kept in a bucket or box and popped onsite later (e.g. cans are not popped by the end of shift)	No	**YES**	Hazardous	Knowledge	Weight of cans in pounds (can plus contents ¼ pound per empty can)	**YES**	No	*Disposal tracked with can popper (next line)*	
	Can popper residue- (if aerosol cans are counted as hazardous waste)	No	No	*Generation is tracked by counting cans (line above)*			NA	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Un-popped aerosol cans that are taken to another yard and popped in a can popper	No	**YES**	Hazardous	Knowledge	Weight in pounds (can plus contents ¼ pound per empty can)	**YES**	**YES**	Can puncture system	Yard that receives the aerosol cans
	Un-popped aerosol cans that will not be popped (e.g. caustic, ether, or odd size) This OPTION ALLOWED ONLY IF a VSQG	No	**YES**	Hazardous	Knowledge	Weight in pounds (¼ pound per empty can add weight if not empty)	**YES**	**YES**	Trash	Landfill or transfer station
	Can popper filter This OPTION ALLOWED ONLY IF a VSQG	No	**YES**	Hazardous	Knowledge	Weight of filter in pounds (about 2–3 pounds)	**YES**	**YES**	Trash	Landfill or transfer station
	Un-popped aerosol cans that will not be popped or can popper filter if yard is NOT a VSQG (e.g. caustic, ether, or odd size)	No	**YES**	Hazardous	Knowledge	Weight in pounds (¼ pound per empty can or 2–3 pounds per filter)	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
5.2 Asphalt	Emulsion that is picked up by a used oil recycle. Includes emulsion mixed with release agent.	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Recycle	Used oil recycler
	Emulsion that is not recycled	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous"	Track on the Log	Method of Disposal	Disposal Company
			No	Solid	Analysis	NA	No	NO	Trash	Landfill or transfer station
	Asphalt coated absorbent (not dripping)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Empty drums of emulsion or release agents	No	No	Solid	Knowledge	NA	NA	No	Recycle, return to vendor, or trash	Scrap metal hauler, vendor, or landfill
	Excess asphalt and asphalt grindings	See Section 5.18 - Roadwaste								
	Unwanted new emulsion (whole, sealed container)	No	No	Not a waste	NA	NA	NA	No	Follow surplus property guidelines	
5.3 Automotive Fluids and Parts	Coolant that is recycled	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Recycle	Vendor or HazWaste hauler
	Used coolant that is not recycled or coolant mixed with other waste	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Local Landfill or transfer station	
	Unopened, unwanted products that are sold or returned (whole, sealed containers)	No	No	Not a waste	NA	NA	NA	No	Follow surplus property guidelines	
	Brake fluid that is managed as used oil	No	**YES**	Excluded	Knowledge	Estimate gallons (included with used oil unless stored separately)	No	**YES**	Recycle	Used oil recycling company
	Brake fluid mixed with chlorinated cleaner (store separately)	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Brake dust and friable asbestos-containing waste (brake pads or clutch dust)	No	No	Asbestos	Knowledge	NA	NA	No - keep receipt	Special landfill	Asbestos permitted landfill
	Metal grindings and filings	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Scrap metal hauler or landfill
	Used parts (except filters) Drain where appropriate	No	No	Solid	Knowledge	NA	NA	No	Core exchange, recycle, or trash	Vendor, scrap metal hauler, or landfill
	Absorbent or disposable rags saturated with coolant (not dripping)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
	Oily absorbent or disposable rags (not dripping)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Absorbents and rags used to pick up non-oily products and wastes	**YES**	**YES**	Hazardous	Assume, analysis or Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis or Waste Profile	NA	NA	No	Landfill or transfer station	
	Empty drums and containers	No	No	Solid	Knowledge	NA	NA	No	Recycle, return to vendor, or trash	Scrap metal hauler, vendor, or landfill
	Air filters	No	No	Solid	Knowledge	NA	NA	No	Trash or recycle	Landfill or recycler
	Coolant filter - drained	No	No	Solid	Knowledge	NA	NA	No	Trash or recycle	Landfill or recycler
	Diesel fuel filter - drained	No	No	Solid	Knowledge	NA	NA	No	Trash or recycle	Landfill or recycler
	Gasoline fuel filter – drained	No	**YES**	Hazardous	Lab analysis	Estimate weight in pound (2 ounce per filter or 1 pound per month)	**YES**	**YES**	Trash or recycle – write once a year	Landfill or recycler
	Oil filter - drained	No	No	Solid	Knowledge	NA	No	No	Recycle or trash	Scrap metal hauler, recycler, or landfill
Batteries 5.4	Single use batteries (alkaline or carbon)	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Battery recycler or landfill
	Rechargeable batteries (small lead acid, NiMH, or NiCd) sent to recycler	No	**YES**	Universal	Knowledge	Estimate number of batteries	No	**YES**	Recycle	Universal waste hauler
	Large lead acid (equipment) batteries returned for recycling or reclamation *Most batteries are exchanged at the retailer so ODOT has decided not to track this universal waste*	No	No	Universal	Knowledge	NA	NA	No	Recycle	Battery retailer, wholesaler, or recycler
	Large lead acid batteries and other rechargeable batteries that aren't recycled	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
5.5 Cleaning Products	Unwanted cleaners that do not contain pesticides or anti-microbial	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Unwanted anti-microbial cleaners and disinfectants	See Section 5.16- Pesticide								
	Empty containers	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
5.6 Compressed Gas	Refillable cylinders (full, partially full, or empty) that are not returned to vendor.	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Completely empty non-refillable cylinders This OPTION ALLOWED ONLY IF a VSQG	No	YES	Hazardous	Knowledge	Weight in pounds (1-2 pounds per cylinder)	Yes	Yes	Trash	Landfill or transfer station
	Refillable cylinders (full, partially full, or empty) that are returned to the vendor	No	No	Not a waste	Knowledge	NA	NA	No	Return to vendor	Vendor
5.7 Electronics	Electronics transferred to ODOT Surplus Property or taken to an Oregon E-Cycles collection site.	No	No	e-waste	NA	NA	NA	No	Recycled	Surplus Property or Oregon E-Cycles collection site
	Electronics that are not recycled or sent to Surplus Property	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
5.8 Epoxy	Outdated or unwanted epoxy, adhesive, or caulk (liquid or semi-solid) **Two-part epoxies CANNOT be mixed with the intention of disposal unless both parts are non-hazardous**	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Unwanted packages of solid epoxy or dry materials (e.g. concrete or mortar)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Empty containers of caulk, adhesive, or epoxy	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Epoxy slurries that won't harden	**YES**	**YES**	Hazardous	Assume, analysis or Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis or Waste Profile	NA	NA	No	Trash	Landfill or transfer station

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
	Unwanted epoxy (full containers) that are returned or transferred	No	No	Not a waste	NA	NA	NA	No	Sale, transfer, or return to vendor	e-Bay, ODOT shop, or vendor
	Hardened epoxy (e.g. mixed too much) including waste from cleaning equipment that **hardens as part of the process**	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
5.9 Equipment and Fleet	Unwanted equipment	No	No	Not a waste	Knowledge	NA	NA	No	Resale or transfer	ODOT Fleet or Surplus
	Tires from ODOT fleet that are returned to retail tire center	No	No	Solid	Knowledge	NA	NA	No	Recycle	Vendor or tire retailer
	Whole tires (cut in half) that are not returned to a retail tire center	No	No	Solid	Knowledge	NA	NA	No	Recycle or Trash	Rubber recycler or landfill
	Solids from wash rack sumps and debris for washing and rinsing equipment	See Section 5.18 - Roadwaste								
5.10 Fertilizer	See Section 1 – Good Housekeeping									
5.11 Fuel	Unusable diesel, gasoline, or heating oil that is picked up by a used oil recycler.	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Recycle	Used oil recycler
	Unusable diesel, gasoline, or heating oil that burned for fuel.	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Burned for fuel	Name of licensed burner or ODOT shop
	Unusable diesel, gasoline, or heating oil that is <u>not</u> recycled or burned for fuel	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
	Unusable or outdated diesel additive (DEF)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Absorbent or rags that have been used to cleanup fuel spills (saturated but not dripping)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
5.12 Lighting	Incandescent bulbs, LEDs, and solid state lamps	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous"	Track on the Log	Method of Disposal	Disposal Company
	High-mercury or low mercury lamps (e.g. fluorescent tubes, compact fluorescents, and HID lamps) that are recycled.	No	**YES**	Universal	Knowledge	Estimate number of lamps	No	**YES**	Recycle	Vendor or universal waste hauler
	High mercury lamps (e.g. standard fluorescents, sodium vapor, or that are not recycled (e.g. thrown in the trash).	No	**YES**	Hazardous	Knowledge	Weight in pounds (2 oz per foot, ½ lb per compact, or 1 lb per HID)	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste waste hauler
	Low mercury lamps (e.g. green capped fluorescent tubes, Alto, Ecologic or Ecolux) that are not recycled (e.g. thrown in the trash).	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Unwanted new fluorescent tubes and HID bulbs that are returned or traded	No	No	Not a waste	Knowledge	NA	NA	No	Sale, transfer, or return to vendor	e-Bay, ODOT shop, or vendor
	Light ballast with a "non-PCB" sticker	No	No	Solid	knowledge	NA	NA	No	Trash	Landfill or transfer station
	PCB light ballast, ballast older than 1978, or a ballast without a "non-PCB" sticker	No	No	TSCA waste	Knowledge	NA	NA	No	Incineration or HazWaste landfill	HazWaste hauler that accepts PCB waste
	Used or unusable light fixtures **without bulb and ballast**	No	No	Solid	knowledge	NA	NA	No	Recycle or trash	Scrap metal hauler or landfill
	Metal light poles and uncoated wire	No	No	Solid	Knowledge	NA	NA	No	Recycle	Scrap metal hauler
	Unwanted flares (won't light)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Old or unusable flares (too scary to light)	No	No	Solid	Knowledge	NA	NA	No	Coordinate with OSP for use in training	
	Used glow sticks	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
5.13 Oil	Used oil (motor oil, hydraulic oil, etc.) picked up by a recycler	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Recycle	Used oil recycler
	Used oil picked up by company or agency for heater fuel	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Burned as heating fuel	Used burner or transporter

EMS Waste Cheat Sheet

EMS Tab	Description of Waste	Is Additional Waste Characterization Needed?[1]	Waste Generation Log (Columns match EMS Log)					Waste Disposal Log (Columns match EMS Log[2])		
			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
Paint 5.14	Used oil mixed with non-petroleum waste (e.g. solvent, chlorinated brake cleaner, anti-freeze)	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			YES	Excluded	Analysis	Estimate gallons	No		Recycle	Used oil recycler
	Used oil transferred to other ODOT shop for space heater fuel	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Burned as heating fuel	Name of receiving yard and write "ORQ000021683" in the manifest column
	Used oil burned onsite in space heater	No	**YES**	Excluded	Knowledge	Estimate gallons	No	**YES**	Burned as heating fuel (annual note)	ODOT
	Oily absorbent or disposable rags (not dripping)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Empty drums or containers	No	No	Solid	Knowledge	NA	NA	No	Recycle, return to vendor, or trash	Scrap metal hauler, vendor, or landfill
	Unusable or unwanted latex paint (dried or mixed with absorbent)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Architectural paint (paint for buildings - that will be recycled	No	No	Solid	Knowledge	NA	NA	No	Recycled	PaintCare® outlet (many paint and hardware stores)
	Liquid or semi-solid non-architectural paint (i.e. bridge paint or automotive paint)	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Usable (but unwanted) paint that is returned, transferred, or sold	No	No	Not a waste	NA	NA	NA	No	Follow surplus property guidelines	
	Paint mixed with solvent or thinner	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Used strainers, forms, or other disposable tools that are coated with hardened paint	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Recycler or landfill
	Hardened paint	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Empty paint containers	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station

EMS Waste Cheat Sheet

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	Paint booth filters	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
	Unused blasting grit	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Media blasting waste, used blasting grit, waste from blasting cabinets	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
5.15 Pavement Marking	Line flush of water-based paint mixed with water	No	No	Solid	Knowledge	NA	NA	No	Sanitary sewer (sewage agency may require testing)	
	Water-based traffic line paint that has been dried out or mixed with absorbent	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Liquid or semi-solid traffic line product that contains MMA (e.g. Durastrip or Duraset)	No	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	HazWaste landfill	HazWaste hauler
	Unusable or unwanted, non-water-based paint (liquid or semi-solid)	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Dried paint that has been chipped from legends and other equipment. Does not include striping grindings removed from the road.	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Stripe grindings	See Section 5.18- Roadwaste								
	Used legends and other disposable tools	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Unwanted or unusable glass beads, markers, or other durable products	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station

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5.16 Pesticides	Pesticide and pesticide rinsate used as makeup water and applied.	No	No	Not a waste	NA	NA	NA	No	NA	NA
	Unwanted pesticides, adjuvants, and stickers that are returned to the vendor or transferred to another crew	No	No	Not a waste	NA	NA	NA	No	NA	NA
	Out-dated or unusable pesticides that is taken to a pesticide collection center	No	**YES**	Universal	Knowledge	Estimate amount	No	**YES**	HazWaste landfill	Waste pesticide collection center or HazWaste hauler
	Pesticide saturated absorbent or PPE that will not be taken to a pesticide collection center	No	**YES**	Hazardous	Knowledge	Estimate weight	No	**YES**	HazWaste landfill (or trash **if VSQG)**	HazWaste landfill (or trash **if VSQG)**
	Mechanical pest controls (e.g. sticky traps)	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Unusable or unwanted adjuvants and stickers.	**YES**	**YES**	Hazardous	Waste Profile	Weight in pounds	**YES**	**YES**	HazWaste landfill	HazWaste hauler
			No	Solid	Waste Profile	NA	NA	No	Trash	Landfill or transfer station
	Empty pesticide containers that have been cleaned according the label.	No	No	Solid	Knowledge	NA	NA	No	Recycle, return to vendor, or trash	Recycler, vendor, or landfill
5.17 Propane	Refillable cylinders (full, partially full, or empty) that are returned to the vendor	No	No	Not a waste	NA	NA	NA	No	NA	NA
	Refillable cylinders (full, partially full, or empty) that are <u>not</u> returned to vendor	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Non-refillable (1-pound) empty propane cylinders	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Trash	Landfill or transfer station
5.18 Roadwaste	Abandoned unknown, potentially hazardous waste and drug lab waste	**Have picked up by HazWaste Company**	No	NA	NA	NA	NA	No	ODOT arranges for pickup and disposal of abandoned potentially hazardous waste	
	Asphalt grindings used as asphalt, aggregate, or fill (including asphalt with striping when the stripe has been removed with the asphalt)	No	No	Not a waste	NA	NA	NA	No	Application	ODOT, contractor, or private landowner (limited)

EMS Waste Cheat Sheet

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			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
	Asphalt grindings that are not used as asphalt, aggregate, or fill	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill
	Blood contaminated waste (placed in a puncture resistant container)	No	No	Bio-waste	Knowledge	NA	NA	No	Business or agency that accepts bio-waste (i.e. paramedic, fire, hospital, or clinic) Also accepted at some landfills	
	Computers, monitors, and televisions that are send to an e-waste recycler	No	No	Exempt	Knowledge	NA	NA	No	Recycle	e-waste recycler
	Computers, monitors, and televisions that aren't recycled	No	No	Hazardous	Knowledge	NA	NA	No	Incineration or HazWaste landfill	HazWaste hauler
	Electronics that are damaged to the point the waste is no longer recoverable	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Green waste (e.g. branches, brush or grass)	No	No	Solid	Knowledge	NA	NA	No	Recycle, burn, compost, or trash	ODOT, wood recycler, composter, or landfill
	Green waste from diseased brush and cuttings	No	No	Solid	Knowledge	NA	NA	No	Coordinate with Dept. of Agriculture, USFS, or ODF	
	Hot loads[1] (e.g. petroleum odors or from industrial area) for disposal	**YES**	**Yes**	Hazardous	Analysis	Weight in pounds	No	Yes	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Landfill	Landfill permitted to accept petroleum contaminated soil.
	Large lead acid (equipment) batteries that are returned for recycling	No	No	Universal	Knowledge	NA	NA	No	Recycle	Battery retailer or recycler
	Large lead acid (equipment) batteries that are thrown in the trash	No	No	Hazardous	Knowledge	NA	NA	No	Recycle	Battery retailer or recycler

[1] Hot Loads refers to any slide debris, ditching, street sweeping, or catch basin cleaning that is known or suspected to contain high levels of contamination (e.g. known spill location, adjacent gas station, odd odors, or visible oil). Heavily contaminated material is not suitable for fill.

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			Track on the Log	Type of Waste	Method of Characterization	Monthly Generation	Add to Monthly Total "Hazardous "	Track on the Log	Method of Disposal	Disposal Company
	Litter and trash	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Liquids collected from catch basins, sumps, and culverts (including wash rack sumps)	No	No	Sewage	Knowledge	NA	NA	No	Evaporated or discharged to sanitary sewer (testing may be require by sewage agency)	
	Personal property that has not been picked up by the owner within required hold time	Follow disposal guidance for the material but do not track on logs. The waste is not generated by ODOT.								
	Road kill that is dragged and dropped	No	No	Not a waste	NA	NA	NA	No	Refer to the Maintenance Guide for workplace guidelines	
	Road kill that is composted or incinerated	No	No	Solid	Knowledge	NA	NA	No	Land-use approval and DEQ permit may be required. May partner with municipalities or other agencies	
	Rubber (i.e. tire pieces)	No	No	Solid	Knowledge	NA	NA	No	Recycle or Trash	Rubber recycler, tire retailer, or landfill
	Sweepings, recovered abrasives, or sediment collected from catch basins, sumps, and culverts that will be used as fill (after screening for visible litter)	No	No	Not a waste	NA	NA	NA	No	Characterize prior to use as fill to ensure acceptable pollutant levels. Contact HazMat for assistance.	
	Sediment collected from catch basins, sumps, and culverts (including wash rack sumps) that will not be used as fill.	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill permitted to accept petroleum contaminated soil.
	Shoulder soils used as fill	No	No	Not a waste	NA	NA	NA	No	Contact REC for approval of disposal site and possible DSL permits Give-away Program (limited)	
	Shoulder soil from areas in proximity to potential contaminate sources that will be used as fill on ODOT right-of-way	No	No	Not a waste	NA	NA	NA	No	Contact REC for approval of disposal site and possible DSL permits	
	Slide debris that will be used as clean fill	No	No	Not a waste	NA	NA	NA	No	Contact REC for approval of disposal site and possible DSL permits Give-away Program (limited)	
	Striping grindings (when the stripe has been removed separately from paving)	**YES**	**Yes**	Hazardous	Assume or Analysis	Weight in pounds	No	No	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Local Landfill or transfer station	
	Syringe, needles, and blood contaminated waste (placed in a puncture resistant container)	No	No	Bio-waste	Knowledge	NA	NA	No	Business or agency that accepts bio-waste (i.e. paramedic, fire, hospital, or clinic) Also accepted at some landfills	

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	Whole tires that have been cut in half	No	No	Solid	Knowledge	NA	NA	No	Recycle or Trash	Rubber recycler, tire retailer, or landfill
	Urine containers	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Winter sand/gravel picked up and reused for road sanding (screened for visible litter)	No	No	Not a waste	NA	NA	NA	No	**Trash must be removed and may require additional screening to meet sanding rock size specifications (limited)**	
	Woody debris (e.g. branches, brush or grass)	No	No	Solid	Knowledge	NA	NA	No	Recycle, burn, compost or trash	Wood recycler, composter, or landfill
	Woody debris used on fish restoration projects	No	No	Not a waste	NA	NA	NA	NA	Coordinate with ODFW	
	White goods (e.g. appliances)	No	No	Solid	Knowledge	NA	NA	No	Recycle	Scrap metal hauler or transfer stations
Solvent 5.19	Used bio-solvent, citrus solvent, or other 'green' solvent including solvents from bio parts washers	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
	Used solvent poured into a collection drum	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
	Sludge (still bottoms) from solvent distillation units	No	**YES**	Hazardous	Knowledge	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
	Unwanted solvent that can be returned, transferred or sold as surplus property (unopened containers with SDS)	No	No	Not a waste	NA	NA	NA	No	Sale, transfer, or return to vendor	e-Bay, ODOT shop, or vendor
	Used solvent and sludge from solvent parts washers	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station
	Water and sludge from water-based parts washers	**YES**	**YES**	Hazardous	Assume or Analysis	Weight in pounds	**YES**	**YES**	Incineration or HazWaste landfill	HazWaste hauler
			No	Solid	Analysis	NA	NA	No	Trash	Landfill or transfer station

EMS Waste Cheat Sheet

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5.20 Treated Timber	Timbers that are reused or transferred to Surplus for sale	No	No	Not a waste	Knowledge	NA	NA	No	Reuse or resale	Right-of-way or Surplus Property
	Unusable timbers or pieces	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill *Not accepted at some landfills*
5.21 Winter Maintenance	Off-spec deicers that can be returned to the vendor	No	No	Not a waste	NA	NA	NA	No	Return to vendor	Vendor
	Recovered liquid deicer used for approved operations (e.g. pre-treat abrasives)	No	No	Not a waste	NA	NA	NA	No	NA	NA
	Recovered deicer (liquid or solid) that cannot be used for approved operations. *Landfills cannot accept free liquids unless they are in small containers.*	No	No	Solid	Knowledge	NA	NA	No	Trash	Landfill or transfer station
	Tanks in poor condition (unusable)	No	No	Solid	Knowledge	NA	NA	No	Recycle or trash	Recycler, landfill, or transfer station
	Unwanted tanks that are in good condition (transferred to ODOT Surplus or another crew)	No	No	Not a waste	NA	NA	NA	No	Sale or transfer	ODOT Surplus or crew

Section Divider

Section Divider

Appendix F - ODOT Hazard Communication

Hazard Communication Program (ODOT Occupational Safety and Health Manual – 2018)

Oregon Department of Transportation	NUMBER PRO96007	SUPERSEDES February 2013
	EFFECTIVE DATE 11/01/2018	PAGE NUMBER 01 OF 15
	VALIDATION DATE 10/25/2018	
Occupational Safety and Health Program	REFERENCE 29 CFR 1910.1200 Rev. 5/26/2012 NFPA 704 UFC80	
SUBJECT **HAZARD COMMUNICATION GHS**	APPROVED SIGNATURE	

1. PURPOSE

1.1 To establish a Program that informs employees about hazardous chemicals they use or may be exposed to in the workplace. This is accomplished by training in understanding Safety Data Sheets (SDS - *formerly Material Safety Data Sheets - MSDS*), appropriate labeling of containers and piping systems, planning for the safe use of chemicals and materials, and appropriate administration of SDS binders.

1.2 This program applies to all ODOT locations and operations. The program requires that:

1.2.1 An inventory of all hazardous chemicals at a crew location or worksite is maintained per 2.1 of this document;

1.2.2 Safety Data Sheets are accessible for chemicals used or stored in the workplace unless the chemicals meet the definition of an article or consumer product under section 1.5.1 and 1.5.2 of this document;

1.2.3 All containers and piping are properly labeled for content and direction of flow – See section 2.5;

1.2.4 All affected employees receive training on this program, how to access and understand the Safety Data Sheets, and the hazards of the various classes of chemicals they may encounter at that location;

1.2.5 ODOT informs contractors how to access Safety Data sheets for ODOT owned chemicals they may encounter and requires contractors to make available Safety Data Sheets or MSDSs for chemicals they store or use on ODOT projects;

1.2.6 Employees are informed about chemical hazards of non-routine tasks.

1.2.7 Material Safety Data Sheets (MSDS) be replaced by the new format Safety Data Sheets as the sheets become available.

1.3 ODOT Laboratories shall comply with this program and must also comply with ODOT's Chemical Hygiene Plan. For additional information contact your ODOT Safety Manager.

1.4 OSHA's Hazard Communication Standard (and this HazCom) does not apply to food products, seed, waste materials, articles (see definition), and consumer products (see definition). These items are regulated by other state and federal agencies. For pesticides, see Attachment E Special Applications.

2. DEFINITIONS

2.1 Articles: A manufactured item other than a fluid or particulate, which under normal conditions does not pose a physical hazard or health risk to employees. (See OR-OSHA definition) Examples: A dry cell battery is normally considered an article. A flare (fusee), because of the strong irritating vapors liberated during use, would NOT be considered an article.

2.2 Chemical: Any substance or mixture of substances that form a solid, liquid, or gas.

2.3 Consumer Products: Meets the Consumer Product Safety Act definition and ODOT can show that it is used in the workplace for the purpose intended by the chemical manufacturer and the use results in a duration and frequency of exposure which is not greater than reasonably expected when used for the purpose intended.

Example 1: it is not necessary to have a data sheet for an aerosol can of WD40 used to occasionally clean or lubricate an engine part. However, if large quantities of WD40 were used, it should be addressed in the Hazard Communication Program.

Example 2: it is not be necessary to have a data sheet for an aerosol can of Krylon spray paint used to touch up equipment once about every month or so. However, if large quantities (cases over week's period) of Krylon spray paint are used, for highway marking, or locates, it should be addressed in the Hazard Communication Program. (Typical consumer products include: Liquid Paper correction fluid, Dustblasters, white board cleaner, Windex, stamp pad ink, etc.)

2.4 Consumer Products: Meets the Consumer Product Safety Act definition and ODOT can show that it is used in the workplace for the purpose intended by the chemical manufacturer and the use results in a duration and frequency of exposure which is not greater than reasonably expected when used for the purpose intended.

Example 1: it is not necessary to have a data sheet for an aerosol can of WD40 used to occasionally clean or lubricate an engine part. However, if large quantities of WD40 were used, it should be addressed in the Hazard Communication Program.

Example 2: it is not be necessary to have a data sheet for an aerosol can of Krylon spray paint used to touch up equipment once about every month or so. However, if large quantities (cases over week's period) of Krylon spray paint are used, for highway marking, or locates, it should be addressed in the Hazard Communication Program. (Typical consumer products include: Liquid Paper correction fluid, Dustblasters, white board cleaner, Windex, stamp pad ink, etc.)

2.5 Hazardous Chemical: Any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiate, combustible dust, pyrophoric gas, or hazard not otherwise classified.

2.6 Hazard Communication Standard: The Rule found in 29 CFR 1910.1200 designed to improve the safety and health of workers through more effective communications on chemical hazards.

2.7 Health Hazard: A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to §1910.1200 - Health Hazard Criteria.

2.8 Label: An appropriate group of written, printed, or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

2.9 Product Identifier: The name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label, and the SDS.

2.10 Physical Hazard: A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. See Appendix B to §1910.1200¿Physical Hazard Criteria.

2.11 Safety Data Sheet (SDS) (formerly Material Safety Data Sheet): An informational sheet provided by the chemical manufacturer or distributors for each of the hazardous products that they supply. In a standardized format of 16 sections with consistent headings in a specified sequence, it lists the hazardous ingredients, physical properties and health hazards, emergency and first aid procedures, the manufacturers name and phone number, and other useful information. Safety Data Sheets adopt a standardized format according to ANSI Z400.1/Z129.1-2010.

2.12 Secondary Container: A container (can, bottle, pan, tank, etc.) used to hold a hazardous chemical that does not have the original shipping container labeling affixed. *Examples: portable gas cans, parts cleaning tank, and squirt bottles.*

3. GUIDELINES

3.1 Hazardous Chemical Inventory:

3.1.1 A written inventory of chemicals at that location or worksite shall be prepared and kept current. The inventory should be audited annually**.**

NOTE: The Inventory need not list "Consumer Products" and "Articles as defined in 2.3".

3.1.2 The inventory shall list the chemical name as referenced on the SDS and product label. The inventory shall include the date the chemical was introduced into the workplace. If the chemical is no longer used at that location, record the end date on the inventory list. If the chemical composition changes, request a new SDS and document the date the new chemical composition began being used. Information about the quantity of chemical stored onsite is not required on the inventory.

3.1.3 A copy of the current inventory shall be kept with the SDS (binder).

3.2 Safety Data Sheets:

3.2.1 Copies of all SDS for hazardous chemicals used by workers (those listed on the Hazardous Chemicals Inventory) at the work site shall be kept at an area accessible to workers, such as: the maintenance yard break room, common areas, office areas, or mobile office on a construction site, as long as there are no barriers to employees to access the SDS. The SDS is normally kept in 3-ring binders for easy access.

NOTE: Copies of SDS for "Articles" and "Consumer Products" are not required to be available for review.

3.2.2 See Attachment E "Special Applications" for Pesticide storage and Paint Tote storage SDS management.

3.2.3 Current SDS shall be made readily available for review by: employees, past employees, employee representatives, OR-OSHA, and contractors.

3.2.4 If an SDS is missing, the supervisor or other designated representative should be notified and a copy of the SDS should be ordered from the chemical supplier or manufacturer. The date that the replacement SDS was ordered shall be noted on the Hazardous Chemicals Inventory. If after a reasonable time and multiple attempts the SDS/MSDS is not supplied contact your Safety Manager.

3.2.5 Copies of SDS/MSDS or an inventory list showing when and where the chemical is used shall be kept on file for 30 years past the last date the chemical is used, e.g. January 2012 – July 2016 Baldock. Remove the SDS of a product no longer in use and place these data sheets in a history file or binder.

3.3 Container Labels:

3.3.1 All containers of hazardous chemicals shall be properly labeled. Normally, original containers are adequately labeled and do not require additional labeling.

3.3.2 The Globally Harmonized System (GHS) requires manufactures to label chemicals and include the use of 9 standard pictograms to communicate the hazards associated with the chemical. These pictograms are included as Attachment D in this Program.

3.3.3 The crew member receiving shipment of the hazardous chemical is responsible for ensuring all containers have adequate labels.

3.3.4 If the manufacturer's original container has damaged labels, a supplemental label shall be applied to the container. The supplemental label shall include: identity of the contents; appropriate hazard warnings; the appropriate hazard pictogram; and the name and address of the chemical manufacturer, importer or other responsible party.

3.3.5 Secondary containers of hazardous chemicals shall be labeled unless the chemical is intended for immediate use. Immediate use means the chemical is under the control of the employee that made the transfer from the manufacturer's container and the contents are completely used during the work shift.

At minimum, the label shall include the following:

- Identity of the hazardous chemical (same name as on original label or SDS)
- Appropriate hazard warnings (general information regarding the hazard of the chemical).

See Attachment A - C for a recommended hazardous chemical secondary container labels.

3.3.6 Employees shall be trained in the use and understanding of secondary container labels.

3.3.7 Blank labels for marking containers should be available at the SDS location.

3.4 Stationary and Large Portable Tanks and Process Container Labeling:

3.4.1 All tanks and process containers (including vehicle mounted tanks) which contain hazardous chemicals shall be labeled with a secondary container label.

3.4.2 In addition, stationary tanks with a storage capacity of 100 gallons or greater which contain a flammable or combustible liquids including propane shall be labeled with a NFPA diamond (Code 704M). Local jurisdictions may require a NFPA diamond on tanks of other chemicals. The primary function of a NFPA label is to inform emergency personnel when responding to fire or spills. See Attachment B for an example of an NFPA diamond and a rating explanation guide.

3.5 Pipe Labeling:

3.5.1 Pipes and piping systems which contain or transport hazardous chemicals shall be labeled with the name of the contents (compressed air, potable water, natural gas, etc.). A hazard warning (e.g. hot, flammable, or high pressure) should be included where appropriate. The standard color combinations listed below should be used as a secondary method of identification.

ANSI / ASME A13.1-2007 Standard	
Fluid Service	**Color Scheme**
Fire Quenching Fluids	**WHITE ON RED**
Toxic and Corrosive Fluids	**BLACK ON ORANGE**
Flammable Fluids	**BLACK ON YELLOW**
Combustible Fluids	**WHITE ON BROWN**
Potable, Cooling, Boiler Feed and other water	**WHITE ON GREEN**
Compressed Air	**WHITE ON BLUE**

3.5.2 The labels shall be readable at a reasonable distance, and applied at the beginning and end of continuous runs and where confusion may occur (adjacent to valves and flanges; directional changes; or both side of wall and floor penetrations). On straight runs 50' is the acceptable maximum spacing, but closer spacing is prudent where appropriate for easy identification.

3.5.3 Pipe labels shall be positioned so that the label can be easily seen from the normal angle of approach (below the centerline of the pipe if the pipe is overhead, upper side of the pipe if the pipe is below the line of sight and above the centerline if the pipe is below eye level.

3.5.4 If piping has been wrapped in *asbestos-containing* materials (ACM) and the ACM has not been coated with a binder that prevents airborne release, labels or signs must be posted to warn employees of the hazard. Contact Facilities Management for assistance identifying building materials that contain asbestos. If pipes are wrapped or coated in ACM, the label or sign must be clearly noticeable and label must include the following statement:

DANGER CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

3.6 Contractors:

3.6.1 ODOT shall make available to affected contractors the ODOT written Hazard Communication Program and SDS/MSDSs for those hazardous chemicals used within ODOT spaces where contractors and their personnel will be working.

3.6.2 Contractors shall make available SDS/MSDSs for hazardous chemicals planned to be used within ODOT facilities. This includes: paints, fumigation agents, carpet cleaning materials, and janitorial supplies.

3.7 Hazardous Non-Routine Tasks:

3.7.1 Periodically, employees perform non-routine task where hazardous chemicals may be present. Before starting on such projects, each affected employee shall be given information by his/her supervisor about the hazardous chemicals which they may be exposed to during the project. The SDS for any hazardous chemical shall be available for review by the affected employee(s).

3.7.2 Information provided should include: specific chemical hazards, protective safety measures employees can take, and measures ODOT has taken to reduce the hazard.

3.8 Handling minor spills:

3.8.1 Employees who work with or are exposed to hazardous chemicals shall be instructed on how to recognize and respond to minor spills based upon container label and SDS information.

4. ROLES & RESPONSIBILIY

4.1 Employee

4.1.1 Employees shall attend Hazard Communication training prior to working with hazardous chemicals.

4.1.2 Employees shall seek advice or guidance regarding chemicals with which they are unfamiliar;

4.1.3 Employees shall inform their supervisor or other designated person if an SDS is missing or a chemical container lacks proper labeling.

4.1.4 Employees shall use proper secondary container labeling when chemicals are transferred from their original container unless the secondary container remains in sole possession of the person making the transfer and the entire contents are used during the work shift.

4.1.5 Employees shall only use chemicals in the manner recommended by the manufacturer or in the manner they have been trained.

4.2 Managers/Supervisors

4.2.1 Managers and Supervisors shall develop and maintain a chemical inventory that includes when the location began using the chemical and when its use ceased. This should be done on an annual basis.

4.2.2 Managers and Supervisors are responsible for ensuring workers are trained on site-specific chemicals, and that such training is documented and available for review.

4.2.3 Managers and Supervisors are responsible to ensure that a SDS is available for all hazardous chemicals listed on the inventory and containers are properly labeled.

4.2.4 Managers are responsible for educating employees on the importance of not introducing chemicals into the workplace before acquiring a SDS and/or reviewing the hazards of chemicals prior to use.

4.3 Safety Managers

4.3.1 Safety Managers are responsible for providing or assisting with providing Hazard Communication training.

4.3.2 Safety Managers are responsible for providing technical support to employees who use chemicals.

4.4 Contractors

4.4.1 Contractors are required to submit a list of chemicals to be used on ODOT contracts, or at State facilities, to the Project Coordinator prior to use.

4.4.2 A written Hazard Communication plan shall be in effect while performing work for ODOT.

4.4.1 An SDS for each hazardous chemical brought onto ODOT projects/property shall be available for review to all affected parties.

4.4.2 Project Coordinators shall review the Hazard Communication Program of each contractor to ensure that it complies with all federal, state, and local occupational safety and health guidelines.

5. EMPLOYEE TRAINING REQUIREMENTS

5.1 Hazard Communication (HAZCOM) Training

Prior to chemical use, those employees who use or are exposed to hazardous chemicals that are listed on the Hazardous Chemicals Inventory at their ODOT workplace or project shall complete ODOT Hazard Communication Training.

It is important that all questions regarding hazardous chemicals used within ODOT are answered. Workers should feel free to contact the manufacturer or distributor of the chemical or the Branch, Division, or Region Safety Manager.

5.1.1 HAZCOM Training consists of the following: Overview of the OR-OSHA standard, a review of the ODOT written Hazard Communication Program; review of objective of the Hazardous Chemicals Inventory list; information about how to read a SDS; the various labeling systems; measures employees can use to protect themselves; identification of key personnel in the program; and site specific instructions (described below).

5.1.2 Site specific instruction includes: Where the ODOT written program, inventory list, SDSs and blank labels are located; review of the physical and health hazards of the classes of hazardous chemicals used; a general review of the hazardous chemicals used at that workplace; and any specific safeguarding procedures when handling those chemicals including how to recognize and respond to minor spills.

5.1.3 Any time a new hazardous chemical is introduced to the workplace or used by the crew the SDS should be reviewed to determine if a new hazard class is being introduced (flammable, corrosive, water-reactive, sensitizer, toxic, shock sensitive, etc.). If so, training on that hazard shall be completed prior to the chemical use.

5.1 Non-Routine Tasks

Before starting projects where workers are unfamiliar with or seldom use the hazardous chemicals, the workers should review the SDSs and become familiar with the chemical properties and appropriate safeguards.

5.2 Retraining:

5.2.1 Retraining shall be required for any employee that demonstrates a lack of understanding of any elements of the Hazard Communication Standard. Training shall also be required anytime new chemicals are introduced into the workplace or when process changes affect the possibility of a chemical exposure.

5.2.2 The Program should be reviewed annually at Crew Safety Meetings.

6. TRACKING REQUIREMENTS

6.1 A Hazardous Chemical Inventory shall be included with the SDS collection. The inventory should be updated annually.

6.2 SDSs of chemicals listed on the Hazardous Chemical Inventory shall be maintained and available until the chemicals are no longer in use.

6.3 An inventory of chemicals used at each location shall be maintained for 30 years beyond the last use of the chemical. The inventory shall include the name of the product, when it was introduced into the workplace, and when it was no longer used at the location. One method of meeting this tracking requirement is keeping an archive of the MSDS or SDS sheet and noting the period of use on the front page.

6.4 Employee Hazard Communication training shall be documented.

7. INSPECTION AND REVIEW

7.1 Tracking requirements and compliance with this Program should be evaluated during safety committee inspections, crew inspections or reviewed by the Safety Manager or designee.

7.2 Each Hazardous Chemical Inventory should be evaluated annually to determine if all chemicals are listed and to determine those which should be retired from the list.

7.3 This Program shall be reviewed and revised as appropriate to assure compliance every as needed by the designated Safety Manager.

8. REFERENCES

8.1 Hazard Communication

8.1.1 1910.1200 “Hazard Communication”

8.1.2 OR-OSHA Program Directive No. A-150 “Inspection Procedures for 29 CFR 1910.1200, Hazard Communication Rule”

8.2 Pipe Labeling

8.2.1 437-002-0378 “Oregon Rules for Pipe Labeling”

8.3 Hazardous Material Labeling

8.3.1 Uniform Fire Code Article 80 Sections 8001.7 and 8001.8 “Identification Signs”

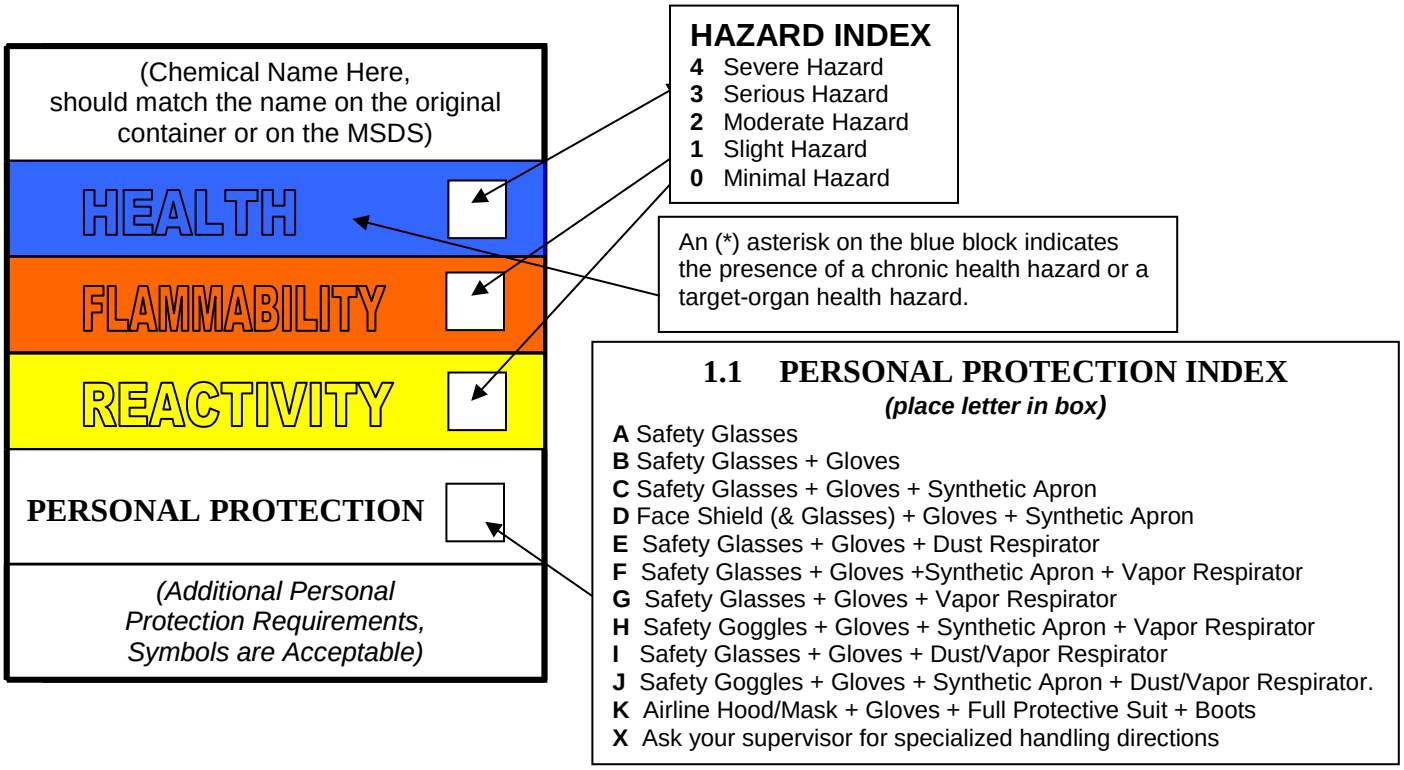
8.3.2 National Fire Protection Association 704 “Identification of the Fire Hazards of Materials.

8.4 American National Standards Institute Z400.1/Z129.1-2010 for Hazardous Workplace Chemicals – Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation.

Attachment A

Hazardous Materials Identification System (HMIS)

Developed by the National Paint and Coatings Association



Summary of HMIS Ratings

Health Hazard Ratings

0	Minimal Hazard	No significant risk to health
1	Slight Hazard	Irritation or minor reversible injury possible
2	Moderate Hazard	Temporary or minor injury may occur
3	Serious Hazard	Major injury likely unless prompt action is taken and medical treatment is given
4	Severe Hazard	Life-threatening, major permanent damage may result from single or repeated exposures

Flammability Hazard Ratings

0	Minimal Hazard	Normally stable will not burn unless heated
1	Slight Hazard	Flash point at or above 200^0F (NFPA Class IIIB)
2	Moderate Hazard	Flash point at or above 100^0F and below 200^0F (NFPA Class II & Class IIIA)
3	Serious Hazard	Flash point between 73^0F and 100^0F (NFPA Class IB and IC)
4	Severe Hazard	Very flammable, flash point below 73^0F and boiling point below 100^0F (NFPA Class IA)

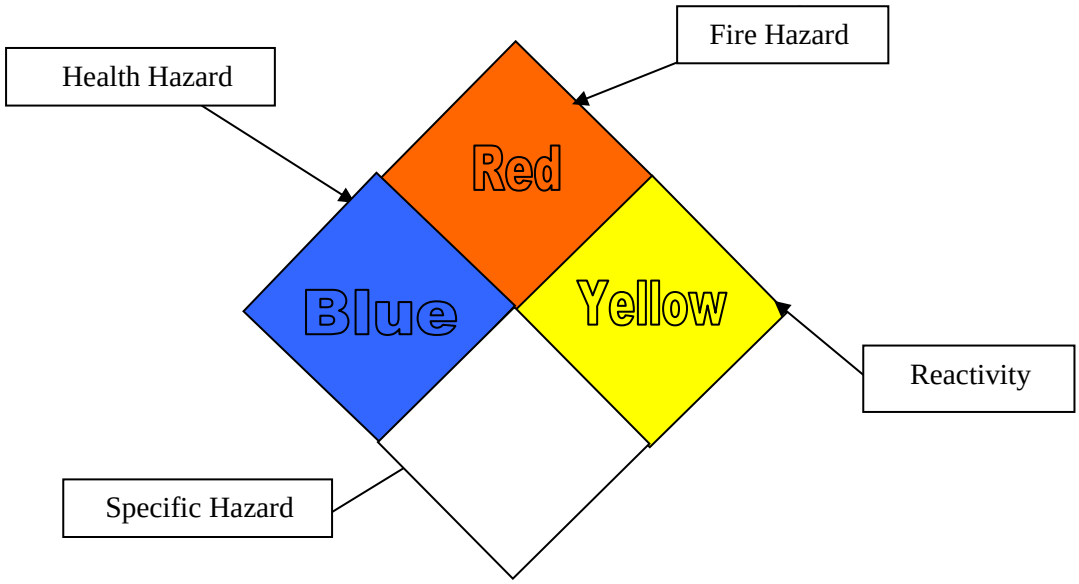
Reactivity Hazard Ratings

0	Minimal Hazard	Normally stable, will not react with water
1	Slight Hazard	Normally stable, unstable at high temperatures and pressures
2	Moderate Hazard	Normally unstable, and will readily undergo violent chemical change but will not detonate
3	Serious Hazard	Capable of detonation or explosive reaction, requires initiating source
4	Severe Hazard	Readily capable of detonation or explosive decomposition at normal temperatures and pressures

Attachment B

National Fire Protection Association Code No. 704
“Hazardous Material Signal”

NFPA 704 provides a simple, readily recognized, easy to understand system for identifying specific hazards that occur during emergency response. Typical label locations include outside buildings, on doors, and on tanks. Labels should be visible to emergency personnel responding to a spill or fire.



Standard System for the Identification of the Fire Hazards of Materials (NFPA 704)					
Health Hazard Information		Flammability Hazard Information		Reactivity Hazard Information	
(Acute Exposure)		**(Flash Point)**			
4	Deadly	4	Below 73ºF, Very Flammable	4	May Detonate Under Normal Conditions
3	Extremely Hazardous	3	Below 100ºF, Flammable	3	May Detonate with Heat or Shock
2	Hazardous	2	Below 200ºF, Ignites With Moderate Heating	2	Violent Chemical Change, Does Not Detonate
1	Slightly Hazardous	1	Above 200ºF, Ignites When Preheated	1	Not Stable If Heated
0	Normal	0	Will Not Burn	0	Normally Stable

Specific Hazards	
OXY	Oxidizer
ACID	Acid
ALK	Alkali
~~W~~	Use No Water

Attachment C

Secondary Container Labeling

The user of the chemical must make sure that each secondary container of hazardous chemicals in the workplace is labeled, tagged, or marked with either of the following:

- All the information specified for the labels on shipped containers
- The product identifier and words, pictures, symbols, or a combination that provide at least general information about the hazards of the chemicals.

Attachment D
GHS

The new Global Harmonized System or GHS is now fully implemented in Oregon under OR-OSHA and provides employers with a new 16 section standardized SDS and pictograms along with a new hazard numbering system. Users of various labels such as the NFPA 704 Diamond and the HMIS label should understand how it directly conflicts with GHS and should be careful in understanding the labeling system they are interpreting. As an example, a GHS 1 is a high hazard where a 1 for NFPA and HMIS is a low hazard.

Standardized Pictograms Under the Revised Hazard Communication Standard

HCS Pictograms and Hazards

Health Hazard 	**Flame** 	**Exclamation Mark** 
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	**Corrosion** 	**Exploding Bomb** 
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	**Environment (Non Mandatory)** 	**Skull and Crossbones** 
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

Attachment E

Special Applications

1. **Storage of paint totes and durable striping materials at temporary storage locations**. Copies of the SDS for striping materials are kept at the paint crew's home office and are carried with the paint crews. A SDS need not be kept at the temporary storage location if a sign is displayed at the storage location indicating the 24 hour per day ODOT emergency contact number for the SDS and emergency information.

2. **Locked Pesticide Storage Locations**. Copies of the SDS for pesticides are kept at the applicators home office and are carried with the pesticide applicators. A SDS shall be kept at remote locked pesticide storage locations when:
   - More than 10 pounds of pesticide with the EPA signal word “Danger” or NFPA Health rating of 3 or 4 are stored on site

   and/or if:
   - More than 500 pounds of pesticide with the EPA signal word “Warning” or “Caution” are stored on site or those pesticides with an NFPA health rating of 0 – 2;

   Signs shall be displayed at those remote locations indicating:
   1. The 24 hour per day ODOT emergency contact phone number for SDS/MSDS and emergency information;
   2. That this location is used for pesticide storage;
   3. The NFPA placard with the fire and health ratings for the most hazardous pesticide stored on site;

And an inventory is maintained of the routinely stored pesticides on site and their quantities in the storage location. The inventory should be kept in the storage room.

Section Divider

Section Divider

Appendix G - Chemical Compatibility

Overview of chemical compatibility

Chemical compatibility chart (a list of *incompatible products*)

CHEMICAL COMPATIBILITY

Information provided by the ODOT Office of Employee Safety.

PURPOSE

Chemical materials should be stored so that incompatible materials do not come in contact with each other. This section contains general principles for ensuring incompatible materials are segregated, chemical definitions for determining compatibility, and a chart showing chemical incompatibilities for most common shop chemicals. For chemicals not on the list, contact the Office of Employee Safety for guidance.

DEFINITIONS

Acid: A corrosive chemical, solid or liquid, with a low pH (below 7.0). Examples: vinegar, muriatic acid, battery acid.

Base: A caustic chemical, usually liquid but can also be solid, with a high pH (above 7.0). Examples: Bleach, sodium hydroxide, ammonia.

Caustic: Destructive to skin, tissue, eyes, etc.; usually applies to alkaline liquids or solids with pH above 7.0 (basic). Examples: Sodium hydroxide.

Combustible: Solids and liquids that will burn but have flash points above 100° F and below 200° F, and require a source of ignition.

Corrosive: Destructive to skin, tissue, eyes, etc.; usually applies to acidic liquids with pH below 7.0 (acidic).

Flammable: Any solid, liquid, vapor or gas that will ignite easily and burn rapidly; flash point less than 100° F.

Inorganic: Compounds neither containing carbon nor of biological origin.

Organic: Compounds containing carbon and chiefly of biological origin. Example: Petroleum based liquids.

Oxidizer: A compound that supplies its own oxygen and heat in contact with incompatible chemicals and can accelerate burning. These can react violently and explode.

Toxic: A substance that can cause damage to living tissue, impairment of the central nervous system, and illness or death when ingested, inhaled, injected, or absorbed through skin.

GENERAL STORAGE PRINCIPLES

- Minimize inventory: discard or properly dispose of old stock and excess material
- Separate solids from liquids; this solves many incompatibility issues
- Store liquids in trays or in cabinets
- Separate organic chemicals from inorganic chemicals

CHEMICAL COMPATIBILITY CHART

Group Name	Examples	Incompatible Materials	Examples	Reaction if Mixed
Acids	Battery acid, muriatic acid, some paint removers, rust preventers	**Flammables/combustibles, alkalis, bases, caustics, oxidizers**	Degreasers. Carbon removers, anti-fog compounds	**Heat, violent reaction**
Adhesives	Epoxies, isocyanates, spray foams	**Acids, bases, caustics, oxidizers**	Muriatic acid, sodium hydroxide,, bleach, water treatment chemicals	**Heat, fire hazard**
Alkalis/Bases/Caustics	Ammonia, sodium hydroxide, sodium hypochlorite (bleach)	**Acids/oxidizers, flammables/combustibles**	Battery acid, paint removers, anti-rust sprays, paints, solvents	**Heat, violent reaction**
Batteries	Lead-acid, dry-cell, alkaline, lithium	**Solvents, heavy metals, oxidizers**	Xylene, toluene, alcohol	**Heat, violent reaction, toxic gas**
Cleaning compounds	Degreasers, carbon removers, anti-fog compounds	**Detergent/soaps, oxidizers**	Calcium hypochlorite, sodium nitrite, hydrogen peroxide	**Heat, fire hazard**
Corrosion preventive compounds	Anti-corrosion sprays	**Acids, bases, oxidizers, ignition sources**		**Fire hazard**
Detergents/soaps	Tri-sodium phosphate (TSP), scouring powders, disinfectants	**Acid-containing compounds**	Battery acid, paint removers, anti-rust sprays	**Violent reaction, heat**
Fuels	Gasoline, diesel fuel, No. 2 diesel, fuel oil, propane	**Corrosives, oxidizers**	Battery acid, calcium hypochlorite, sodium nitrite, sodium hydroxide	**Fire hazard, toxic gas generation**
Greases	Lithium grease, silicone greases, molybdenum grease	**Oxidizers, acids, bases, caustics**	Muriatic acid, sodium hydroxide, bleach, water treatment chemicals	**Fire hazard, heat, violent reaction**
Heavy metals	Lead, mercury, beryllium	**Corrosives, oxidizers, water treatment chemicals**		**Violent reaction, toxic & flammable gas**
Hydraulic fluids	Petroleum-based hyd. Fluids, synthetic fire-resistant fluids	**Corrosives, oxidizers**	Battery acid, caustic soda, chlorine bleach, calcium hypochlorite, hydrogen peroxide, paint removers	**Fire hazard, heat, violent reaction**

CHEMICAL COMPATIBILITY CHART

Group Name	Examples	Incompatible Materials	Examples	Reaction if Mixed
Inspection penetrants	Petroleum based dyes	**Corrosives, oxidizers**	Battery acid, caustic soda, chlorine bleach, calcium hypochlorite, hydrogen peroxide, paint removers	**Fire hazard, heat, violent reaction**
Lubricants/Oils	Motor oils, gear oils, general purpose petroleum based lubricants (WD-40, Liquid Wrench, 3-in-1, assembly lubes)	**Corrosives, oxidizers**	Battery acid, caustic soda, chlorine bleach, calcium hypochlorite, hydrogen peroxide, paint removers	**Fire hazard, heat, violent reaction**
Oxidizers	Calcium hypochlorite, granulated laundry bleach, hydrogen peroxide	**Petroleum based materials, fuels, solvents, corrosives, heat**		**Fire hazard, violent reaction, explosion hazard, toxic gas generation**
Paints	Primers, enamels, urethanes, lacquers, varnishes, non-skid paints, thinners	**Acids, oxidizers**	Battery acid, paint removers, anti-rust sprays	**Heat, fire hazard**
Pesticides/Herbicides	Insecticides, herbicides, fungicides, fumigants	**Corrosives, oxidizers**	Battery acid, caustic soda, chlorine bleach, calcium hypochlorite, hydrogen peroxide, paint removers	**Toxic gas generation**
Polish/Wax compounds	Buffing compounds, metal polishes, general purpose waxes	**Corrosives, oxidizers**	Battery acid, caustic soda, chlorine bleach, calcium hypochlorite, hydrogen peroxide, paint removers	**Heat, fire hazard, violent reaction**
Solvents	Methyl ethyl ketone, (MEK), toluene, xylene, acetone	**Corrosives, oxidizers, batteries**	Battery acid, calcium hypochlorite, sodium nitrite, sodium hydroxide	**Heat, fire hazard**
Water treatment chemicals	Nitric acid, caustic sodas, mercuric nitrate	**Corrosives, oxidizers, heavy metals**		**Heat, violent reaction**

Section Divider

Section Divider

Appendix H - Spills

Spills – Frequently Asked Questions (FAQ)

ODOT First Responder Guide to Highway Incident Response (2016)

Emergency Notification for Spills in ODOT Maintenance Yards (form)
Spill Response Form for Spills in ODOT Maintenance Yards

Spills at Maintenance Yards- Frequently Asked Questions (FAQ)

Spills at Maintenance yards are typically minor:

- The spilled material is known.
- The spill is localized and small.
- The spill is unlikely to reach surface water or groundwater.
- The spill is easily controlled.
- There is little danger to human health.
- There is little danger of fire or explosion.

Incident Response

When a spill occurs:

- Evaluate the hazard and move people away from the spill area if necessary.
- If possible stop the spill (plug holes, turn off pumps, close valves, etc).
- Notify supervisor.
- Contain the spill in the smallest area possible (create gravel berms, surround with booms, etc.)

Refer to the SDS for incident response actions.

Some ODOT Maintenance yards have containment systems for spill in the fueling area or winter chemical storage. Some of these systems are passive (work without any additional action) and some require an action to provide containment (e.g. closing a valve). Instructions are posted if action is required. If a spill occurs follow all posted instructions.

Spill Cleanup

Keep spill kits or other absorbents in areas where spills are likely to occur (like shop bays and fueling areas). Clean up spill promptly. Cleanup on impervious surfaces is complete when no free liquids are present and used absorbent has been picked up.

Maintenance employees should be knowledgeable of spill response actions including the location of spill response supplies, how to cleanup spills, and how to dispose of waste.

In many situations Maintenance employees are allowed to cleanup non-reportable spills that occur on a Maintenance yard using the spill response guidance in the SDS.

Ops Plus (plug and patch) training (or greater) is required to conduct spill cleanup beyond sweeping up absorbent if the material is unknown or the SDS is not available or the spill is a reportable quantity.

Depending on the situation a cleanup contractor may be necessary. Region HazMat will develop cleanup options (e.g. tank decommissioning, soil excavation, groundwater monitoring/remediation, risk-based closure, property use limitation, etc.) in conjunction with the TMM.

Reportable Quantity

Spills are reportable if the spill:

- **reaches or has potential to reach a waterbody (any quantity); OR**
- **is larger than 42 gallons of oil or fuel and is on the ground (OERS only); OR**
- **is more than 200 pounds or 25 gallons of diluted or undiluted pesticide; OR**
- **is a hazardous product or waste**

If the **spill or release exceeds the reportable quantity** contact

— The Oregon Emergency Response (**OERS**) **1-800- 452-0311** and

— The National Response Center (**NRC**) **1-800-424-8802 (ONLY if the spill reaches a waterway)**.

IF A REPORTABLE SPILL OCCURS AT AN ODOT MAINTENANCE YARD NOTIFY REGION HAZMAT AND THE MAINTENANCE AND OPERATIONS BRANCH.

Spills at Maintenance Yards- Frequently Asked Questions (FAQ)

When in doubt report the spill.

According the regulations, an oil or fuel spills has 'reached a waterbody' if there is a visible sheen, sludge, or emulsion on or below the water surface.

Pesticides include herbicides and insecticides.

The reportable quantity for hazardous materials varies by substance. There are over 1,300 listed reportable substances with reporting quantities ranging from 1 to 5000 pounds.

Rather than looking up each hazardous material, use the following rule of thumb for reporting spills of hazardous products or wastes. **Report spills larger than 1 pound or 0.14 gallon from a placarded load or a container with a hazard-warning label.** (0.14 gallon equals about 2¼ cups or 18 fluid ounces). This will result in some over reporting. However over reporting is better than under reporting.

One notable exception to the rule of thumb is battery acid. The reportable quantity for battery acid is 1,000 pound or 143 gallons (to the ground surface). Report any amount of battery acid that reaches or has potential to reach a waterbody.

Report any quantity of radioactive material, radioactive waste, chemical agent (e.g. nerve agents or blister agents), or material used as a weapon of mass destruction or biological weapon.

Spill Notification and Reporting

Spills must be reported to the OERS (1-800-452-0311) and the NRC (1-800-424-8802) if the amount spilled (or released) exceeds the reportable quantity or impacts a waterbody. OERS will notify DEQ.

Dispatch may be asked to make agency notifications.

Once the spill has been reported and cleanup is underway and/or completed DEQ will requested information. Be ready to provide DEQ with the following information (to the best of your ability):

- Where is the spill?
- What spilled?
- How much spilled?
- How concentrated is the spilled material?
- Who spilled the material?
- Is anyone cleaning up the spill?
- Are there resource damages (e.g. dead fish or oiled birds)?
- Who is reporting the spill?
- How can you be contacted?

Both the person who spills the product and the property owner are responsible for cleanup and reporting.

In addition to notifying regulating agencies

- Notify the **Maintenance and Operations Branch and Region HazMat of spills that occur at an ODOT Maintenance yard that are reported to OERS or DEQ even if the cleanup is contracted**.
- Notify the **Maintenance and Operations Branch of deicer spills larger than 42 gallons**.
- Notify HazMat of fuel, oil, pesticide, or hazardous materials spills that require the excavation of soil. Some smaller fuel spills require cleanup beyond the training of most maintenance personnel.

Spills at Maintenance Yards- Frequently Asked Questions (FAQ)

Threatened Spill Notification and Reporting

Notify OERS of threatened spills that would be reportable if a release occurred.

Threatened spills (or releases) that would exceed reportable quantities if the spill actually occurred are also reportable. An unstable situation where the chance of release is high (e.g. a tanker rollover, a collapsing tank, or unstable hazardous cargo) is considered a threatened spill. Use the amount of product in the tank or container to determine if the spill would exceed the reportable quantity.

Spills within Containment Systems

Spills greater than reportable quantities that occur within an engineered containment system do NOT have to be reported to OERS if the following conditions are met:

- The spill does not penetrate any surface of the containment system.
- The spilled material does not and will not escape the containment.
- The spill is completely cleaned up in less than 24 hours.
- The cause of the spill is repaired.

Notify Region HazMat and the MOB. Where available follow the inspection and cleaning procedures listed in the containment system's O&M Manual.

Spill Documentation

If a reportable spill occurs at a Maintenance yard complete a "Spill Response Notification Form for Spills in Maintenance Yards." The form is located in Appendix B and Appendix H of the EMS Manual. The form should also be completed if significant spills occur within engineered containment areas.

The form can be used to document non-reportable spills (e.g. most deicer spills or non-hazardous paint on the ground) at the discretion of the TMM.

DEQ may send a letter requesting a spill/release report that details incident response for reportable spills. A hard copy of the report and all supporting documents should be mailed to the DEQ regional office specified in the request letter. Contact HazMat for assistance.

ODOT
First Responder Guide to Highway Incident Response

Prepared by the

Oregon Department of Transportation Maintenance and Operations Branch

March 2016

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Introduction

Safety of our employees, the traveling public, and the state highway system is our primary objective.

The target audience for this field guide (*ODOT First Responder Guide to Highway Incident Response*) is ODOT staff who are most likely to respond to and/or manage a highway incident.

When an incident occurs, there are generally two types of actions taken:

- Notification – calling your Manager/Supervisor and/or the Transportation Operations Center (TOC)
- Response – taking further action

Prior to responding to a highway incident, employees must receive proper training. Employees must stay within the level of the training they have received and be familiar with the contents of this *Guide* and the *Emergency Response Guide* (*ERG*).

For questions on the appropriate level of training for your position, refer to the Maintenance and Operations Branch webpage and your Manager/Supervisor.

If you have questions about the contents of this *Guide*, call the Incident Management Coordinator in the Maintenance and Operations Branch.

Lucinda Moore, P.E.
Statewide Maintenance & Operations Engineer Maintenance and Operations Branch

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Table of Contents

ODOT's Incident Response Mission 1
Your Role 1
On Your Way 3
General Incident 5
Hazardous Material Spills (HazMat) 9
Disabled Vehicle – Hazard 19
Disabled Vehicle – Non-Hazard 23
Abandoned Vehicle – Hazard 27
Abandoned Vehicle – Non-Hazard 31
Push, Pull & Drag 35
Hazardous Debris Removal 41
ODOT Employee Critical Injury or Fatality 43
After the Incident 45
Contacts 47

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ODOT's Incident Response Mission

- Ensure your personal safety
- Ensure the safety of emergency responders and the traveling public
- Ensure the highway is not blocked or restricted any longer than is absolutely necessary
- Provide the traveling public timely information so they can make informed decisions
- Protect the environment

Your Role

The primary responsibilities of ODOT personnel are to:

- Ensure personal safety
- Determine, based on your training, if ODOT response is necessary, if unsure contact your Manager/Supervisor
- Respond to the incident
- Verify the incident
- Assess the incident
- Provide ODOT resources and collaborate effectively within the Incident Command Structure (ICS) system to **manage traffic** in accordance with ODOT's incident response mission
- Provide regular incident status updates to the Transportation Operations Center (TOC)
    - Gather data needed for a follow-up investigation of the incident

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On Your Way

Things to Think About

Before Going to the Incident

- Notify the TOC
- Necessary Personal Protective Equipment (PPE)
- Necessary equipment (e.g. hand tools, clean up materials)
- Necessary tools to document (e.g. camera, paint, measuring device)
- Determine best route

On the Way

- Type of incident
- Needed assistance
- Potential impact on traffic/traffic volumes
- Alternate routes

Anytime, as needed

- Contact the TOC to determine if additional details are available
- Contact your Manager/Supervisor for additional instructions

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General Incident

Your safety is the first priority!

First Person on Scene

- You are the Incident Commander (IC) until a more suitable agency or person assumes the IC role or a Unified Command Structure develops (this often occurs as the scene progresses).
  - When they arrive:
    - Ensure a hand-off of command responsibilities occurs
    - Update the TOC when the command structure changes
    - Continue to represent ODOT

Not First on Scene

- Find the IC (typically fire or law enforcement).
  - Inform them you are representing ODOT and provide traffic control assistance as needed.

On Every Scene

- Assess the scene from a safe location.
  - Hazardous materials involved (potential or actual) **See HazMat tab**
    Note: If unsure, **treat it as if HazMat is present**.
  - Other potential dangers to yourself and others
    - Look for potential stored energy (e.g. cable barriers, guardrail, trees)
    - Utilities
    - Electric/hybrid vehicles
      Note: Providing for the safety of yourself and the public and activating additional emergency responders takes priority. Providing rescue and first aid is the primary

responsibility of Fire or EMS. You may, at your discretion, provide assistance consistent with your ODOT training.

- Provide the TOC scene details; using your State Radio report (as information becomes known):
  - Type of incident
  - Location
    - Route
    - Highway (if needed to better define)
    - Direction (if needed)
    - Mile point or cross street
    - Lanes affected (direction and number)
    - Detour needed and where
  - Estimated delay to traffic going through scene
  - Injuries (severity of injuries or confirmed fatalities)
    Note: You are not expected to determine the severity (e.g. major, minor) of injuries or whether it is a fatality. This is information you can provide if you are made aware.
  - Vehicle information (e.g. Brown Chevy Impala Oregon license plate ABC123)
    - Color
    - Make
    - Model (note if vehicle is electric or hybrid)
    - License plate (including state or origin)
    - Carrier name (if applicable)
  - In a work zone (additional details may be needed)
  - Damage to ODOT property
  - Estimated incident duration

- Request or notify additional ODOT staff or response agencies, as necessary. (The TOC can make this notification if requested.)
  Note: Notification may be the only action you take, depending on the situation.

If the radio is unavailable, you may contact the TOC by phone.		
Districts 2B, 2C	Station 1 (TMOC)	503-283-5859
Districts 1, 3, 4, 5	Station 2 (NWTOC)	503-362-0457
Districts 7, 8, 11	Station 3 (STOC)	541-858-3103
Districts 9, 10, 12, 13, 14	Station 4 (CTOC)	541-383-0121

- Traffic Control – close travel lanes as needed to protect the incident scene; reopen when appropriate.

- Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information (e.g. lanes/roadway clearance, time estimates for reopening).

- If photos are needed, make the IC aware of your intent to take photos of the incident scene. This should primarily be of the condition of the highway infrastructure, including but not limited to approaching and departing the scene (e.g. signs, vehicles, highway features, and damage) before the scene is cleared if possible. **Avoid graphic photos.**

- Obtain the investigating law enforcement contact information including name and agency and arrange to receive a copy of their report, if applicable.

- If overall scene safety can be improved by promptly relocating vehicles or cargo, not containing hazardous material, from the roadway, **see Push, Pull & Drag tab.**

- Refer on scene reporters to the IC, the Public Information Officer or your District Manager.

- Cleanup Responsibilities
  - Vehicle Debris – tow company (if respond)
  - Spilled Cargo/Material – registered vehicle owner (If a hazardous material, **see HazMat tab.**)

- Assist law enforcement and the tow company with clearing the road as quickly and safely as possible.

- Update the TOC when leaving the scene; provide information as to who is still on scene.

Hazardous Material Spills (HazMat)

Your safety is the first priority!!

ODOT employees trained to the First Responder – Awareness level may perform the following activities.

Avoid contact with the spilled material and avoid breathing vapors, smoke, or dust originating from the material.

- Assess incident scene from a safe distance (use binoculars if available).
  - Do not enter the spill area
  - Stay upwind; keep out of low areas

- Provide the TOC scene details; using your State Radio report (as information becomes known - if the HazMat is an element of another incident, you may not need to repeat all of the items listed):
  - HazMat Spill – active or potential (describe as accurately as possible)
  - Location
    - Route
    - Highway (if needed to better define)
    - Direction (if needed)
    - Mile point or cross street
    - Lanes affected (direction and number)
    - Detour needed and where
  - Wind direction and speed (if available)
  - Weather conditions
  - Proximity of spilled material to:
    - Traffic
    - Waterways, including storm drains (nearest, in miles)
    - Adjacent property

  - Estimated delay to traffic going through scene

- Determine the IC (typically fire or law enforcement).
  - You are the Incident Commander (IC); until a more suitable agency or person assumes the IC role or a Unified Command Structure develops (this often occurs as the scene progresses). When they arrive:
    - Ensure a hand-off of command responsibilities occurs
    - Update the TOC when the command structure changes
    - Continue to represent ODOT

- Isolate the spill area.
  - Protect yourself and the traveling public.
  - Refer to the *Emergency Response Guidebook* (*ERG*) to determine basic emergency actions and isolation distances. For unknown materials, use Guide 111 until the material can be identified. **Note:** Any incident that involves a vehicle bearing a warning placard should be considered a hazardous material incident until qualified personnel determines otherwise. Placards are one indicator; however, the ODOT employee should talk to the driver and check the manifest. Mixed loads often do not require placards but still may have hazardous materials on board.

- Determine, if possible, the hazardous material involved; using the truck placards or labels obtain:
  - Chemical name(s)
  - ID number(s)
  - Trade name(s)
  - Manufacturer name(s)

Note: If the material cannot be safely identified, the carrier's business office or the bill of lading may be able to provide some information about the contents of the load. If they cannot, then the State Fire Marshal HazMat Team, contacted via Oregon Emergency Response System (OERS), should be called in to identify the material.

- Additional scene information may be requested from the TOC by partner agencies – be prepared to gather and provide it as requested.

- Update the TOC as information becomes known, including:
  - Responsible Spiller
    - Company name
    - Truck and trailer license plate (including state or origin)
  - If Response/Cleanup crew has been contacted by the responsible party, provide who they are and when they will arrive
  - If other agencies are on scene or have been notified

If the radio is unavailable, you may contact the TOC by phone.		
Districts 2B, 2C	Station 1 (TMOC)	503-283-5859
Districts 1, 3, 4, 5	Station 2 (NWTOC)	503-362-0457
Districts 7, 8, 11	Station 3 (STOC)	541-858-3103
Districts 9, 10, 12, 13, 14	Station 4 (CTOC)	541-383-0121

- Ask the TOC to notify OERS and **obtain an OERS Report Number** if:
  - 42 or more gallons, of operational fluid (e.g. diesel fuel, engine oil, hydraulic oil or supply to

refrigeration units), are spilled or there is potential to spill onto the roadway or shoulder
  - Any amount of spilled fluid has entered or is threatening to enter a waterway or storm drain
  - Any semi-truck crash or fire that is leaking or has potential to leak
  - Any placarded trailer with damage to trailer or loose cargo
  - Any trailer overturned with an unknown cargo, with or without placards, or an unknown cargo with fire **Note:** OERS should notify DEQ and the State Fire Marshal HazMat Team, as needed. If needing immediate contact from either agency, request OERS do so. DEQ will provide technical assistance to on-scene personnel.

- Other notifications to be made (the TOC can make these notifications if requested):
  - Local 911 emergency response (if not on scene)(e.g. law enforcement or fire)
  - ODOT
    - District Manager
    - Transportation Maintenance Manager
    - Region HazMat Coordinator
  - Oregon State Police
  - Clean-up company
    Note: The Responsible Spiller needs to contact a licensed environmental clean-up company and ensure they are enroute within a reasonable amount of time. “Reasonable amount of time” is a judgement call based on several factors including but not limited to:
    - traffic volumes

  - detour availability
  - environmental impacts

  Based on these factors, the amount of time that is considered "reasonable" may be measured in minutes.

  If the Responsible Spiller does not or refuses to have a clean-up company enroute in a reasonable amount of time, the IC, lead state agency or ODOT representative, after conferring with other agencies on scene, should contact a licensed environmental clean-up company who can respond in a timely manner.

  If ODOT needs to contact a clean-up company, the Region HazMat Coordinator is a good resource for any questions.

- Traffic Management
  - Traffic Control – close travel lanes as needed to protect the incident scene; reopen when appropriate.
  - Temporarily close the highway if the safety of the traveling public or responders is at risk.
    - Coordinate actions with the IC in determining the need for highway closures and detours.
  - Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information.

Containment Activities

ODOT employees, trained to the First Responder – Operations level (8 hours), may only perform

containment activities with vehicular operational fluids and identified cargo, not containing hazardous material. Do not attempt to contain, clean up, or remove any unknown material or material suspected to be hazardous material.

To contain material and prevent contamination of adjacent property or waterways, you may within the scope of your training, use absorbent materials, dirt, or other spill containment devices to stop or divert the flow of spilled material. When performing spill containment, the following applies:

- Consultation has taken place with the lead state agency or other reliable source for recommended safety precautions.

- Protection of adjacent property or waterways, including storm drains, can be done safely.

- Roadway and environmental impacts are significantly reduced by containment as opposed to waiting for a clean-up contractor activity to begin. (This may differ based on road and scene conditions.)

- **Necessary PPE is available (e.g. gloves, hat, coveralls). If the *ERG* recommends specialized PPE or clothing, clean up actions shall be avoided.**

- **Less than 10 gallons of gasoline or an amount of diesel fuel or hydraulic fluid that can be contained with available equipment.**

- **Battery acid is not present – clean-up of battery acid by ODOT employees must be avoided.**

- Vehicle or cargo is not on fire or smoking.

- Cargo that is a hazardous material is upright with no apparent damage or leaks.

Scene Wrap Up

- Removal of containment materials/devices:
  - Best practice – ensure absorbent pads or granular absorbent used to clean-up operational fluids are left with vehicle, to be removed by the tow company.
  - Smaller amounts of absorbent materials, dirt, or containment devices (pads, booms, mat, etc.) can be removed and disposed of properly by ODOT.

- Document all cleanup and disposal activities.

- Report to your Manager/Supervisor any notifications that were made to OERS or the National Response Center (NRC).

- Responsibilities of ODOT when on scene:
  - Ensure the following notifications occur (the TOC can make these as needed):
    - ODOT Region HazMat Coordinator
    - ODOT Region Environmental Coordinator (REC); REC should contact State Historic Preservation Office (SHPO) at 503-986-0674 as needed
    - Licensed environmental clean-up company is enroute

- NRC (800-424-8802) when:
  - Oil spills, if they:
    - Violate applicable water quality standards;
    - Cause a film or “sheen” on, or discoloration of the surface of the water or adjoining shorelines; or
    - Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
  - Hazardous materials, if the:
    - Hazardous substance is released to the environment in an amount that equals or exceeds its reportable quantity.
      Note: If the reportable quantity definition is unknown, contact OERS, your ODOT Region HazMat Coordinator, Oregon State Fire Marshal HazMat Team, or DEQ for further guidance.
  - If in doubt, report the spill.

o Identify the carrier.
- If unable to determine the responsible party and the license plate number is available, contact an ODOT Motor Carrier Transportation Division Port of Entry (POE) to obtain the carrier’s information:

Location	Number
Ashland	541-776-6004
Farewell Bend	541-869-2474
Portland Bridge	971-673-5900
Umatilla	541-922-5183

ODOT employees trained to the First Responder – Operations level (8 hours) and Operations Plus (Plug and Patch) level (16 hours) may perform all of the above activities in addition to:

- Plugging and Patching
  - Only plug and patch small (less than 10 gallons gasoline) operating fluid (e.g. diesel fuel, engine oil, hydraulic oil or supply to refrigeration units) leaks when necessary to protect the roadway or environment.

- Pumping off fluids

- ODOT employees can only drill **ALUMINUM** diesel fuel tanks if there is:
  - Significant reduction in the environmental impact of the incident scene **OR**
  - Significant reduction in the length of highway closure **AND**
  - No other suitable response agency on scene **AND**
  - No access to the fill-cap; including anti-siphon or anti-theft devices **AND**
  - Ambient temperature is below 105 degrees with road surface temperature less than 130 degrees.

ODOT employees, trained to the 40 hour Technician (HAZWOPER) level of Hazardous Materials Response, may perform all of the above activities in addition to supervising clean-up activities of a licensed environmental clean-up contractor.

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Disabled Vehicle
–
Hazard

If a vehicle is disabled in a location causing a hazard to other traveling public, it is advisable for employees to stop and provide assistance as long as the employee is not engaged in a higher priority activity. Multiple factors are to be taken into consideration to determine whether to stop or continue on. Factors may include current activities of employee (e.g. sanding, plowing, de-icing), secondary responder response time, and traffic volumes.

An employee may provide assistance, within their training provided by ODOT. This may be providing minor assistance or moving the vehicle from the hazardous location.

You must be cautious when approaching vehicles that appear to be disabled. Do not stop if the initial scene assessment indicates that circumstances may be present making it unsafe to approach the vehicle.

If you see a stopped vehicle creating a hazard you may;

- Drive by the vehicle, provide the information listed below to the TOC and wait to return until after the TOC has told you that the vehicle is clear

  OR

- If you stop to check on a vehicle:
  - Stop several car lengths behind the vehicle when possible based upon the vehicle's location
  - Provide the TOC scene details; using your State Radio report (as information becomes known):
    - Disabled Vehicle Hazard
    - Location
      - Route
      - Highway (if needed to better define)

- Direction (if needed)
- Mile point or cross street
- Lanes affected (direction and number)

▪ Vehicle information (e.g. Brown Chevy Impala Oregon license plate ABC123)
- Color
- Make
- Model (note if vehicle is electric or hybrid)
- License plate (including state or origin)
- Carrier information (if applicable)

o Stay in your vehicle while the TOC runs the vehicle plate (this typically takes less than 30 seconds).
▪ If a person approaches your vehicle, identify yourself as ODOT and ask them to remain with their vehicle and that you will be with them in just a moment.
▪ Continue to scan the scene, enhancing your situational awareness. If any circumstances arise that are making the scene unsafe, you may leave.

o The TOC will contact you, after running the vehicle plate, with one of the following:
▪ **"Vehicle is clear"** (which means that the vehicle came back with no flags) – please remain cautious.
▪ **"I have a priority call I need you to respond to…"** – If you hear this phrase **DO NOT APPROACH THE VEHICLE; LEAVE IMMEDIATELY.** (This means that the vehicle

came back with a flag of some sort and it may not be safe. The TOC will contact law enforcement.)

- After receiving “Vehicle is clear” confirmation, approach the vehicle on the non-traffic side whenever possible.

- Determine level of assistance you can provide, based on your ODOT training.
  - Minor assistance (e.g. providing fuel, fixing a flat tire)
  - Push, pull or drag the vehicle (**See Push, Pull & Drag tab.**)

- Update the TOC if you assist in any of the following ways:
  - Fix flat tire
  - Provide fuel
  - Let occupants use work phone
  - Assist mechanically
  - Push, pull or drag the vehicle
  - Transport a person (provide beginning odometer reading, destination and upon arrival at destination ending odometer reading)

- Update the TOC if a tow is needed, provide the following information:
  - Preference or Non-Preference tow
    - Does the driver have a tow company preference? If there is no preference, request a “non-preference tow”
  - Describe the vehicle, including whether it is a 4- wheel drive, and its condition as detailed and

accurately as possible so that this information may be forwarded to the tow company
  - Number of people the tow company needs to transport
  - Number and type of animals that need to be transported
  - If flaggers are required

- Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information.

- Remain on scene to enhance over-all scene safety by providing advance warning for the traveling public unless your response to a higher priority is necessary. This may continue, until the tow company leaves the scene.

- Update the TOC when the tow company arrives, clears, where the vehicle is being taken, and when you are leaving the scene.

Disabled Vehicle
–
Non-Hazard

If a vehicle is abandoned in a location that is not causing a hazard to other traveling public, it is advisable for employees to stop and provide assistance as long as the employee is not engaged in a higher priority activity. Multiple factors are to be taken into consideration to determine whether to stop or continue on. Factors may include current activities of employee (e.g. sanding, plowing, de-icing), secondary responder response time, and traffic volumes.

An employee may provide minor assistance, within their training provided by ODOT.

You must be cautious when approaching vehicles that appear to be disabled. Do not stop if the initial scene assessment indicates that circumstances may be present making it unsafe to approach the vehicle.

If you see a stopped vehicle on the side of the road, you may;

- Drive by the vehicle, provide the information listed below to the TOC and then continue on with your task or wait to return to help the motorist until after the TOC has told you that the vehicle is clear
  OR
- If you stop to check on a vehicle:
  - Stop several car lengths behind the vehicle if at all possible based upon the vehicle's location
  - Provide the TOC scene details; using your State Radio report (as information becomes known):
    - Disabled Vehicle Non-Hazard
    - Location
      - Route

- Highway (if needed to better define)
- Direction (if needed)
- Mile point or cross street
- Lanes affected (direction and number)

o Vehicle information (e.g. Brown Chevy Impala Oregon license plate ABC123).
  - Color
  - Make
  - Model (note if vehicle is electric or hybrid)
  - License plate (including state or origin)
  - Carrier information (if applicable)

o Stay in your vehicle while the TOC runs the vehicle plate (this typically takes less than 30 seconds).
  - If a person approaches your vehicle, identify yourself as ODOT and ask them to remain with their vehicle and that you will be with them in just a moment.
  - Continue to scan the scene, enhancing your situational awareness. If any circumstances arise that are making the scene unsafe, you may leave.

o The TOC will contact you after running the vehicle plate, with one of the following:
  - **"Vehicle is clear"** (which means that the vehicle came back with no flags) – please remain cautious.
  - **"I have a priority call I need you to respond to …"** If you hear this phrase **DO NOT APPROACH THE VEHICLE; LEAVE IMMEDIATELY.** (This means that the vehicle

came back with a flag of some sort and it may not be safe. The TOC will contact law enforcement.)

- After receiving “Vehicle is clear” confirmation, approach the vehicle on the non-traffic side, whenever possible.

- Determine the minor assistance you can provide, based on your ODOT training.

- Update the TOC if you assist in any of the following ways:
  - Fix flat tire
  - Provide fuel
  - Let occupants use work phone
  - Assist mechanically
  - Transport a person (provide beginning odometer reading, destination and upon arrival at destination ending odometer reading)

- Update the TOC if a tow is needed, provide the following information:
  - Preference or Non-Preference tow
    - Does the driver have a tow company preference? If there is no preference, request a “non-preference tow”
  - Describe the vehicle, including whether it is a 4- wheel drive, and its condition as detailed and accurately as possible so that this information may be forwarded to the tow company
  - Number of people the tow company needs to transport

  - Number and type of animals that need to be transported
  - If flaggers are required

- Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information.

- Remain on scene to enhance over-all scene safety by providing advance warning for the traveling public unless your response to a higher priority is necessary. This may continue until the tow company leaves the scene.

- Update the TOC when the tow company arrives, clears, where the vehicle is being taken, and when you are leaving the scene.

Abandoned Vehicle
–
Hazard

If a vehicle is abandoned in a location causing a hazard to other traveling public, it is advisable for employees to stop and provide assistance as long as the employee is not engaged in a higher priority activity. Multiple factors are to be taken into consideration to determine whether to stop or continue on. Factors may include current activities of employee (e.g. sanding, plowing, de-icing), secondary responder response time, and traffic volumes. An employee may provide assistance within their training provided by ODOT.

You must be cautious when approaching vehicles that appear to be abandoned. Do not stop if the initial scene assessment indicates that circumstances may be present making it unsafe to approach the vehicle.

If you see a stopped vehicle, creating a hazard, you may;

- Drive by the vehicle, provide the information listed below to the TOC, and wait to return until the TOC has told you that the vehicle is clear
  OR
- If you stop to check a vehicle:
  - Stop several car lengths behind the vehicle, if at all possible based upon the vehicle's location
  - Provide the TOC scene details; using your State Radio report (as information becomes known):
    - Abandoned Vehicle Hazard
    - Location
      - Route
      - Highway (if needed to better define)
      - Direction (if needed)
      - Mile point or cross street

        - Lanes affected (direction and number)
    - Vehicle information (e.g. Brown Chevy Impala Oregon license plate ABC123)
        - Color
        - Make
        - Model (note if vehicle is electric or hybrid)
        - License plate (including state or origin)
        - Carrier information (if applicable)

  - Stay in your vehicle while the TOC runs the vehicle plate (this typically takes less than 30 seconds).
    - If a person approaches your vehicle, identify yourself as ODOT and ask them to remain with their vehicle and that you will be with them in just a moment.
    - Update the TOC that there is someone with the vehicle (see the Disabled Vehicle – Hazard tab).
    - Continue to scan the scene, enhancing your situational awareness. If any circumstances arise that are making the scene unsafe, you may leave.

- After running the vehicle plates, the TOC will contact you with one of the following:
  - **"Vehicle is clear"** (which means that the vehicle came back with no flags) – You may approach the vehicle to confirm that it is abandoned; please remain cautious.
  - **"I have a priority call I need you to respond to …"** If you hear this phrase **DO NOT APPROACH THE VEHICLE; LEAVE IMMEDIATELY.** (This

means that the vehicle came back with a flag of some sort and it may not be safe. The TOC will contact law enforcement.)

- Update the TOC; request a non-preference tow, provide the following information:
  - Describe the vehicle, including whether it is a 4- wheel drive, and its condition as detailed and accurately as possible so that this information may be forwarded to the tow company
  - If flaggers are required

- The TOC will provide the responding tow company's name and estimated time of arrival (ETA).

- Fill out the following fields on the Roadway Hazard Notification (red) tag:
  - Event number, in its entirety, as provided by the TOC
  - Reason(s) for towing the vehicle as a hazard
  - Date and time the vehicle is tagged

- Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information.

- Place the tag on the vehicle's rear window.
  - If a camera is available to you, take pictures of the vehicle and why it is a hazard.

    Note: This may be needed as evidence if the tow is contested. If you would like, you can add "photo taken" to the bottom of the tag.

- Remain on scene until the tow company arrives and, if needed, until the vehicle is removed.

- Update the TOC when the tow company arrives, clears the scene, location the vehicle is being taken, and when you are leaving the scene.

Abandoned Vehicle
–
Non-Hazard

If a vehicle is abandoned in a location that is not a hazard to other traveling public, it is advisable for employees to stop and provide assistance as long as the employee is not engaged in a higher priority activity. Multiple factors are to be taken into consideration to determine whether to stop or continue on. Factors may include current activities of employee (e.g. sanding, plowing, de-icing), secondary responder response time, and traffic volumes. It is advisable for employees to stop at a reasonable distance to provide advanced warning to other traveling public; typically this is a minimum of several car lengths behind the vehicle.

You must be cautious when approaching vehicles that appear to be abandoned. Do not stop if the initial scene assessment indicates that circumstances may be present making it unsafe to approach the vehicle.

- Provide the TOC scene details; using your State Radio report (as information becomes known):
  - Abandoned Vehicle Non-Hazard
  - Location
    - Route
    - Highway (if needed to better define)
    - Direction (if needed)
    - Mile point or cross street
    - Lanes affected (direction and number)
  - Vehicle information (e.g. Brown Chevy Impala Oregon license plate ABC123)
    - Color
    - Make
    - Model (note if vehicle is electric or hybrid)
    - License plate (including state or origin)

  - Carrier information (if applicable)
  - Last 5 numbers of the VIN

- Stay in your vehicle while the TOC runs the vehicle plate (this typically takes less than 30 seconds).
  - If a person approaches your vehicle, identify yourself as ODOT and ask them to remain with their vehicle and that you will be with them in just a moment.
  - Update the TOC that someone is with the vehicle (see the Disabled Vehicle – Non-Hazard tab).
  - Continue to scan the scene, enhancing your situational awareness. If any circumstances arise that are making the scene unsafe, you may leave.

- After running the vehicle plates, the TOC will contact you with one of the following:
  - **"Vehicle is clear"** (which means that the vehicle came back with no flags) – You may approach the vehicle to confirm that it is abandoned; please remain cautious.
  - **"I have a priority call I need you to respond to …"** If you hear this phrase **DO NOT APPROACH THE VEHICLE; LEAVE IMMEDIATELY**. (This means that the vehicle came back with a flag of some sort and it may not be safe. The TOC will contact law enforcement.)

- If OSP is responsible for tagging non-hazard, abandoned vehicles in your District, the TOC will contact OSP.

- If ODOT is responsible for tagging non-hazard, abandoned vehicles in your District, fill out an Abandoned Vehicle Notification (green) tag:
  - Date to be towed
  - Event number, provided by the TOC
  - Date and time the vehicle is tagged

- Place sticker on vehicle window (preferably a window approaching traffic can easily see).

- You may additionally document vehicle placement and surrounding features for location verification by:
  - Taking a photo, if a camera is available to you
  - Marking a tire, with a line perpendicular to the ground, to show if the vehicle has been moved

- Write the date and time the vehicle was tagged on the window facing traffic with window chalk/paint.
  Note: This makes it possible to tell, from a moving vehicle, when the abandoned vehicle can be towed.

- Update the TOC when leaving the scene.

Towing of a Tagged, Abandoned Vehicle

- Confirm that it is between 8AM-5PM and that 24 hours have passed since the vehicle was tagged.

- Confirm the vehicle is still in the exact location as when it was tagged.
  Note: If it has been moved at all, unless it is now creating a hazard, it cannot be towed. The 24 hour tagging process timeframe has to be restarted.

- Provide the TOC the event number and request a tow; the tow company has until 5PM to pick up the vehicle.

- Document vehicle placement and surrounding features for location verification. If a camera is available to you, take a photo.

- Update the TOC when leaving the scene.

Push, Pull & Drag

Prompt relocation of vehicles or cargo that is a non- hazardous material, from the roadway can greatly improve overall scene safety. ODOT staff only performs Push, Pull & Drag (PP&D) activities when the safety of responders and the traveling public will be enhanced. See Oregon Administrative Rule 734- 020-0145.

Individuals performing PP&D activities should be trained in ODOT's Push, Pull & Drag – Vehicle Relocation Training.

Move It or Work It? – Determine if you can or should engage in PP&D activities or work the scene as it is. Consider the following:

- Can I stay safe
- Do I have the proper training and equipment/tools, including vehicle capability
- Is there a safer and large enough place to move the vehicle/cargo
- If law enforcement or fire is on scene,
  - Consult with them to ensure understanding and agreement that the vehicle or cargo should be relocated
    - If there is disagreement, discontinue efforts to have the item relocated, however continue to provide agency support within the ICS system

- If law enforcement or fire are NOT on scene,
  - Does the scene need to be maintained for law enforcement investigation
    - Injuries, fatalities
    - Potential criminal elements
      Note: The driver not being on scene may indicate criminal elements.
    - Signs of driver impairment
    - Extensive property damage

  If in doubt, DO NOT relocate the vehicle/cargo.

  - Can I move the vehicle/cargo without damaging it
    - If not, contact your Manager/Supervisor for guidance/approval as to whether to continue with PP&D activities

Disabled Hazard/Wrecked Vehicle/Spilled Cargo, not a Hazardous Material, AND DRIVER IS PRESENT

If there are no apparent injuries and vehicle CAN operate under its own power:

- Advise the driver of the vehicle that Oregon law (ORS 811.717) requires them to move their vehicle.
  - Politely advise them it is for their safety
  - Suggest an alternate location for them to move to **Note:** If law enforcement is on scene, it is best to have them perform this step.

- **If the driver refuses to move their vehicle:**
  - Offer to take photos and/or mark tire locations
  - If a driver is combative or non-cooperative and refuses to relocate their vehicle, advise the TOC you will need law enforcement assistance, stay on scene and provide appropriate traffic control

If there are no apparent injuries and vehicle CAN NOT operate under its own power:

- Communicate with other responders on scene to ensure understanding and agreement that the vehicle should be relocated. If there is disagreement, discontinue efforts toward PP&D activities; however, continue to provide agency support within the ICS system and follow up with your Manager/Supervisor.

- Inform the TOC you intend to relocate the vehicle and the manner you will use.

- Take **photos before moving** the vehicle, if possible and reasonably safe and timely to do so.

- **Instruct the driver** (as needed):
  - Approach the driver on the non-traffic side whenever possible.
  - Carefully instruct the driver of your plan and what you need them to do; provided they are physically/emotionally able to assist if needed. **Note:** If the driver is combative or non- cooperative, advise the TOC you need law enforcement assistance. **If the driver DOES NOT pose a threat to your safety,** stay on scene and provide appropriate traffic control.
    - Advise them of relocation point
    - Verify ignition is in the “ON” position
    - Verify the transmission is in “NEUTRAL”
    - Verify the emergency brake is “OFF”
    - Advise the driver:
      - Their vehicle may be hard to steer and brake, if power assisted

  - To leave the driver's side window open, in case you need to provide additional direction
  - To keep their foot on the brake, lightly applying pressure
  - To bring the vehicle to a stop, by braking and placing it in "PARK", once the vehicle is to the pre-determined location

- Follow PP&D techniques from your training.

- Take reasonable actions to minimize any additional damage to the vehicle.

- Relocate the vehicle. **Use a spotter to assist if one is available**.

- Take **photos of the vehicle after moving,** if possible.

- Inform the TOC that:
  - Vehicle has been relocated
  - Lanes are cleared
  - If any damage occurred

Disabled Hazard/Wrecked Vehicle/Spilled Cargo, not a Hazardous Material, AND DRIVER IS NOT PRESENT

In most circumstances it is advisable to contact a tow company to relocate an obviously abandoned vehicle that is creating a hazard. However, there may be times when an abandoned vehicle/cargo presents a significant hazard to the roadway, tow services are not readily available and the vehicle/cargo must be relocated for the safety of the scene.

- Communicate with other responders on scene to ensure understanding and agreement that the vehicle/cargo should be relocated out of the roadway. If there is disagreement, discontinue efforts toward PP&D activities; however, continue to provide agency support within the ICS system and follow up with your Manager/Supervisor.

- If a tow company will eventually be needed, ensure that they have been notified, they have received an accurate description of the scene and of the vehicle/cargo to be towed, and the tow is enroute.

- Inform the TOC you intend to relocate the vehicle and the manner you will use.

- Take **photos before moving** the vehicle, if possible and reasonably safe and timely to do so.

- Follow PP&D techniques from your training. **Note:** Take reasonable actions to minimize any additional damage to the vehicle/cargo.

- Relocate the vehicle/cargo to a safer location. **Use a spotter to assist if available**.

- Take **photos after moving the vehicle/cargo**, if possible.

- Inform the TOC that:
  - Vehicle/cargo has been relocated
  - Lanes are cleared
  - If any damage occurred

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Hazardous Debris Removal

Hazardous debris would be something in the road blocking a travel lane (e.g. tire retread, lawn chair, couch cushion).

- Stop in a safe location along the highway.

- Provide the TOC scene details; using your State Radio report (as information becomes known):
  - Hazardous Debris
  - Location
    - Route
    - Highway (if needed to better define)
    - Direction (if needed)
    - Mile point or cross street
    - Lanes affected (direction and number)
  - Debris you are retrieving

- Update the TOC routinely and as scene conditions change to enable the TOC to provide accurate and timely updates, including traveler information.

- Update the TOC when leaving the scene.

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ODOT Employee Critical Injury or Fatality

Immediate Actions To Be Taken On The Scene

Action	Completed	Date and Time
• **Call 911.** o Report that a critical injury or possible fatality has occurred. Tell them: ▪ Who you are ▪ Where you are ▪ What has happened o **Do not use victim names if on the radio.**	☐	
• **Call the TOC.** o Refer to the event as a possible 1216A (code for a fatality) if that is the situation. Tell them: ▪ Who you are ▪ Where you are ▪ What has happened o **Do not use victim names if on the radio.**	☐	
• Ensure safety of yourself and others.	☐	
• Administer First Aid, if trained, and seek medical assistance as needed.	☐	
• Secure the area and provide traffic control as necessary.	☐	
• Notify your Manager/Supervisor	☐	
• In the event of a fatality, be sure that the victim and any identifying articles are out of sight except to investigating personnel, by blocking or covering with a blanket or other item. **Do not move the victim.**	☐	

Refer to the ODOT Emergency Operations Plan, Annex R, for other roles and extended actions.

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After the Incident

Personal Well-Being

If at any time you are feeling strong emotions such as grief, anger or stress, contact the ODOT Peer Support Team, Employee Assistance Program (EAP) or speak with your Manager/Supervisor. **See Contacts tab for phone numbers.**

Restock Supplies

Restock any supplies that were used during the incident. That way you are prepared for the next time you need to respond.

Complete Necessary Reports

Depending on the type and factors of the incident you responded to and your role on the scene, there may be reports that need to be filled out. It is better to do these while the information is fresh in your mind. The following should be filled out as applicable:

- Incident report
- Claims Against Others (CAO) report
- Fatal Investigation report

Debriefing

- ODOT and other agencies should schedule a debriefing while the incident is still fresh in everyone's mind.
  - ODOT also may conduct its own internal debrief of an incident.
  - An incident debrief is usually led by the IC or lead agency, but anyone can lead the debriefing if needed. At least one person who attends the debriefing should be in charge of taking notes.

  - Include dispatchers that may have been involved.

- A debriefing should include:
  - A recreation of the incident timeline
  - An opportunity for each agency or responder share what they saw as positive and negative aspects of the response and to suggest possible improvements
  - Ending the review on a positive note

- Share lessons learned with first responders and other employees not in attendance at the debriefing.

- Provide comments from reviews of major incidents to the Incident Management Coordinator in the Maintenance and Operations Branch.
  Note: Information from these debriefs will help in updating this *Guide* in the future.

Contacts

The TOC is often the most effective, preferred, and well documented method to initiate and maintain contact during an incident. If communications through the TOC are not available, these statewide and local contact numbers may facilitate or enhance the necessary notification, updates, and information exchanges.

Statewide Contact Information

The Oregon Emergency Response System should be called first. The other numbers are provided if a breakdown in communications occurs or general information is needed, the asterisk (*) indicates 24-hour availability.

Oregon Emergency Response System (OERS)	800-452-0311	*
State Police, Northern Command Center (NCC) (Answers for OERS at night)	503-375-3555	*
CHEMTREC (chlorine gas, hydrogen cyanide, hydrogen fluoride, LPG, pesticides, phosphorus, LPG)	800-424-9300	*
Department of Energy	800-221-8035	
Department of Environmental Quality	800-452-4011	
Department of Fish and Wildlife	800-720-6339	
Department of Forestry	503-945-7455	
Department of Transportation, Archaeology Program Manager	503-986-3309	
National Response Center http://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release	800-424-8802	
ODOT Employee Assistance Program (EAP)	800-433-2320	
ODOT Peer Support Team Contact (available in Inview, use crew number “PEER”)		
Oregon Health Services	971-673-1111	*
Oregon Poison Center	800-222-1222	*
Oregon State Fire Marshal HazMat Team (contacted via OERS)	800-452-0311	*
Pesticide Analytical Response Center	503-986-6470	
Umatilla Tribal Dispatch	541-278-0550	
Warm Springs Reservation Fire and Safety	541-553-1634	

Local Contact Information

The follow space may be used for phone numbers for the local ODOT Maintenance Section:

Local Emergency Notification	
ODOT	
Transportation Operations Center	
ODOT District Office	
ODOT HazMat Coordinator	
ODOT Region Office	
ODOT Region Safety Officer	
ODOT Region Environmental Coordinator	
ODOT Region Peer Support Team Member (available in Inview, use crew number “PEER”)	
Claims Against Others (CAO) – Program Lead	503-986-3040
Federal/State	
DEQ	
State Fire Marshal Region HazMat Team	
State Police	
Local (County/City)	
City Police	
County Sheriff	
Emergency Services	
Fire Department	
Hazardous Materials Resource	
Health Department	
Public Works	

Other Telephone Numbers

EMERGENCY NOTIFICATION FOR SPILLS IN ODOT MAINTENANCE YARDS

Yard **Yard phone** **Yard fax**

Yard address

Contacts for this Yard

Name	**Title**	**Contact Numbers**		
	District Manager			
	Assistant District Manager			
	Transportation Maintenance			
	Transportation Maintenance			
Transportation Operations Center (TOC) - Dispatch				

If a Spill Occurs at an ODOT Maintenance Yard

1. **Evaluate the Hazard – remove employees if necessary**

2. **If possible STOP THE RELEASE** (e.g. close the valve, turn off the pump, plug the hole)

3. **Notify ODOT Supervisor**

4. **If possible Control or Contain the spill**

5. **Notify the Dispatch of the situation** where appropriate. Dispatch can notify Incident Response, HazMat, Environmental, other agencies, or contractors when asked.

6. **Refer to the "Employee Guide to Hazardous Incidents and Hazardous Material Spill Response" and the Safety Data Sheet (SDS) for response actions.**

7. **If the spill**

   - **reaches or has potential to reach a waterbody (any quantity); OR**
   - **is more than 42 gallons of oil or fuel on the ground (OERS only); OR**
   - **is more than 200 pounds or 25 gallons of diluted or undiluted pesticide; OR**
   - **is a hazardous product or waste**

   Notify

   Oregon Emergency Response (OERS) 1-800-452-0311

   National Response Center (NRC) 1-800-424-8802

   - Notify OERS of potential spills that would be reportable if a release occurred (like a tanker rollover, a collapsing tank, or unstable hazardous cargo). When in doubt, report the spill. TOC may be asked to make notifications.
   - Notify the **Maintenance and Operations Branch and Region HazMat of spills that occur at an ODOT Maintenance yard that are reported to OERS or DEQ even <u>if the cleanup is contracted</u>**.
   - Notify the **Maintenance and Operations Branch of deicer spills larger than 42 gallons**.

8. **After the situation has been resolved, complete a "Spill Response Notification Form for Spills in Maintenance Yards" form** (if the spill was reportable). Blank forms are in the EMS Manual.

SPILL RESPONSE FORM FOR SPILLS IN ODOT MAINTENANCE YARDS

Yard	**Date**
Address	**Phone**

Release Information

Date of spill	**Person who discovered the spill**
Time spill started	**Time spill was stopped**
Material spilled	**Estimated amount released**
Attach a copy of the SDS (safety data sheet). *Mark the location of the spill and the direction of flow on a site drawing*	
Was there a threat to public safety?	☐ No ☐ Yes
Is there a potential for future release?	☐ No ☐ Yes
Did anyone come in direct contact with the spill? If yes, describe	☐ No ☐ Yes
Describe how the release occurred. Include details such as the source of the release, the cause, contributing factors, weather, activities occurring prior to or during the release, and the dates and time of the activities	
The release impacted (check all that apply) ☐ Surface water ☐ Groundwater ☐ Soil ☐ Air Describe any impacts from the release (such as fish kill, evacuation, etc.)	

Response Action

Who was notified and when did the notification occur.
Describe actions taken in response to the release. Include details such as actions taken to contain the release, actions taken by the first responders, and other immediate actions to protect people or the environment.

Yard **Date**

Recovery Action

Who performed the site cleanup

If ODOT did not perform the cleanup, list the cleanup company's

Name

Address

Phone Project manager

Describe cleanup activities. Include what actions were taken and when the actions were taken.

Were soil or water samples collected? ☐No ☐Yes

If yes, who collected the samples?

Mark the sample collection and locations on a copy of the site map. Attach copies of the sample results.

How much contaminated soil was removed from the site (estimate volume)?

Has all the contamination been removed from site? ☐No ☐Yes

Estimated volume of contaminated soil remaining, if any

Was a hazardous waste determination made? ☐No ☐Yes

List hazardous substances

Were contaminated materials taken off-site for disposal? ☐No ☐Yes

If yes, attach copies of receipts and/or documentation for disposal.

List the name and address of the disposal location

Facility phone Facility contact

These answers are True and Complete to the best of my ability.

Name **Date** **Position**

Signature

Keep this form and all related documentation on file at the yard

Accompanying documentation

- ☐ A copy of the SDS for the spilled product
- ☐ A site map that shows the location of spill and the flow direction
- ☐ A site map that shows the location of samples
- ☐ Receipts for disposal of hazardous material
- ☐ Receipts and/or documentation for disposal of contaminated material (such as soil)

Section Divider

Section Divider

Appendix I - DEQ Fact Sheets and Policy Sheets

Fact Sheet – Alternative Cleaning Solvents and Processes

Fact Sheet - Beneficial Use of Reclaimed Asphalt Grindings

Fact Sheet – Biodiesel and Underground Storage Tank Systems

Fact Sheet - Electronics Disposal Ban: What Consumers Need to Know

Fact Sheet – Fuel Ethanol and Underground Storage Tank Systems

Fact Sheet – Landfill Bans in Oregon

Fact Sheet - Management and Disposal Options for Aerosol Spray Cans

Fact Sheet – Management of Waste Batteries under the Universal waste Rule

Fact Sheet - Managing Used Computers and Other Electronic Equipment

Fact Sheet – Managing Waste Lamps & Ballasts

Fact Sheet – Managing Waste Pesticides – Details managing waste pesticide according to the Universal waste Rule

Fact Sheet - Sand Filter and Pressure Distribution Maintenance

Fact Sheet – Septic Tank Maintenance

Fact Sheet - Solvent-Contaminated Wipes Update

Fact Sheet – Universal Waste Handlers

Fact Sheet - Used Anti-Freeze

Fact Sheet – Used Oil Burning

Fact Sheet – Used Oil Generator Requirements

Fact Sheet – Used Oil Space Heaters

Fact Sheet – Waste Pesticide Management – How to avoid producing excess spray solutions, pesticide contaminated rinsewaters, absorbent and empty pesticide containers

Fact Sheet – Waste Pesticide Management – How to dispose of unusable or unwanted pesticide spray solutions, pesticide contaminated rinsewater and pesticide-containing absorbent

Fact Sheet - What to do when you've had a spill

Guidance Number 2005-PO-001 - Aerosol Spray Can Management

Guidance Number: 2004-PO-001 - Guidance on Performing a Hazardous Waste Determination on an Oily Waste

Policy 2001-PO-006 - Counting Recycled Hazardous Wwaste

Policy Number 99-01 – Management of Diesel Fuel and Asphalt Tack / Emulsion Mixtures

Fact Sheet

Beneficial Use of Reclaimed Asphalt Grindings

State of Oregon
Department of Environmental Quality

Environmental Solutions Division
Materials Management Program
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5696
(800) 452-4011
Fax: (503) 229-5850
Contact:
Bob Barrows, Eugene
barrows.bob@deq.state.or.us
(541) 687-7354
www.oregon.gov/DEQ

Background

Reclaimed asphalt pavement (RAP) is a common term used for removed and/or reprocessed pavement materials containing a mixture of petroleum-derived asphalt and mineral aggregates (gravel and sand). It is generated when pavement from old roads, parking lots and driveways is removed for reconstruction or resurfacing. RAP can be broken up asphalt chunks or asphalt grindings. Grindings are typically less than 1 inch in size and produced by the mechanical grinding of asphaltic pavement surfaces. This factsheet is intended to address best management practices for the beneficial use of reclaimed asphalt grindings.

Environmental and Public Health Concerns

While broken up large chunks of old, weathered and consolidated asphalt pavement pose minimal risk of harm to the environment or public health, asphalt grindings may pose a risk because of potential exposure to newly exposed asphalt binder. If not managed appropriately, carcinogenic compounds contained in the asphalt binder (polycyclic aromatic hydrocarbons – PAHs) may pose human health and environmental concerns particularly when asphalt material is ground into small particles.

Asphalt Grindings Pile

Some tests have shown that these compounds do not leach from asphalt grindings, however, asphalt grindings contain small amounts of fine particulates that may include asphalt binder. Although there are no available extensive studies demonstrating whether or not asphalt grindings particulates cause harm to human health or the environmental, DEQ recommends that asphalt grindings be managed to minimize the potential release of fine particles.

Recycling Asphalt Grindings

DEQ does not regulate asphalt grindings as solid waste when it is recycled back into new asphalt pavement and roads under specific conditions. (If these conditions are not met, asphalt grindings are solid waste and subject to DEQ solid waste regulations.) Both the aggregate and the asphalt in grindings are valuable, recyclable materials that can be recycled into new asphalt pavement surfaces, saving materials, greenhouse gas emissions, energy and money.

Asphalt Grinding Equipment

Permitting Exemptions

Oregon Administrative Rules (OAR) provide an exemption from solid waste permitting requirements for some uses of solid waste that are considered beneficial. The solid waste material must be used for a productive purpose and be managed safely under specified conditions of use. When asphalt grindings meet the criteria in the table below, it is exempt from solid waste permit requirements.

Solid Waste	Beneficial Use	Conditions on Use
(a) Asphalt pavement or asphalt grindings from road projects	As asphalt and aggregate in new asphalt pavement or as fill within road prisms	Asphalt grindings must be compacted when used within road prisms

OAR 340-093-0270(5)

Incorporating asphalt grindings into the production of new asphalt pavement is a very common practice. The Oregon Department of Transportation and many city and county road departments write specifications allowing and/or requiring new projects to incorporate asphalt grindings.

The use of asphalt grindings as fill or top dressing within road prisms is also common. For purposes of this factsheet, the road prism includes areas used for driving or storing vehicles, and associated embankments and

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By: Bob Barrows

structural support, e.g. parking lots, driveways, turn outs, shoulders, as well as roadways. Asphalt grindings used within a road prism are typically used under or within the roadbed surface, it is unusual for grindings to be placed out into the ditches. DEQ does not recommend using grindings as fill in ditches, if used in ditches the grindings need to be compacted as described in this factsheet.

Conditions on use

Asphalt grindings must be covered or compacted when used within road prisms.

Protections can be accomplished in two ways:

1) capping, covering or encapsulating the grindings or
2) compacting the grindings.

Placing asphalt grindings within the road, capped or covered by new asphalt paving or new gravel, is recommended by DEQ as the most protective practice.

However, compaction of asphalt grindings can reduce risks by using the adhesive properties of the asphalt to bind up the aggregate and harmful constituents.

Compaction must be accomplished by using standard compaction techniques, such as weighted rolling equipment, vibratory plate compactors or using the same equipment that would be used to compact aggregate for the specific application, at the time of lay down. Compaction by vehicle traffic is not an acceptable or sufficient method of compaction.

Generators of asphalt grindings must provide the following information (through written documentation, labeling, or other means) to users who intend to use the grindings in a manner other than making new asphalt pavement that identifies:

- The material as asphalt grindings;
- That asphalt grindings contains carcinogenic compounds - polycyclic aromatic hydrocarbons (PAHs) which may pose human health and environmental concerns, if not handled appropriately;
- That it is approved for use as fill in roads, parking lots and driveways under certain conditions; and
- Conditions of use - if the grindings are used as underlayment/fill, or exposed surface material in roads, parking/storage lots or driveways, then the asphalt grindings must be compacted with standard compaction equipment.

Compacted Grindings on Road Shoulder

For more information please contact a Regional Solid Waste Permit Coordinator:

Eastern Region: 541-298-7255 x221
Eastern Region counties include:
Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla (including Milton-Freewater), Union, Wallowa, Wasco, and Wheeler.

Northwest Region: 503-229-5263
Northwest Region counties include:
Clackamas, Clatsop, Columbia, Multnomah, Tillamook, and Washington.

Western Region: 541-687-7465
Western Region counties include:
Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk, and Yamhill.

Alternative Formats

Alternative formats of this document can be made available. Contact DEQ's Office of Communications & Outreach for more information at (503) 229-5696.

Fact Sheet

Electronics Disposal Ban: What Consumers Need to Know

Disposal ban goes into effect Jan. 1, 2010

State of Oregon
Department of Environmental Quality

Land Quality Division
Oregon E-Cycles
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5830
(800) 452-4011
Fax: (503) 229-6977
Contact
Oregon E-Cycles Staff
www.oregon.gov/DEQ

Background

As of Jan. 1, 2010, Oregonians can no longer throw away computers, monitors and TVs in the garbage. Landfills, transfer stations and other disposal facilities cannot accept these items for disposal. Unwanted computers, monitors and TVs must be recycled instead.

If your recycling is picked up at the curb:
Don't place computers, monitors or TVs in your recycling bin or place them at the curb. These items require special handling and cannot be collected for recycling via your regular curbside service.

If you haul your own trash:
You can be penalized for disposing of computers, monitors or TVs at a solid waste disposal site. A recycling depot located at a landfill, transfer station or other site may accept them for recycling. Check with the facility first.

Where can I recycle?

Recycle your computer, monitors and TVs through Oregon E-Cycles. Oregon E-Cycles is a statewide electronics recycling program financed by electronics manufacturers and jointly implemented with the Oregon Department of Environmental Quality.

To find Oregon E-Cycles collection sites, visit www.oregonecycles.org or call toll-free at 1-888-5-ECYCLE (1-888-532-9253). Recycling services are available year-round.

Anyone can take seven or fewer computers, monitors and TVs at a time to one of more than 200 Oregon E-Cycles collection sites in Oregon for free recycling.

Households, small businesses and small 501(c)(3) nonprofits with 10 or fewer employees may recycle more than the seven items at a time. People bringing more than seven items should call collection sites ahead of time to inquire about any documentation that may be needed and to ensure the site has capacity to handle your items.

Larger businesses and non-profits may take up to seven computers, monitors and TVs at a time to an Oregon E-Cycles collection site for recycling and can be charged for items exceeding the seven- item limit. For a more complete list of electronics recycling options, see DEQ's Web site at: www.deq.state.or.us/lq/ecycle/consumers/ .

In the Portland metro area, please call Metro's Recycling Information Hotline at 503-234-3000.

Why is recycling electronics important?

Electronic waste is the fastest growing waste stream in the U.S. With technology constantly changing, we replace our electronics every few years. In 2007 alone, Americans generated about 232 million computers and TVs. An estimated 235 million additional units are stored in our basements, closets and garages.

Recycling Conserves Natural Resources
Electronics contain valuable materials – including copper, gold and aluminum – that can be recycled and used in new products.

Recycling Reduces Greenhouse Gas Emissions
The U.S. Environmental Protection Agency estimates that recycling 1 million computers prevents the release of greenhouse gases equivalent to the annual emissions of more than 17,000 cars.

Recycling Protects Health and Environment
Electronics contain hazardous substances such as lead, cadmium and mercury. Even small amounts of these toxics can be dangerous if released into the air, water and soil.

For more information

For more information about Oregon E-Cycles, visit DEQ's Web site at: www.oregonecycles.org .

For questions about Oregon E-Cycles, please e-mail ecycle.info@deq.state.or.us.

Alternative formats
Alternative formats (large type, Braille) of this document can be made available. Contact DEQ's Office of Communications and Outreach, Portland, at (503) 229-5696, or call toll-free in Oregon at 1-800-452-4011, ext. 5696. People with hearing impairments may call 711.

Last Updated 8/24/09
By: K. Kiwala
09-LQ-094

State of Oregon Department of Environmental Quality

Management of Diesel Fuel and Asphalt Tack/Emulsion Mixtures

Hazardous Waste Program
Phone: 503-229-5696, Fax: 503-229-5675
www.oregon.gov/DEQ

Purpose

This guidance provides guidance to Department staff when evaluating the application of the hazardous waste regulations to generators of diesel fuel and asphalt tack/emulsion waste mixtures. Road construction and maintenance activities often produce a waste generated from the cleaning of asphalt tack coating or emulsion application equipment with diesel fuel. There has been concern that this waste mixture may be a characteristic hazardous waste (for ignitability and/or benzene) when disposed of or recycled. Enforcement discretion may be used for what would otherwise be RCRA violations if the best management practices identified in this guidance for this waste stream are followed.

This guidance is intended solely as guidance for employees of the Department of Environmental Quality (DEQ). It does not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create a right or benefit, substantive or procedural, enforceable by law or in equity, by any person. DEQ may take action at variance with this guidance statement.

Applicability

This guidance is limited to mixtures of diesel fuel and asphalt tack coating/emulsion wastes generated from cleaning out asphalt tack coating and emulsion application equipment. It does not apply to other asphalt tack coating or emulsion wastes generated from storage or use of these materials. The guidance also does not apply to mixtures of diesel fuel and asphalt tack coating/emulsion waste with other wastes.

Why Needed?

There has been recent confusion regarding how this waste should be managed, specifically it was believed that the waste may be characteristic for ignitability and/or benzene. Formerly, this waste was assumed to be non-hazardous waste. Recent Department data indicates that this waste mixture, when managed according to best management standards, infrequently exhibits a hazardous waste characteristic

Because of this, the Department believes that diesel fuel and asphalt tack/emulsion waste mixtures, when managed according to the management standards listed in the Guidance Description section below and properly recycled will be assumed to be managed according to applicable hazardous waste management requirements for the following reasons:

- It is believed that these waste mixtures infrequently exhibit the hazardous waste characteristic for benzene or ignitability;
- Present management in the used oil management system appears to provide management for the waste that is protective to health and the environment; and
- Because of the oily nature of this waste, it is very difficult to reliably perform the Toxic Characteristic Leaching Procedure (TCLP) analysis on the waste that would otherwise be required.

Discussion

Waste mixtures of diesel fuel asphalt tack/emulsion may be assumed by the Department to be properly managed according to the following best management practices:

1. The waste mixture contains spent diesel fuel that was used as a solvent to clean asphalt tack or emulsion application equipment;
2. The waste mixture is managed in tanks or containers that are in good condition (no visible leaks or corrosion) that are labeled with the contents (e.g., “Waste Solvent Tack / Emulsion Mixture”);
3. The tank or containers are under the control of the operator of the process generating the waste;
4. No additional wastes (e.g., waste fuels, spent solvents, tank sludges) are added to the waste mixture;
5. The waste mixture is recycled (e.g., burned for energy recovery or re-refined) according to used oil management requirements of OAR 340-111-0010(2)(c); and
6. Records are kept demonstrating that the waste was transported to a used oil processor or used oil burner for processing and subsequent recycling.

Wastes not managed in accordance with these best management practices may result in a notice of non-compliance for failure to do a proper waste determination and, if the material exhibits a hazardous waste characteristic, illegal disposal of hazardous waste.

Alternative Formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-401l; or email deqinfo@deq.state.or.us.

Fact Sheet

Used Antifreeze

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St
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Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ/

Why is used antifreeze a concern?

Antifreeze is a common engine coolant used in automobiles. It usually contains ethylene glycol or propylene glycol. Small amounts of ethylene glycol can cause health problems if swallowed by people or pets. Environmental contamination can occur when antifreeze is improperly disposed of or handled. Spent antifreeze poured onto the ground or into septic systems may eventually contaminate the groundwater. Antifreeze poured into storm drains, ditches, streams, lakes, etc., will contaminate surface water. Improper disposal may also result in drinking water supplies becoming contaminated.

How is used antifreeze regulated?

Used antifreeze that is generated by businesses, institutions or public agencies is subject to applicable state and federal hazardous waste management requirements. Under these requirements generators must determine if their wastes are hazardous. Refer to DEQ's Waste Determination Fact sheet. Management of used antifreeze produced by household "Do-It-Yourselfers" is not subject to these management requirements, and is discussed at the end of this fact sheet.

Oregon's antifreeze guidance

The Oregon Department of Environmental Quality (DEQ) has determined that used antifreeze that is recycled and properly managed according to the following "Best Management Practices" (BMPs) generally will not exhibit hazardous waste characteristics. Waste antifreeze managed according to the following practices will not be considered to be hazardous waste by the DEQ.

Used antifreeze Best Management Practices

Generators that use the following Best Management Practices and legitimately recycle their used antifreeze are presumed by DEQ, to comply with hazardous waste management requirements. Make sure that:

- Used antifreeze is stored in containers that are in good condition and labeled with the words "Used Antifreeze."
- Used antifreeze is not mixed with any waste or other material (e.g., solvents, cooling system flushes, used oil, motor fuels). Used antifreeze must be managed according to applicable hazardous waste regulations if it has been mixed with listed or characteristic hazardous waste.
- Antifreeze collection, storage and transport containers or tanks are dedicated solely to the transfer and storage of antifreeze, to prevent the risk of cross-contamination.
- Used antifreeze containers are kept closed, except when emptying or filling, to minimize the potential for spillage.
- Used antifreeze containers are located in a secure area and properly maintained so that they do not leak, rupture, or tip over when being opened, handled, or stored.
- Spills of used antifreeze are cleaned up immediately and appropriately managed. (Non-recyclable spill cleanup wastes must undergo a hazardous waste determination before disposal.)
- Volumes of accumulated used antifreeze are minimized by routinely recycling to reduce the potential for environmental harm.
- The used antifreeze generator and the recycling facility maintain proof of recycling (e.g., a log for on-site recycling or an invoice or bill of lading for off-site recycling).
- Employees who handle or otherwise manage used antifreeze know proper handling and spill response procedures.

Used antifreeze that is not legitimately recycled according to the above Best Management Practices is subject to management as a potential hazardous waste. Used antifreeze mixed with other waste or material, such as caustic radiator flushing chemicals or used oil, reduces the recyclability of the antifreeze and is not considered legitimate recycling under this guidance.

Antifreeze management options

Acceptable methods for managing used antifreeze include: recycling; disposal at a hazardous waste treatment, storage, or disposal (TSD) facility; or discharge to a wastewater treatment plant (with prior approval of the operator). Please note that many wastewater treatment plant operators prohibit the disposal of used antifreeze to their systems because of the possibility of damaging the treatment system.

Antifreeze should not be disposed of by throwing it in the trash, pouring it down the storm sewer, or putting it into septic systems. Many storm sewers discharge directly to surface waters, such as ponds or streams. If poured into a

Last Updated:6/2017

septic system, the antifreeze may damage the system by killing the microorganisms necessary for waste decomposition.

Recycling used antifreeze is the preferred option.

Not only is recycling the most environmentally safe and responsible option, but it may also be more cost efficient than disposing of the waste and buying new product. Widely available antifreeze recycling options include distillation, ion exchange and filtration.

Used antifreeze may be recycled at the generator's facility, or it may be transported to a recycling facility for reclamation.

A hazardous waste determination must be made on all wastes produced by the recycling process, such as filters and sludges, produced by the recycling process and the waste managed appropriately.

Used antifreeze generated by household do-it-yourselfers

Used antifreeze from households should be taken to a hazardous waste collection facility or collection event for proper recycling or disposal.

If you live in the Portland metropolitan area, contact the Metro Recycling Information Center at (503) 234-3000 for used antifreeze disposal/ recycling locations. If you live outside the Portland metro area, contact the toll-free hotline at 1-800-732-9253 for facilities that accept used antifreeze for recycling or upcoming household hazardous waste collection events. If collection is not available in your community, contact the local sewer district to see if disposal of small amounts of used antifreeze to the sanitary sewer is permitted. **Never** pour used antifreeze on the ground, down a dry well or storm drain, or in your septic system.

Used antifreeze recycling services

The following companies recycle or dispose of used antifreeze. This list is neither a DEQ endorsement nor a guarantee that the used antifreeze will be managed according to federal or state regulations. It is not a complete list of companies managing used antifreeze in Oregon.

Many of the companies listed also sell recycled antifreeze. When choosing a management company be sure that you know how the used antifreeze is managed and recycled. Not all companies claiming to recycle antifreeze produce a useable recycled product that can be used as a glycol feedstock or antifreeze product. Unusable materials end up being disposed, frequently in a manner that can adversely affect the environment. It is the responsibility of the generator to ensure their waste is managed properly.

Emerald Services
(Vancouver, WA) (888)832-3008

Industrial Oils
(Klamath Falls) (541) 884-9124

MSE Environmental
(Washougal) (206) 767-7990

Oil Re-refining
(Portland) (800) 367-8894

Onyx Environmental Services
(Vancouver, WA) (360) 607-3097

Philip Services Corporation
(Washougal, WA (800) 547-2436

Romic Environmental / Antifreeze Environmental Service Corp.
(Clackamas) (888) 242-8592

Safety Kleen Systems, Inc.
(Clackamas) (503) 655-5798
(Springfield) (541) 747-5804

Thermo Fluids
(Portland) (503) 788-4612

Univar, USA
(Portland) (503) 222-1721

For more information

For additional information on specific hazardous waste management requirements, contact DEQ's Waste Reduction Assistance Program at the location nearest you:

Northwest Region Office: 700 NE Multnomah St, Suite 600, Portland, OR 97232-4100, 503-229-5696

Bend office: 475 NE Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton, OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Dr, SE, Salem, OR 97302, 503-378-8240

Eugene office: 165 E. 7th Ave., Suite 100, Eugene, OR 97401, 541-686-7838

Alternative formats

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Fact Sheet

Used Oil Space Heaters

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.,
Suite 600
Portland, OR 97232-4100
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/deq

General information [40 CFR 279.23]

Businesses, organizations, and other persons may burn used oil in on-site space heaters if:

- The heater burns only used oil that the owner or operator generates themselves or used oil received from do-it-yourself used oil generators; and
- The heater is designed to have a maximum capacity of not more than 0.5 million BTUs per hour; and
- The combustion gases are vented to the outside air; and
- The burner is operated following the manufacturer's specifications.

Common questions:

What is a space heater?

A space heater is a unit designed specifically to burn oil for space heating purposes. Wood stoves and open burn barrels are not considered space heaters.

Do I need a permit for the space heater?

No permit is needed from DEQ if the unit meets the requirements of 40 CFR 279.23. We are not aware of any local requirements, but to be certain contact your local Fire Marshall, air pollution control authority, or building code department.

What if I own more than one business and want to burn used oil generated from one business location at another of my locations?

This is allowable as long as both operations are owned or operated by the same company /business/person. Check the used oil transporter factsheet for transportation requirements.

Owners of space heaters generally may burn only their own used oil, or oil from do-it-yourself used oil generators. However, used oil from another business or organization may be burned in your space heater if the oil meets certain specifications and proper records are kept. Specifically, to take someone else's used oil, the burner (yourself) or the generator (your used oil supplier) must test the oil and make sure the following specifications are met:

Constituent/ Property	Allowable level
Arsenic	< 5 part per million
Cadmium	< 2 ppm
Chromium	< 10 ppm
Lead	< 100 ppm
Halogens	< 1000 * ppm
Flashpoint	< 100° F minimum

The actual halogens regulatory limit is 4000 ppm. However, if total halogens exceed 1000 ppm, the oil is presumed to be a hazardous waste unless proven otherwise. The 1000 ppm maximum is a preliminary limit, but exceeding it could prevent the oil from being burned in off-site space heaters.

- If oil from another business exceeds any of these specifications, it cannot be burned in your space heater. Instead, it must be managed as off-specification used oil and handled by a blending or burning facility with an EPA identification number.
- Keep copies of the test results for three years;
- Obtain an identification number from DEQ as a marketer. If you already have a DEQ hazardous waste identification number, complete a used oil notification form to identify your marketing activity; and
- For three years, keep a record of each shipment of used oil to the burner, including:
  - the name and address of the facility receiving the shipment,
  - the quantity of used oil delivered,
  - the date of shipment, and
  - a cross-reference to the test results showing the oil meets the specifications.

Does every batch of used oil need to be tested?

No. Test results need to be representative of used oil received. In general, as long as the process generating the used oil remains unchanged, the initial test may remain representative. If something in the process changes (i.e., servicing mostly heavy equipment instead of vehicles, using different cleaners which could end up in the oil, maintaining new vehicles instead of old ones), another test is likely needed.

Last Updated: 07/2017
By: M. Fritzmann

Ash from space heaters [40 CFR 261.3; 40 CFR 261.5]

As with any other waste, you must complete a hazardous waste determination on the waste ash from the space heater. Ash determined to be a hazardous waste must be managed according to applicable hazardous waste management requirements.

For more information

Additional information is available in the following documents:

DEQ Used Oil Transporter and Transfer Facility *Factsheet*
DEQ Used Oil Burner and Marketer *Factsheet*
DEQ Used Oil Regulations OAR 340, Division 111 *(includes State used oil regulations) and* ***40 CFR, Part 279*** *(Federal used oil regulations)*
40 CFR, Part 261 *(Federal hazardous waste identification regulations)*
OAR 340, Division 108 *(State oil and hazardous material spill regulations)*
40 CFR, Part 112 *(Federal spill prevention, control, and countermeasures plan (SPCC) requirements)*
40 CFR 716.20(e) *(Federal PCB used oil requirements)*

For more information on the management of used oil, contact the DEQ regional office nearest you:

Eastern Region
Bend 541-388-6146
Pendleton 541-276-4063

Northwest Region
Portland 503-229-5696

Western Region
Salem 503-378-8240
Eugene 541-686-7838

Alternative formats

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Program Implementation Guidance

Counting Recycled Hazardous Waste

Number: 2001-PO-006 Effective Date: June 19, 2001

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St
Suite 600
Portland, OR 97232-4100
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ/

Purpose

This guidance provides guidance to Department staff on "counting" hazardous waste as it applies to the federal hazardous waste counting requirements of 261.5(c). This guidance is intended solely as guidance for employees of the Department of Environmental Quality (DEQ). It does not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create a right or benefit, substantive or procedural, enforceable by law or in equity, by any person. DEQ may take action at variance with this guidance statement.

Applicability

This guidance applies to hazardous waste generators counting hazardous waste to determine generator category when the secondary material[1] is being recycled:

1. On-site without prior accumulation; or
2. On-site multiple times during a calendar month.

Why is this guidance needed?

This guidance is designed to assist DEQ field staff in making hazardous waste compliance determinations.

Discussion

The Department encourages the recycling of hazardous secondary materials, especially when it can be done in a manner that minimizes the amount of waste accumulated on site that is required to be managed as hazardous waste. This counting guidance is designed to promote the reduction of the amount of spent materials accumulating on-site prior to recycling.

[1] For the purposes of this discussion, secondary materials are defined as residues that have the potential to be solid wastes and hazardous wastes when recycled, depending on how they are recycled.

Reasons to count

Reasons to count hazardous waste include:

- To determine generator category (*e.g., conditionally exempt, small or large quantity*);
- To comply with generator requirements associated with submitting Hazardous Waste Annual Reports; and
- To determine if a hazardous waste reduction plan should be submitted.

How often to count

Generators must count their hazardous waste generated each calendar month. Significant changes in the monthly total can cause a change in the generator's status.

Counting and Recycling without prior Accumulation or Storage

For the purposes of this guidance, "accumulation" and "storage" will have the same meaning, that is, the holding of hazardous waste for a temporary period of time, at the end of which the hazardous waste is treated (including being recycled), disposed of, or stored elsewhere.

"Spent material"[2] that is **immediately** transferred from a "process unit"[3] to an **on-site** "recycling unit"[4] is not required to be counted or included in the monthly waste accumulation generator category determination, if no storage or accumulation of the spent material has occurred prior to the recycling. If however the generator stores or accumulates the waste before it is recycled or reclaimed, the waste would have to

[2] A "spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing. For the purposes of this guidance, the material is a hazardous waste (either listed or characteristic hazardous waste).

[3] A "process unit" can include but is not limited to a photo processing unit, solvent parts cleaning unit, spray gun cleaner, painting tool cleaning station or a fiberglass tool cleaning station.

[4] A "recycling unit" can include but is not limited to a silver recovery unit, solvent still or filtration unit.

be counted towards the monthly quantity of hazardous waste generated.
It is not necessary that a generator install direct piping connections between the waste generation process and the recycling unit in order to meet the conditions for not counting hazardous wastes under 261.5(c)(3). Waste may be transferred via a container if the waste removed from the process unit is transferred immediately to the recycling unit.

For the purposes of this guidance, the following clarifications are added:

1. The container receiving the spent material from the process unit is located in or near the process unit;
2. "Generation" of the "spent material" occurs at the time the container is disconnected or disassociated from the process unit;
3. Once the spent material is removed from the process unit, it must be immediately conveyed by pipe or manually carried in a closed container to the on-site recycling unit;
4. "Immediately", for the purposes of this interpretation, means that the spent material is transferred directly to the recycling unit once it is generated (*i.e.*, removed) from the process unit;
5. Containers of spent material that are disconnected or disassociated from the process unit and that are left unattended for any period of time are not considered to have been transferred immediately upon generation to the recycling unit. The quantities of spent material would be considered accumulated or stored waste subject to substantive hazardous waste management requirements, beginning with counting for the purposes of determining monthly generator status; and
6. Facilities performing on-site recycling of spent material meeting the definition of hazardous waste must notify the Department of their recycling activity using the Department's hazardous waste notification form regardless of their generator status. Generators who have already notified the Department of their hazardous waste activity do not need to re-notify.

Counting and the Multiple Counting Exemption

The "multiple counting exemption" applies only to a time frame of one calendar month and is often used when wastes are stored or accumulated prior to recycling. It is intended to eliminate the multiple counting of spent materials that are reclaimed and then reused many times during that month. Spent materials (for example, solvents) which are generated, reclaimed, and reused (all occurring onsite) are counted once each month the material is generated.

Spent materials are counted only once during the month the material becomes spent, no matter how many times the solvent was reused during that month. All still bottoms and makeup solvent added for use are also counted during the calendar month.

The monthly waste total for the waste processed through the recycling unit will be the total pounds of these three waste streams:

Total monthly waste = first batch (or maximum capacity of the recycling unit) + still bottoms + makeup solvent

Tips for measuring these waste streams:

- **Spent solvent entering the still (or maximum capacity of recycling unit)**
  – Weigh what goes into the still, or measure the volume and convert it to pounds. To convert to pounds, weigh a gallon of spent solvent, then multiply the gallons recycled by this weight. Solvent weight may also be found on the solvent material safety data sheet.
- **Still Bottoms –** Weigh the amount of still bottoms recovered from each still batch.
- **Make-up Solvent –** Weigh any new solvent added each month.

Management of accumulated solvent prior to recycling

Accumulated spent materials are subject to applicable management requirements depending on generator category. At a minimum, the waste will need to be stored in a closed container in good condition. Any spills of spent solvent must be cleaned up immediately.

Alternative formats

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Guidance on Performing a Hazardous Waste Determination on an Oily Waste

Guidance Number: 2004-PO-001 **Effective Date: June 17, 2004**

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
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What Is the Purpose of This Guidance?

The purpose of this guidance is to provide recommendations for performing hazardous waste determinations on oily wastes.

The intent of this guidance is to assist DEQ employees and hazardous waste generators who dispose of oily wastes. This document does not constitute rulemaking by the Oregon Environmental Quality Commission, and no person may interpret this guidance to create a right or benefit, substantive or procedural, enforceable by law or in equity.

To Whom Does This Guidance Apply?

This guidance applies to persons responsible for performing hazardous waste determinations on oily wastes. Wastes addressed under this policy can include oily sludges, viscous organic wastes, and viscous inorganic materials such as latex paint.

Why Is This Guidance Needed?

The Toxicity Characteristic Leaching Procedure (TCLP) is not the best test for oily wastes when determining if a solid waste exhibits a toxic hazardous waste characteristic. The TCLP method can make it difficult to determine if oily wastes exhibit a hazardous waste toxicity characteristic.

Discussion

40 CFR 261.24[1] requires generators to use Environmental Protection Agency (EPA) TCLP Method 1311 without deviation when evaluating a solid waste for toxicity hazardous waste characteristic[2]. The purpose of the TCLP method is to replicate the conditions of a municipal solid waste landfill to evaluate the potential leachability of a waste.

EPA acknowledges that the TCLP method is not appropriate for oily and organic wastes for the following reasons:

- **Viscous wastes can plug filters during the TCLP procedure.**

  Some wastes, such as oily and paint wastes, contain some seemingly liquid material. These viscous, solid wastes can plug filters before filtering all apparent liquids. Method 1311 requires the evaluation of the waste fraction retained in the filter be evaluated as a solid even if it contains both apparent liquids and solids. The oily fraction can interfere with obtaining an accurate leaching test on the solid fraction.

- **Oily waste extracts and filtrates are difficult to analyze**.

  The TCLP extraction procedure uses an aqueous extraction fluid that can produce a multiphase sample (oil and water layers) when processing an oily waste using the extraction method. A multiphase sample is difficult to analyze. Additionally, analysis for volatile constituents is especially challenging in non-aqueous and multiphase wastes.

  Drying an oily sample is also difficult when determining the dry weight of the sample. The test results may not accurately represent the leachability of the waste.

  40 CFR 261.24 does not specify particular analysis method for the waste determination once the TCLP process is done. Laboratories can accommodate for specific physical characteristics by choosing an appropriate analysis method after extracting the waste using Method 1311.

[1] Title 40 of the Code of Federal Regulations (CFR) Part 261.24.

[2] Refer to DEQ's waste determination factsheet for a more thorough discussion of the waste determination process.

Recommendations

Manage the material as used oil if it meets the definition of used oil.

Used oil is exempt from management as a hazardous waste when it is recycled, and, therefore, does not require a TCLP for most conditions **if the material meets the definition of used oil.** Used oil includes oil that has been refined from crude or synthetic oil and used as a lubricant, electrical insulation oil, hydraulic fluid, brake fluid, refrigeration oil grease or machine cutting fluid. Search DEQ's website for used oil for more information.

Used oil destined for disposal is subject to management as a potential hazardous waste.

Used oil containing greater than 1,000 ppm of total halogens is presumed to have been mixed with listed hazardous waste. Refer to 40 CFR 279.10 for a description how to manage mixtures of used oil and other materials.

Managing the material for disposal or in a manner constituting disposal

Due to the difficulty performing a TCLP test on oily wastes, DEQ staff and generators should consider the following steps when making a hazardous waste determination:

- **Discuss sampling needs with your laboratory**

  Discuss with your laboratory what the sampling needs are to determine if you are requesting the correct analytical method **before** you collect the sample. Prior arrangements can ensure that the right sample size, container and method are chosen.

- **Evaluate the material for listed hazardous waste chlorinated solvents**

  Oily wastes may contain spent solvents that are listed hazardous waste. Listed solvents include, but are not limited to, trichloroethylene, methylene chloride, trichloroethane and perchloroethylene. Oily wastes containing listed hazardous waste must be managed as a hazardous waste. A complete list of the chlorinated solvents is found in 40 CFR 261.31(a).

- **Evaluate the waste for other hazardous waste characteristics.**

  Does the waste exhibit a hazardous waste characteristic for ignitability, corrosivity or reactivity? If the waste exhibits a hazardous waste characteristic for ignitibility, corrosivity or reactivity after a determination, a TCLP test may not need to be done if it is a known hazardous waste.

- **If possible, use knowledge of process for waste determination.**

  In some cases, knowledge of how the waste was produced may work. If the waste contains a listed hazardous waste, manage it as a hazardous waste. Evaluation of how the waste was generated can often indicate if the waste will be a hazardous waste without testing. In many cases, generators may not have adequate information to rely solely on this determination method and testing must be conducted.

Perform Total Constituent Analysis

The TCLP procedure states: "If total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are in such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run." In other words, use total analysis to screen for hazardous constituents.

If the total result for an individual contaminant is less than 20 times the TCLP regulatory concentration for the corresponding hazardous waste toxic characteristic, the waste will not exceed the regulatory TCLP limit if the waste contains 100% solids. For a waste that contains 100% solids, as defined by the TCLP method, the results of the total constituent analysis may be divided by twenty to convert the total results into the maximum leachable concentration. This factor comes from the 20:1 liquid-to-solid ratio employed in the TCLP leaching procedure.

For example, if the lead total analysis of a waste was 80 ppm it would not fail the TCLP value of 5 mg/l for lead since it is less than 20 times the regulatory TCLP level (5.0 mg/l X 20 = 100). However, if the total lead sample yields a result of 180 ppm, the result would exceed the screening value (180 ppm > 100). Therefore, the waste could be a characteristic hazardous waste for lead.

NOTE: This is a conservative screening estimate and assumes that all the lead will leach from the sample.

If a waste has filterable liquid, then the lab must determine the concentration of the analyte in each phase (liquid and solid).

For further information, refer to January 1994 EPA RCRA Hotline Report titled "Use of Total Waste Analysis in Toxicity Characteristic Determinations."

Note: When conducting a waste determination and total analysis results show TCLP constituents present in levels that could be above the regulatory limit, the TCLP procedure is necessary to demonstrate that the waste is not hazardous waste.

Alternative formats

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Fact Sheet

Solvent-Contaminated Wipes Update

OAR 340-101-0004(3-5), and 40 CFR §261.4(a)(26) and 261.4(b)(18)

Purpose

This fact sheet clarifies the status of solvent-contaminated rags and wipes under Oregon's hazardous waste regulations after recent federal and state changes.

Background

On Jul. 31, 2013, the US EPA published the final rules titled "Conditional Exclusion from Hazardous Waste and Solid Waste for Solvent Contaminated Wipes." The federal rule became effective on Jan. 31, 2014. As part of this rule, EPA requires states that regulate wipes through a policy to adopt enforceable regulations.

DEQ recently adopted the EPA rule in part, allowing generators to recycle solvent-contaminated wipes and rags through laundering agreements. DEQ did not adopt the portion of EPA's rule allowing disposal of these wipes in municipal landfills or non-hazwaste incinerators.

DEQ will exempt wipes and rags from hazardous waste regulation if managed under Oregon's wipes rule and wipes are laundered or disposed as solid waste at a hazardous waste treatment, storage and disposal permitted facility.

Dirty rags destined for laundering

Changes from laundered wipe policy

Under the new federal regulations, the following are not eligible for the laundering exclusion:

- Rags and wipes that contain listed hazardous waste other than solvents (e.g., such as metals, etc.); and
- Rags and wipes exhibiting hazardous waste characteristics due to contaminants other than solvents.

Formerly DEQ exempted all laundered wipes according to a 1996 policy. To be at least as stringent as EPA, Oregon's new rule only applies to solvent-contaminated rags and wipes. If a business generates a rag or wipe that is hazardous waste for reasons other than solvent, these rags and wipes are no longer exempt if laundered. Wipes are also subject to recordkeeping requirements, labeling, and may only be kept on site for 180 days. DEQ also allows solvent wipes to be exempt if disposed at a hazardous waste permitted facility as solid waste.

Properly manage recyclable solvent-contaminated wipes

How does Oregon's rule differ from EPA?

DEQ does not allow disposal of wipes at a municipal landfill or non-hazardous waste incinerator.

The federal rule requires containers holding recyclable wipes to be labeled as "Excluded Solvent-Contaminated Wipes." Oregon requires labeling, but allows for equivalent wording on the label such as 'dirty rags destined for laundering.'

Businesses management of wipes under Oregon's rule

Businesses must place solvent-contaminated wipes in non-leaking, closed containers with no free liquids, and label containers "Excluded Solvent- Contaminated Wipes" or with equivalent wording (see example above).

Before transporting, businesses must ensure solvent-contaminated wipes and their containers have no free liquids, as determined by the Paint Filter Liquids Test (EPA Methods Test 9095B).

Businesses must manage free liquids removed from the wipes or from the containers holding wipes as hazardous waste prior to the wipes sent for laundering or disposal.

State of Oregon
Department of Environmental Quality

Hazardous Waste
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5850
www.oregon.gov/DEQ

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By: Laurey Cook

A business can accumulate solvent-contaminated wipes for up to 180 days before sending for cleaning or disposal at a hazardous waste permitted facility.

Businesses must keep records documenting:

- The name and address of the laundry or dry cleaner;
- How the 180-day accumulation time limit is being met; and
- The process it uses to meet the "no free liquids" condition.

The exclusion consists of: Wipes that exhibit a hazardous characteristic resulting from a solvent listed in Part 261; wipes that exhibit only the characteristic of ignitability when containing one or more non-listed solvents; and wipes containing one or more F001-F005 listed solvents listed in 40 CFR §261.31 or the corresponding P- or U-listed solvents found in §261.33, including:

- Acetone
- Benzene
- n-Butanol
- Chlorobenzene
- Creosols
- Cyclohexanone
- 1,2-Dichlorobenzene
- Ethyl acetate
- Ethyl benzene
- 2-Ethoxyethanol
- Isobutyl alcohol
- Methanol
- Methyl ethyl ketone
- Methyl isobutyl ketone
- Methylene chloride
- Tetrachloroethylene
- Toluene
- 1,1,2-Trichloroethane
- Trichloroethylene*
- Xylenes

* Trichloroethylene for reuse only

Reusable solvent-contaminated wipes must go to a laundry or dry cleaner where discharge, if any, is regulated under sections 301 and 402 or section 307 of the Clean Water Act.

If disposing, not laundering, solvent-contaminated wipes or rags are exempt as long as the business follows the management requirements and send for disposal to a hazardous waste permitted facility.

Laundries management of wipes under Oregon's rule

Laundries must store solvent-contaminated wipes in non-leaking, closed containers that are labeled "Excluded Solvent-Contaminated Wipes" or equivalent wording. Containers must be able to contain free liquids should they occur.

In transportation, occasionally free liquids can settle out. Free liquids removed from the wipes or from the container holding the wipes must be managed according to applicable hazardous waste regulations in 40 CFR parts 260 through 273.

Laundries must not accept wipes and rags from large or small quantity generators that are toxic, corrosive, or reactive hazardous waste due to the presence of contamination that is not from a solvent listed in the federal rule.

Laundries cannot accept wipes and rags from large or small quantity generators contaminated with listed hazardous waste, unless the wipes and rags are hazardous waste for a solvent listed in the wipes and rag rule

DEQ regional offices and assistance

For more assistance, see the DEQ hazardous waste program specialist in your area.

Northwest Region office: 700 NE Multnomah St., Suite 600, Portland, OR 97232, 503-229-5696

Bend office: 475 Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Dr., Salem, OR 97302, 503-378-8240, ext. 253

Eugene office: 165 E. 7th Ave., Suite 100, Eugene OR 97401, 541-686-7838

Where to find more information

DEQ hazardous waste regulations are located on DEQ's website or search Oregon Administrative Rule 100 through 109.

Federal hazardous waste regulations are in Title 40, Part 260-265 of the Code of Federal Regulations.

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Fact Sheet

Managing Used Computers and Other Electronic Equipment

A guide for businesses and institutions

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.,
Suite 600
Portland, OR 97232-4100
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Background

The use of computers and other electronic equipment such as televisions, cell phones, fax machines and copiers rapidly expanded during the 1990s. Because this becomes obsolete after just a few years of use, disposal volumes of these items have risen rapidly. Many people do not realize that this equipment may contain toxic metals that may leak to the environment if not properly managed. In addition, their toxicity can make these items subject to full state and federal hazardous waste regulations when disposed in landfills or incinerated.

In May 2002, the Oregon Department of Environmental Quality adopted an interim policy for businesses and institutions to encourage reuse and recycling of electronic equipment, specifically the cathode ray tubes (CRTs) found in computer monitors and televisions. If CRTs are reused or recycled, they may be exempted from hazardous waste regulation. In order to qualify for this exemption, businesses must be able to demonstrate legitimate reuse or recycling.

Why computers can be regulated as hazardous waste

Items such as computers can be measured for their "hazardous waste toxicity characteristic." Regulatory levels of toxicity have been established for 40 chemicals, including eight metals. Computer monitors, central processing units, keyboards and printers all have printed circuit boards that contain toxic metals. In addition, lead in the computer monitor's cathode ray tube generally causes it to exceed the toxicity characteristic for lead. (Lead usually makes up about 25% of the monitor's total weight.)

All businesses and institutions disposing of waste materials in solid waste landfills and incinerators must determine if their wastes are hazardous waste. If computers or electronic equipment are burned or landfilled, heavy metals can be released, threatening human health and the environment. Businesses and institutions that dispose of their computers and other electronic equipment in a landfill or by incineration are subject to applicable solid waste and hazardous waste rules, including hazardous waste generator requirements.

Oregon hazardous waste regulations prohibit businesses and institutions producing more than 220 pounds of hazardous waste per month from disposing computers and other electronic equipment in solid waste landfills and incinerators, if these items exceed toxicity characteristic levels.

Reuse/recycling of electronic equipment

Reuse: Although used computers and electronic items such as televisions contain toxic and hazardous substances, they can be given another life when reused or recycled. A computer or other electronic device that is fully functional, or can be repaired and used for its intended purpose, is *not* a waste and therefore not regulated by DEQ.

Recycling: Computers and other electronic devices that are legitimately recycled may require a hazardous waste determination (either by testing for heavy metals or applying knowledge per 40 CFR 261.24 and §§262.11) and may be subject to management as hazardous waste. *(Please note that businesses may be responsible for environmental damage and hazardous waste requirements when the recycling is not safely performed.)*

Legitimate recycling means dismantling of the computers and other electronic equipment into recyclable components for resource recovery.

- Businesses and institutions should store and recycle their used computer monitors and electronic equipment in a manner that will prevent breakage and release of hazardous substances into the environment.
- Conditionally exempt businesses and institutions may collect and safely transport their own used computers and other electronic equipment to a central location for consolidation prior to reuse or recycling without a solid or hazardous waste transporter's license or hazardous waste listing.

Regulations for transporters and recyclers of used computers

Businesses and institutions that transport used computers and other electronic equipment should check with the Oregon Department of

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Transportation about the applicability of the hazardous material transportation regulation. It is not necessary to have a solid or hazardous waste transporter's license for moving used computers to a recycling or reuse facility. Depending on the complexity of their recycling operation, computer recyclers ***may*** need a DEQ solid waste permit for operation.

Recycling facilities that receive electronic equipment from businesses, institutions, or households cannot legally dispose of hazardous waste components or parts at a solid waste facility if they produce more than 220 pounds of hazardous waste (including waste electronics) per calendar month. The waste parts or components containing hazardous materials are subject to applicable hazardous waste determination and other applicable hazardous waste regulations.

Options for managing used computers and other electronics

Options are available that give old equipment a new lease on life, reduce the expense and regulatory burden of managing them as fully-regulated hazardous waste, and safeguard the environment. Search the DEQ website for 'Electronics Management' for more information.

Management options include:

- **Donation:** Donating usable equipment to a school or nonprofit group benefits both the receiving organization and the company making the donation. Check first with the potential recipients to make sure they can use your equipment.
- **Resale:** Some companies sell or offer their used computers to employees. Others sell or give them to computer repair/resale businesses.
- **Return to manufacturer:** Original equipment manufacturers such as IBM, Apple, Dell, Compaq and Gateway have programs to take back computers they produced.
- **Asset management:** Asset management companies provide full-service surplus electronics collection, component recovery and equipment refurbishing for corporations and environmentally acceptable disposal.
- **Recyclers:** There are several computer recycling centers and electronics de-manufacturers in the Pacific Northwest. These businesses disassemble computers, salvage parts and sell reclaimed materials. Businesses and institutions are responsible for choosing a recycler that will recycle the electronic equipment in a manner that does not release hazardous constituents into the environment. The business or institution material was recycled.

Ask the following questions when selecting a computer recycler:

- What type of certification is available to document that the equipment was properly recycled?
- Does the firm have necessary state and local permits?
- How does the facility manage the used computer equipment and electronic equipment and waste?
- Does the firm have contracts with foundries and scrap dealers for its metals, or with precious-metal refiners for its circuit boards? Has the company completed an environmental audit of these facilities?
- What is the firm's program for dealing with cathode ray tubes?
- Can the firm track the materials that it processes?
- Does the firm have sufficient liability insurance coverage?
- Does the firm have a Hazard Communication Plan, Worker Safety Training Program, and Right to Know Training Program?
- Is proper protective equipment available and used by employees?

Used computers from households: Used household computers are not subject to hazardous waste regulation if they are managed together with household wastes. However, businesses that accept household computers may be subject to hazardous waste management requirements if the computers are not reused or recycled.

Technical assistance

DEQ technical assistance is available to businesses and institutions for free on-site visits, free telephone consultations, and hazardous waste training.

Technical assistance can help businesses and institutions understand how hazardous waste regulations apply to their operation, determine which wastes are hazardous, complete reporting forms, manage wastes better, reduce disposal costs, minimize waste produced, and determine areas needing improvement.

Fact Sheet

Management and Disposal Options for Aerosol Spray Cans

State of Oregon
Department of Environmental Quality

Hazardous Waste
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Purpose

This document provides information to generators to understand how aerosol spray cans are managed and regulated for disposal.

Discarded, aerosol cans are solid wastes and therefore a potential hazardous waste. Due to the construction of an aerosol can and the wide range of potential contents, it can be difficult to determine if a discarded aerosol can is regulated as a hazardous or solid waste.

This document does not apply to generators of household hazardous waste as defined in 40 CFR 261.4(b)(1).

Discussion

A wide variety of industries use aerosol cans. Some aerosol products such as cleaners, lubricants, paints, solvent and pesticides are hazardous materials and may be hazardous waste when disposed. Many aerosol cans contain highly flammable propellants such as propane or butane. Pressurized cans can also present safety concerns if managed improperly.

Regulated as hazardous waste

It is the responsibility of the generator to make a hazardous waste determination.

A discarded aerosol can that has not been punctured or drained is a reactive hazardous waste. Its contents may also be a characteristic or listed hazardous. Discarded aerosol spray cans determined to be a hazardous waste, or that are not punctured and emptied must be managed according to applicable hazardous waste management requirements.

When not regulated as hazardous waste

Aerosol cans that are still in use and contain usable product are not yet considered wastes.

Aerosol cans that are punctured and emptied may be recycled as a solid waste. Most scrap metal recyclers will only accept cans that have been punctured.

Note: Please contact DEQ regarding proper management of aerosol cans containing pesticides.

Management and Disposal options

Prior to any of the management options below, aerosol cans must be safely stored. Pressurized aerosol cans must be stored in an accumulation container that is in good condition and prevents releases.

1. Manage aerosol spray cans as hazardous waste by shipping waste on a uniform hazardous waste manifest to a permitted treatment, storage and disposal facility.

2. Recycle empty punctured cans as scrap metal. Any puncturing method that releases gases or liquid directly to the environment are prohibited. Commercial can puncturing devices that capture vapors are available and recommended.

   After puncturing, the residual liquids must be collected and managed as hazardous waste. Only collect compatible wastes together. Puncturing cans is not considered treatment if the cans are recycled or intended to be recycled as scrap metal.

Note: Conditionally exempt generators may dispose or recycle aerosol cans in accordance with 40 CFR 261.5 (July 1, 2015) which includes sending cans to Metro for puncturing and/or in recycling bins picked up for delivery to a licensed solid waste facility.

For more information please contact:

Businesses and institutions seeking DEQ technical assistance or having questions about waste management may search the DEQ Web site for 'HW Technical Assistance' or contact the nearest DEQ field office:

- Bend, 541-388-6146
- Eugene, 541-686-7838
- Portland, 503-229-5696
- Salem, 503-378-8240

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

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By: R. Williams

Businesses and institutions seeking DEQ technical assistance or having questions about waste management may search the DEQ Web site for 'HW Technical Assistance' or contact the nearest DEQ field office:

- Bend, 541-388-6146
- Eugene, 541-686-7838
- Medford, 541-776-6010
- Portland, 503-229-5696
- Salem, 503-378-8240

Alternative formats

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Fact Sheet

Waste Pesticide Management

How to avoid producing excess spray solutions, pesticide contaminated rinsewaters, absorbents and empty pesticide containers

State of Oregon
Department of Environmental Quality

Land Quality Division
Hazardous Waste Program
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5913
(800) 452-4011
Fax: (503) 229-6977
Contact: Rick Volpel
http://www.oregon.gov/deq

Environmentally sound management of pesticide waste and empty pesticide containers is in everyone's best interest. Accidental release or indiscriminate discharge of pesticide waste into the environment can harm people and contaminate surface and groundwater. Pesticide contaminated water poses a hazard to non-target organisms such as plants, beneficial insects, fish and other aquatic life.

This factsheet is produced for people who use pesticides in industrial processes, crop and livestock production, and forest management. It describes how to dispose of excess pesticide spray solutions, pesticide-contaminated risewaters and pesticide-containing absorbent. This factsheet does not cover how to dispose of unused pesticide products. For that information, refer to DEQ's "Managing Waste Pesticides" factsheet.

What is pesticide waste?

Pesticide wastes are materials containing pesticide that cannot or will not be used and will be discarded and disposed of. By definition, pesticide wastes are "hazardous wastes" in Oregon. Pesticide wastes include, but are not limited to:

- Surplus spray solution, ultra-low volume (ULV) spray concentrate, dusts, granules, or baits remaining in the application equipment (such as tanks, hoppers, booms, hoses) after use.
- Pesticide-contaminated water produced by cleaning the interior surfaces of the pesticide application equipment or from rinsing empty pesticide containers.
- Pesticide-contaminated absorbent, water, or other materials generated from cleaning up spilled spray solutions.
- Empty, contaminated (unrinsed) pesticide containers.

Note: Spills of all pesticides, including pesticide wastes, must be reported to the Oregon Emergency Management Division (1-800-452-0311) and must be cleaned up according to Oregon revised regulation 340-142-0060.

What is not a pesticide waste?

Any pesticide-containing material that is used or reused according to label instructions for its intended purpose is not considered a pesticide waste. In addition, pesticide wastes do not include pesticide-containing materials when pesticides were applied according to label instructions. For examples, treated soil, foodstuff, water, vegetation, and treated seeds are not pesticide waste when disposed of.

Pesticide wastes are hazardous waste. Pesticide-containing materials that cannot or will not be reused (i.e., pesticide wastes), and must be disposed are "hazardous wastes" and are designated "pesticide residue" generated from two sources:

- The point of application (in the field and essentially limited to agriculture and silviculture); and
- Permanent bases of operation (i.e., places where equipment is stored, such as an airfield or pesticide dealership.

How pesticide waste is managed for disposal varies depending on the point of generation of waste.

How to avoid making pesticide wastes

Here are some important methods to help you avoid pesticide waste generation:

- Purchase no more pesticide than can be used in one season,
- Measure, mix and load only enough pesticide to do the job,
- Apply all the pesticide spray solution according to the highest industry standards and label instructions, onto the target site,
- Completely remove dry or liquid pesticide formulations from the containers. Drain containers holding liquids until dripping stops, and
- In the field, use water or another specified diluting agent and multiple rinse (rinse at least three times) or pressure wash empty containers as often as necessary until the container is clean. Always add the collected rinse solution to the spray solution. In the field, collect pesticide-contaminated water produced by high pressure, low volume cleaning (this method reduces volume) of the interior surfaces of the pesticide application equipment, such as the spray or mixing tanks, booms, hoses, or spray guns.

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By: Rick Volpel

Spray the collected mixture onto the previously treated area, sites or targets, described on label.

If you cannot spray the rinsates or if there is leftover pesticide or pesticide-containing material because of error or miscalculation, do the following:

- Collect the material in a container. Hold it for use in the next application.
- Label the container with 'the name of the pesticide contents and EPA Registration Number.
- Date the container to keep track of which rinsates or mixtures to use first.

These materials may be used as a "product."

How to manage empty pesticide containers

Contaminated, empty containers (unrinsed containers) are "hazardous wastes" unless they are accepted by a pesticide distributor or manufacturer for refill or are decontaminated. If discarded, contaminated containers must be disposed of as hazardous waste. This expensive practice can be avoided by decontaminating them. At the time of emptying, decontaminate rigid containers such as plastic pails or drums, metal pails or drums, and, fiber containers by:

- Pressure or multiple rinsing (multiple rinse with the appropriate diluent at least, three times, or as often as necessary to make the container clean; if possible, multiple rinse non-rigid containers such as paper containers lined with plastic or foil. Always use this rinsate for your next batch of pesticide spray mix.
- Visually verifying that the residues have been removed from the inside and outside of the containers;
- Drying (the container's interior surfaces should be dried before crushing); and
- Crushing or physically altering, such as puncturing, the containers.

(**Note**: One and five gallon metal containers are to be punctured with at least three one-inch holes in the top and bottom before crushing. Thirty and fifty-five gallon containers are required to have both the tops and bottoms cut out and then flattened. Plastic containers do not need to be crushed.)

Decontaminated containers can and should be recycled. For more information on the collection and recycling of decontaminated metal or plastic pesticide containers, contact the **Oregon Agricultural Chemicals and Fertilizers Association (OACFA) at 503-370-7024.**

If you reuse your rinsates AND avoid generating excess spray mixtures AND purchase only the amount of pesticide you need, THEN you have no wastes to dispose of. Stop Here!!

However, if you have unusable pesticide containing materials, and they cannot be reused, then disposal is your only option. Consult DEQ's "How to dispose of unusable or unwanted pesticide spray solutions, pesticide contaminated rinsewaters and pesticide-containing absorbent" factsheet for information on how to dispose of pesticide waste.

Where can I find more information on managing pesticides waste?

For more information on the management of waste pesticides, visit DEQ waste pesticide webpage at http://www.deq.state.or.us/lq/hw/pesticide.htm or contact:

- The nearest DEQ Regional Office,
- **Oregon Department of Agriculture**
  Plant Division 635 Capitol Street NE
  Salem, OR 97310-0110
  503-986-4635, or
- **Oregon State University**
  Department of Environmental and Molecular Toxicology
  Ag & Life Sciences Building – Room 1007
  Attn: Extension Pesticide Coordinator
  Corvallis, OR 97331
  541-737-1811

This factsheet was developed jointly by the Department of Environmental Quality and Oregon State University Extension Service in cooperation and support from the Oregon Department of Agriculture, Oregon Agricultural Chemicals and Fertilizers Association, and Oregonians for Food and Shelter, Oregon Association of Nurserymen, and the Western Wood Preservers Association.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Fact Sheet

Waste Pesticide Management

How to dispose of unusable or unwanted pesticide spray solutions, pesticide contaminated rinsewaters and pesticide-containing absorbent

State of Oregon
Department of Environmental Quality

Land Quality Division
Hazardous Waste Program
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-5913
(800) 452-4011
Fax: (503) 229-6977
Contact: Rick Volpel
http://www.oregon.gov/deq

Environmentally sound management of pesticide waste and empty pesticide containers is in everyone's best interest. Accidental release or indiscriminate discharge of pesticide waste into the environment can harm people and contaminate surface and groundwater. Pesticide contaminated water poses a hazard to non-target organisms such as plants, beneficial insects, fish and other aquatic life.

This factsheet is produced for people who use pesticides in industrial processes, crop and livestock production, and forest management and describes how to dispose of excess pesticide spray solutions, pesticide-contaminated risewaters and pesticide-containing absorbent. This factsheet does not cover how to dispose of unused pesticide products. For that information, refer to "How to manage banned, canceled and unwanted and unused pesticide products and spills of these materials."

What is pesticide waste?

Pesticide wastes is any substance or material containing pesticide that can not or will not be used and will be discarded and disposed of. By definition, pesticide wastes are "hazardous wastes" in Oregon. Pesticide wastes include, but are not limited to:

- Surplus spray solution, ultra-low volume (ULV) spray concentrate, dusts, granules, or baits remaining in the application equipment (such as tanks, hoppers, booms, hoses) after use.
- Pesticide-contaminated water produced by cleaning the interior surfaces of the pesticide application equipment or from rinsing empty pesticide containers.
- Pesticide-contaminated absorbent, water, or other materials generated from cleaning up spilled spray solutions.
- Empty, contaminated (unrinsed) pesticide containers.

Note: Spills of all pesticides, including pesticide wastes, must be reported to the Oregon Emergency Management Division (1-800-452-0311) and must be cleaned up according to Oregon revised regulation 340-142-0060.

What is not a pesticide waste?

Any pesticide-containing material that is used or reused according to label instructions for its intended purpose is not considered a pesticide waste. In addition, pesticide wastes do not include pesticide-containing materials when pesticides were applied according to label instructions. For example, treated soil, foodstuff, water, vegetation, and treated seeds are not pesticide waste when disposed of.

Pesticide wastes are hazardous waste.

Pesticide-containing materials that cannot or will not be reused (i.e., pesticide wastes), and must be disposed are "hazardous wastes" and are designated "pesticide residue" generated from two sources:

- The point of application (in the field and essentially limited to agriculture and silviculture); and
- Permanent bases of operation (i.e., places where equipment is stored, such as an airfield or pesticide dealership.

How pesticide waste is managed for disposal varies depending on the point of generation of waste.

Disposing of pesticide wastes produced at the point of application (in the field) in agricultural and silvicultural operations

1. Wash the exterior of application equipment at the site where the equipment is used, or on your own property (occasionally moving the wash site); and in such a way that wastewater will not enter groundwater, surface water, wells, storm drains, drainage ditches, streams, creeks, lakes, or rivers.

2. Dispose of small quantities (less than one gallon or 10 pounds) of biodegradable pesticide wastes (except surplus pesticide product or formulations) such as surplus spray solutions, dusts, granules, baits; or any quantity of pesticide equipment wash water on the application site owner's non-cropped or fallow land, along fence rows or on forested land -- **but only if:**

- Such management is not prohibited by the pesticide label instructions; federal hazardous

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waste regulations, or other federal or state regulation; and

- The farmer-applicator or pesticide waste generator legally owns or controls the land, or receives permission from the owner or manager of the land; and
- The soil does not become saturated; and
- The residues do not enter groundwater, surface water, lakes, rivers, streams, wells, drainage ditches, or storms drains; and
- The application will not result in illegal residues or unwanted effects on subsequent agricultural or silvicultural crops; and
- The residues will not pose a hazard to humans, pets, domestic animals, wildlife, or threatened or endangered species.
- The landowner or manager must alternate the pesticide wastes management areas each year and lightly cultivate the soil in the treated area to speed up the breakdown of the residues

For assistance in determining acceptable waste pesticide management practices, contact the Oregon Department of Environmental Quality (DEQ), the Extension Pesticide Coordinator at Oregon State University (OSU), or your local county extension agent.

Disposing of pesticides produced at a permanent base of operation

What is a permanent base of operation?

A permanent base of operation is the specific location where pesticide application and mixing equipment is stored. This includes, but is not limited to, those facilities at an airfield, either public or private, pesticide dealership, industrial process application; park; residential or industrial pest control operation; county weed and right of way control operations; and seed and foodstuff treatment operation.

Pesticide waste disposal options.

When pesticide-containing material cannot be used or reused for its intended purpose according to label instructions, it becomes pesticide waste. Two on-site management options are available and two off-site disposal options are available for these wastes.

1. Manage the pesticide waste prior to disposal according to the universal waste management standards.

2. Manage the waste prior to disposal according to the "hazardous waste" management standards.

Option Number 1 – Manage the pesticide waste prior to disposal according to the universal waste management standards

Managing pesticide waste according to the universal waste management standards has many benefits:

- Waste is not counted toward generator category,
- No reporting or fees are required, and
- No hazardous waste manifest is required to transport the waste.

To manage the pesticide waste according to the universal waste management standards you must:

Contain the waste,

- Label the waste container with the words “Waste Pesticide”,
- Store the waste for no more then on year, and
- Transport the waste pesticide to a pesticide collection event or a facility authorized to collect universal waste pesticides.

Final disposal of the pesticide waste must be at a:

- Permitted hazardous waste facility, or
- Permitted solid waste facility provided that the waste meets land disposal concentrations-based standards are met for pesticide active ingredients or, if no standards exist, the pesticide waste passes the DEQ aquatic toxicity test.

Note: All the criteria above must be met or the pesticide waste is by definition a hazardous waste.

For more information on managing waste pesticide according to the universal waste management requirements please refer to the “managing waste pesticide” factsheet at http://www.deq.state.or.us/lq/hw/pesticide.htm

Option Number 2 – Manage the pesticide waste prior to disposal according to the hazardous waste management standards

Note: The regulatory requirements that apply to you depend upon the amount of hazardous waste you generate each month. If you generate more than 220 pounds in a month of hazardous waste per calendar month, you are subject to stricter management requirements. If you are unclear to what your generator category is, please call DEQ for information on what management requirements apply.

To manage the pesticide waste as a hazardous waste if more then 220 pounds of hazardous waste is generated in a calendar month you must:

- Label and mark the container with the date the wastes were created and the words **"HAZARDOUS WASTE",**
- Store the wastes no longer than 90 or 180 days, depending on generator category.
- Ship the pesticide waste as hazardous wastes using a hazardous waste transporter to a hazardous disposal facility. A hazardous waste manifest must be used,
- Report to the DEQ about the hazardous waste that is generated, and
- Pay DEQ hazardous waste generator fees.

Where Can I find more information for managing pesticide wastes?

Visit the DEQ pesticide waste management webpage at http://www.deq.state.or.us/lq/hw/pesticide.htm for more information.

In addition, refer to Title 40 of the Code of Federal regulations (CFR) Part 260 to 268 for hazardous waste management requirements, and Part 273 for requirements for managing pesticides wastes as universal waste.

For additional information, please contact:

DEQ Technical Assistance
For information about DEQ technical assistance, visit:
http://www.deq.state.or.us/lq/hw/index.htm

Oregon Department of Agriculture
Plant Division,
635 Capitol Street NE
Salem, OR 97310-0110
503-986-4635

Oregon State University
Department of Environmental and Molecular Toxicology
Ag & Life Sciences Building Room 1007
Attn: Extension Pesticide Coordinator
Corvallis, OR 97331
541-737-1811

This factsheet was developed jointly by the Oregon Department of Environmental Quality and Oregon State University Extension Service in cooperation and support from the Oregon Department of Agriculture, Oregon Agricultural Chemicals and Fertilizers Association, and Oregonians for Food and Shelter, Oregon Association of Nurserymen, and the Western Wood Preservers Association. Revised 1/07.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Fact Sheet

Managing Waste Pesticide

Details managing waste pesticide according to the Universal Waste Rule

Background

Waste pesticides can be managed using the streamlined management requirements of the "universal waste rule." Before the adoption of this rule, waste pesticides needed to be managed using the more stringent hazardous waste management rules. This fact sheet provides guidance to individuals who create and manage waste pesticides according to the universal waste rule.

For detailed information on the management of waste pesticides, refer to the Oregon Administrative Rule (OAR) Chapter 340, Division 109. Universal waste rules are found in the Code of Federal Regulations (CFR), Title 40, Part 273 and (OAR) Chapter 340, Division 113.

What is a "waste pesticide"?

For the purposes of this fact sheet, *waste pesticides* are defined as any pesticide-containing material that:

- Cannot or will not be used, and
- Will be discarded or disposed.

Waste pesticides can include, but are not limited to, unused or unusable:

- Pesticide products destined for disposal;
- Banned, canceled or recalled pesticide products;
- Surplus spray solutions, spray concentrate, dust or granules;
- Pesticide contaminated water produced by cleaning the interior surfaces of pesticide application equipment or by rinsing empty pesticide containers; and
- Empty, unrinsed pesticide containers.

Waste pesticides do not include pesticide-containing materials (*e.g.*, soil, carpet and foodstuffs) where pesticides are applied according to pesticide label instructions.

Managing waste pesticides

The following management requirements of waste pesticides, according to the universal waste rule, are designed to minimize releases of pesticide into the environment.

Tanks and containers

Waste pesticides must be managed in a container or tank that remains closed, structurally sound and is compatible with the waste. This can be the original container that held the pesticide product when it was purchased. The container must not be leaking or damaged in a way that could cause leakage. Any container showing signs of leakage must be placed inside a larger container, suitable to contain any leakage.

Storage time limits

Persons generating waste pesticides may store them for up to one year after they decide to dispose of the pesticide.

Labeling

Containers holding waste pesticides must be labeled or marked with:

- The label that was on or accompanied the original product when it was sold. If the label is not available, the container must be marked with the appropriate label as required by the U.S. Department of Transportation Regulation 49 CFR Part 172,
- The words "Waste Pesticides," *and*
- The date the pesticide became a waste (state-only pesticide waste requirement).

Response to releases

A generator of waste pesticides must be able to respond to releases. Any release of waste pesticide must be immediately contained and transferred to an appropriate container.

A good way to remember the steps for a spill emergency is the "Three C's"- *Control, Contain, Cleanup:*

- *Control* the spill situation: protect yourself, stop the leak, protect others, and stay at the site.
- *Contain* the spill: confine the spill, protect water sources, absorb liquids, and cover dry materials.
- *Cleanup* clean up the spill: decontaminate the spill site, neutralize the spill site, decontaminate equipment, and decontaminate yourself.

Note: *Spills of pesticides greater that the federal reportable quantity (see 40 CFR Part 302 Table 302.4) or, if not on the 302.4 Table, greater than 200 pounds (25 gallons), must be reported to the Oregon Emergency System (OERS) at 1-800-452-0311. Spills of pesticides greater that the federal reportable quantity must also be reported to the National Response Center at 1-800-424-8802.*

State of Oregon
Department of Environmental Quality

Waste Prevention & Management
Hazardous Waste
811 SW 6th Avenue
Portland, OR 97204
Phone: (503) 229-6753
(800) 452-4011
Fax: (503) 229-6977
Contact: Rick Volpel
www.deq.state.or.us

Last Updated: 4/26/05
By: R. Volpel

Where must the waste be disposed?

Waste pesticides managed according to the universal waste management requirements must be transported to the following sites for management or disposal prior to the end of the one-year storage limit:

- A site or facility that has registered with DEQ as a pesticide collection program, or
- A permitted hazardous waste facility.

Transporting waste pesticides

Generators may self transport their waste pesticides to a registered collection event or facility. Transportation should be done with prior approval from the collection program or facility. Transporting waste pesticides according to the universal waste rule in Oregon does not require a hazardous waste manifest. However, applicable Department of Transportation (DOT) regulations must be observed.

Deciding where to send your waste pesticides

When deciding to send waste pesticides to a pesticide collection program or to a hazardous waste management facility, you should know how your waste will be managed. You should feel assured that the waste will be managed properly and your potential liability, if the waste is mismanaged, is minimized.

Before you transport your waste to a collection site or facility, you should know the following:

- How the waste will be managed, stored and transported;
- How long will the waste be stored before it will be treated or disposed;
- How the waste will be treated or disposed of; and
- How you will know that that the waste has been properly treated or disposed of.

Recommended safety practices

Note: *No safety precautions and protective measures can be suggested that eliminate risks. However, here are some suggestions that may assist you in minimizing exposure as you manage waste pesticides.*

For handling waste pesticides

Inspect waste containers and bags. If, upon inspection you have reason to suspect that a container or bag will tear or rupture when moved, do not attempt to move or load for transport. Notify collection site personnel for assistance.

Wear the protective clothing and protective equipment (*e.g.*, goggles, gloves, respirator, *etc.*) described on product labels when handling waste pesticides.

Use the respiratory protection described on product labels. If you suspect that any of the older chemicals or unlabeled chemicals are highly volatile or are packaged under pressure, consider the need for appropriate respiratory protection.

In the event that the waste pesticides are not labeled, the product label is not legible or the product label does not contain a "Hazardous to Humans and Domestic Animals" panel with protective clothing information, wear protective clothing that you would normally wear when applying pesticides. At a minimum, wear a long sleeved shirt with sleeves buttoned at the wrist, a pair of chemical resistant gloves, preferably a chemically resistant apron, rubber boots, goggles or full face shield and a wide brimmed hat.

Have spill control materials available (*e.g.*, a 10-pound bag of commercially available safety absorbent, a shovel and a container for spilled material collected with the absorbent and any contaminated soil). These may be useful in control and cleanup of a spill involving a small amount of waste pesticides.

Note: *Handle all waste and unused pesticide containers and bags with care to minimize the possibility of container rupture and loss of the material.*

For transporting waste pesticides:

- Inspect all waste pesticides to ensure that they are securely packaged. Only transport containers that are securely closed. Containers that cannot be securely closed should be packed within containers that can be securely closed.

- Line the storage area of the transport vehicle with plastic sheeting to contain any spillage that might occur, and therefore, minimize any cleanup or decontamination.

- If possible arrange the waste pesticides by hazard class (*i.e.*, flammable, corrosives, oxidizers, poisons, *etc.*) to prevent mixing of incompatible materials should spillage occur.

- Assure all labels are securely attached. Unlabeled containers can result in greater expense for testing before disposal. Attention on your part to this detail can minimize your disposal costs. Management as a universal waste requires the product label be attached to containers.

- Arrange waste containers in your vehicle so that they are braced to prevent shifting which may result in container damage and/or leakage.

- All waste containers should be kept dry during transport. Loads in open vehicles such as pick-up trucks should be covered in the event of rainfall.

- Do not transport waste pesticides in a manner that will allow fumes from those wastes to enter the passenger compartment of the transportation vehicle.

- Make a list of the waste pesticides that you are transporting. Include on the list the name(s) of the pesticide, number of containers and hazard class (when known). In addition, include the emergency telephone numbers for fire and police assistance. Make another copy of that list. In case of an accident leave one copy on the driver's seat and take the second copy with you to the telephone for help. The copy you leave is in case emergency services arrive while you are away seeking assistance.

- Drive directly to the pesticide collection site or facility after you load your vehicle.

- If at the collection site, proceed to the line to which a designated project representative directs you. If you observe spillage from your vehicle while waiting in line at the collection center, get out of your vehicle and move upwind to the designated "safe zone."

- DRIVE CAREFULLY. You are responsible for any spillage, damage, subsequent cleanup and restoration that might occur while you are transporting the wastes, whether the accident is your fault or someone else's. You are responsible for any spillage that occurs before the waste is accepted at the collection site

For more information

For specific regulatory guidance, you are encouraged to refer to the actual rule that is available from the DEQ. Rules and fact sheets are available under the hazardous waste section of the DEQ's web site at http://www.deq.state.or.us.

Fact sheets and other information can be obtained from the DEQ by contacting the nearest DEQ office listed below:

Eastern Region
Bend (541) 388-6146, ext. 229

Northwest Region
Portland (503) 229-5336
(503) 229-5564
(503) 229-5560

Western Region
Eugene (541) 686-7838, ext. 270 or 237
Medford (541) 776-6010, ext. 239

Additional sources of information

The following is a list of contacts that may be useful sources of information for the management of waste pesticides:

Oregon Agricultural Chemicals and Fertilizers Association (OACFA)
503-370-7024

Oregon Association of Nurserymen
800-342-6401

Oregon Department of Agriculture
Plant Division
503-986-4638

Oregonians for Food and Shelter
503-370-8092

Oregon State University
Agricultural Chemistry Dept.
Attn.: Extension Pesticide Coordinator
541-737-1811

Western Wood Preservers Institute
360-693-9958

Alternative Formats

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Fact Sheet

Sand Filter and Pressure Distribution Maintenance

Septic system owners are responsible for the maintenance of their septic system.

Required Inspections

Owners of sand filter systems and/ or pressure distribution systems **permitted before 2014** must inspect their septic tank and dosing tank at least once a year for sludge and scum accumulation. Septic tanks must be pumped:

- when surface floating scum accumulations within the tank is less than three inches from the bottom of the outlet tee, holes, or ports
- when sludge from the bottom of the tank is less than six inches below the bottom of the outlet tee, holes or ports.

Owners of sand filter systems and/or pressure distribution systems **permitted on or after Jan. 2, 2014** must maintain a service contract with a certified maintenance provider. A copy of the service contract must be submitted to DEQ before the system is installed. These owners must also submit an annual report, pursuant to Oregon Administrative Rule 340-071-0130(17), and annual evaluation fee, pursuant to Oregon Administrative Rule 340-071-0140(3).

Maintenance

- DEQ recommends **pumping septic tanks when the solids accumulation is 35 percent** of the tank volume and pumping the dosing tank, or pump chamber of a two-compartment tank, at the same time.
- **Test the pump and alarm operation** at least once each year by manually lifting each float switch inside the dosing tank of pump chamber.
- **Test pump-cycle volume** by measuring the sewage level in the tank at the start of pumping and again at the pump turn-off.
  - The proper pump cycle volume for a residential sand filter is no more than 10 percent of the projected daily sewage flow (e.g. a maximum of 45 gallons per cycle for a system sized for a four-bedroom house). A rule of thumb is about four inches in a concrete two-compartment septic tank, or two inches in a single compartment dosing septic tank.
  - Pressure distribution drainfields can receive no more than 20 percent of the projected daily sewage flow (e.g. a maximum of 90 gallons per cycle for a system sized for a four-bedroom house). A rule of thumb is about eight inches in a concrete two-compartment septic tank, or four inches in a single compartment dosing septic tank.
- **Inspect the screen around the pump** at least once each year. The screen needs to be cleaned when it is about 50 percent clogged. Wash the pump screen over the septic tank manhole.
- **Flush sand filter and pressure distribution drainfield pipes**. Sand filter and pressure distribution systems constructed after 1995 should have cleaning valves at the ground surface. Flush the lateral pressure distribution pipes within the sand filter and pressure distribution system at least once a year. Flush each lateral pipe separately and be mindful of the liquid level in the tank (do not run the pump dry).

Cars require air and oil filter inspections, cleaning and replacement to keep performing, and these systems do too. These systems are expensive to construct and need regular maintenance to last as long as possible

State of Oregon
Department of Environmental Quality

Onsite Program
165 E. Seventh Ave.
Suite 100
Eugene, OR 97401
Phone: 541-687-7338
800-844-8467
Fax: 541-686-7551
Contact: Randy Trox
www.oregon.gov/DEQ

Last Updated: 1/10/17
By: K. Benenati

For more information about the Onsite Program, please visit:
www.oregon.gov/DEQ/Residential/Pages/Onsite.aspx

For a list of certified Maintenance Providers, visit: http://www.deq.state.or.us/wq/onsite/sdssearch.asp

Alternative Formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Fact Sheet

Septic Tank Maintenance

State of Oregon
Department of
Environmental
Quality

Onsite Program
165 E. Seventh Ave. Suite 100
Eugene, OR 97401
Phone: 541-687-7338
800-844-8467
Fax: 541-686-7551
Contact: Randy Trox
www.oregon.gov/DEQ

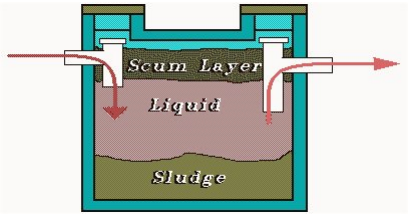
Background

For homes and businesses outside areas served by area-wide sewer systems, sewage is treated and dispersed into the soil by onsite or septic systems. The primary components are a septic tank and a soil absorption area (often a drainfield).

How does a septic tank work?

Sewage contains materials that can shorten the life of a drainfield and cause sewage to back up into a structure or discharge to the ground surface or surface water. Greases and oils, found in kitchen wastewater and household products like fabric softeners, float in the tank. Solids, laundry lint, garbage disposal waste and other items sent down the drain, make up the sludge layer at the bottom of the tank.

The septic tank accumulates solids from sewage passing through the tank, which allows the solids to settle and scum (grease and oil) to rise to the top above where the baffles in the tank draw the sewage. These solids accumulate and to some extent break down in the septic tank. Detergents cause oils to stay in suspension and time in the septic tank can break them down and allow the oils to float to the top and stay in the tank.



From Brown Township, Ohio

Allowing too much to accumulate in the tank will shorten the time that incoming sewage is in the septic tank where solids would settle that clog the drainfield.

The drainfield may not fail immediately when a tank full of solids is not pumped. Continued neglect will result in failure of the drainfield, and will need to be replaced. Sewage surfacing exposes humans and animals to disease-causing organisms.

Cleaning the tank

Pumping frequency depends on factors like tank volume, number of people using the system, and nature of sewage (using a garbage disposal, for example) going down the drain. Properly sized septic tanks typically have enough capacity for three to eight years use before pumping is needed. DEQ recommends pumping a septic tank when sludge and scum take up more than 35 percent of the tank volume. Consult your septic tanks manual for how to check sludge volume.

In Oregon, a 1,000-gallon septic tank is required for homes with up to four bedrooms. If four people live in a four-bedroom house with a 1,000-gallon septic tank, the pumping frequency is on the order of every three years. If the same system serves two people, the frequency would be on the order of every six years. Septic tanks installed before 1979 could be smaller and require a higher pumping frequency. The pumping frequency suggested here is based on Oregon State University Extension Service Circular No. 1343, April 2000.

Septic tank pumpers must have a DEQ sewage disposal service license. It is advisable to verify that license and bond are current and check references with prior clients prior to hiring a pumper.

To get all of the solids from the tank the scum layer must be broken up and the sludge layers stirred up into the liquid portion of the tank. The sludge is stirred up by pumping liquid back and forth between the pumper truck and the tank. Once the sludge is stirred, the tank is emptied.

A quality professional will inspect the condition of the tank and the tees or baffles. If repairs to the tank or pipes are needed, the pumper will inform the owner. Repairs may

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By: Randy Trox

require a permit through the local DEQ office or county.

Many counties administer the septic system program for DEQ. For further information on who to contact in a specific county or on DEQ's program, visit our website at www.oregon.gov/DEQ. Click on “Projects and Programs” then select “Onsite Sewage Disposal.” You may also contact the nearest DEQ office or call toll free in Oregon 800-452-4011.

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Fact Sheet

Universal Waste Handlers

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.,
Suite 600
Portland, OR 97232-4100
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Background

Oregon's Universal Waste Rule permits certain hazardous wastes known as "universal wastes" to be managed under streamlined requirements that encourage the collection, recycling or disposal of these wastes.

Before the universal waste management standards were in place, all hazardous waste had to be managed under the full range of hazardous waste management standards.

Persons who generate or accumulate universal waste are called universal waste handlers and are subject to specific management standards depending on the type and amount of universal waste accumulated. Universal waste management requirements are less stringent than those for hazardous wastes.

This fact sheet will guide those who create and manage universal wastes. For the complete universal waste rules, see the Code of Federal Regulations, Title 40, Part 273 and Oregon Administrative Rule Chapter 340, Division 113.

What is universal waste?

A universal waste is a hazardous waste that is produced by a variety of businesses and institutions, not just in traditional industrial settings. Many of these wastes were improperly managed in the past by being sent to solid waste landfills. In Oregon there are currently four types of waste considered to be universal wastes: batteries, pesticides, mercury-containing equipment, and mercury-containing lamps (fluorescent light tubes and high-intensity discharge or HID lamps).

One important note on the management of mercury-containing lamps is that universal waste regulations prohibit the crushing of these lamps. Crushing using a drum-top crusher or other device that reduces the volume of mercury-containing lamps by breaking them is considered hazardous waste treatment. Applicable hazardous waste management and standards pertain to these generated wastes. For more information, please refer to the fact sheet on Mercury-Containing Waste Lamp Management.

What's the goal of these regulations? The goal of the universal waste regulations is to improve management of hazardous wastes that are often mismanaged by disposal in non-hazardous waste management systems (solid waste landfills). To achieve this goal, management requirements are streamlined to encourage the collection, consolidation and proper management of the wastes.

What's a universal waste handler?

- A generator of universal waste
- An owner or operator of a facility that receives universal waste from other universal waste handlers and accumulates the universal waste for more than 10 days prior to shipment off-site. This type of handler is called a universal waste "off-site collection site."

Who's not a universal waste handler?

- Someone who treats (except as allowed in the regulation), recycles or disposes of universal waste, or
- Someone who transports universal waste.

Who else is affected by these regulations?

In addition to universal waste handlers, the following persons or activities are regulated by the universal waste regulations: off-site universal waste collection sites, universal waste transporters, universal waste destination facilities, and pesticide collection programs.

Who's not affected?

Management of household and conditionally exempt hazardous waste under the universal waste rule is optional and is at the discretion of the generator of the waste.

Small and large quantity universal waste handlers

- A "small quantity universal waste handler" is one who accumulates less than 11,000 pounds (5,000 kilograms) of universal waste at any time.
- A "large quantity universal waste handler" is one who accumulates 11,000 pounds or more of universal waste at any time

Summary of universal waste handler requirements

Use the following table to identify the universal waste handler requirements that apply to you:

Last Updated: 6/2017

Universal Waste Handler Requirements	If you're a small quantity universal waste handler (less than 11,000 lbs)	If you're a large quantity universal waste handler (11,000 lbs or more)	Refer to section # of the factsheet
Notify DEQ	No	Yes	1
Manage waste to prevent releases	Yes	Yes	2
Label and mark container	Yes	Yes	3
Observe waste accumulation time limit	Yes, 1 year	Yes, 1 year	4
Conduct employee training	Yes, inform employees who manage universal waste of proper handling and emergency procedures	Yes, ensure employees are familiar with universal waste management and emergency procedures	5
Respond to release of universal wastes	Yes	Yes	6
Ship only to off-site universal waste collection site or UW destination facility	Yes	Yes	7
Track waste shipments	No, but encouraged	Yes	8

Description of universal waste handler requirements:

Section 1: Notifying DEQ Small quantity handlers of universal waste are not required to notify DEQ of their universal waste activity. Large quantity handlers of universal waste *are* required to notify DEQ, on forms provided by DEQ, before accumulating 11,000 pounds of universal waste.

Section 2: Managing universal waste
Universal waste handlers must manage universal waste in a way that prevents releases to the environment. Each type of universal waste has specific management requirements designed to prevent these releases. Waste- specific management requirements are in the universal waste management rules or in individual universal waste management fact sheets available from DEQ.

Section 3: Labeling and marking
Universal waste handlers must label or mark their waste to identify the type of universal waste they're managing.

Universal waste batteries
Universal waste batteries or the container in which the batteries are accumulated must be labeled or marked clearly with any one of the following phrases: Universal Waste – Batteries; Waste Batteries; or Used Batteries.

Mercury-containing equipment
Universal waste mercury-containing equipment containers must be labeled or clearly marked with any one of the following phrases: Universal Waste – Mercury-Containing Equipment; Waste Mercury-Containing Equipment; or Used Mercury-Containing Equipment.

Mercury-containing lamps
Universal waste mercury-containing lamps or containers that contain waste lamps must be labeled or clearly marked as either "Universal Waste – Mercury-Containing Lamps" or "Waste Mercury-Containing Lamps."

Universal waste pesticides
A container or tank containing universal waste pesticides must be labeled or clearly marked with the label that was on or accompanied the product when sold or distributed, and with the words "Universal Waste – Pesticides" or "Waste Pesticides."

If product labels are not legible or available, label as appropriate under rules listed by the U.S. Department of Transportation, 49 CFR, Part 172. Universal waste pesticides do not require a hazardous waste code on the shipping bill of lading.

Section 4: Accumulation time limits
Universal waste handlers may accumulate universal waste on site for up to one year from the date it is generated. A universal waste handler may accumulate universal waste longer if the handler is able to demonstrate that additional time is needed to complete proper recovery, treatment or disposal. The burden of proof lies with the handler once the waste is accumulated for more than one year. A handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from

the date it becomes a waste. The handler may make this demonstration by:

- Placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste
- Marking or labeling the individual item of universal waste (for example, each battery or mercury-containing device) with the date it became a waste or was received
- Maintaining an inventory system on site that identifies the date each item (battery, lamp) became a waste or was received
- Maintaining an inventory system on site identifying the earliest date that any universal waste in a group of universal waste items or a group of containers of universal waste became a waste or was received
- Placing the universal waste in a specific accumulation area and identifying the earliest date that any of the waste in the area became a waste
- Using any other method which clearly demonstrates the length of time that the universal waste had been accumulated from the date it became a waste or was received.

Section 5: Training employees

Universal waste handler training requirements are necessary to ensure that employees are familiar with specific waste handling procedures.

Any training provided under other programs (such as OSHA, worker right to know, pesticide licensing) that would meet any or all of the Part 273 training requirements may be used to fulfill this requirement.

- Small quantity universal waste handlers must inform all employees who handle or have responsibility for managing universal waste (40 CFR 273.16). The information must describe proper handling and emergency procedures appropriate to the types of universal waste managed at the facility. Providing this information through oral communication, brochures or other documents meets the small quantity handler training requirements.
- Large quantity universal waste handlers must "ensure" that all employees are thoroughly familiar with proper waste handling and emergency procedures, relative to their responsibilities during normal facility operations (40 CFR 273.36). Records on employee training are not required.

Section 6: Responding to releases

Universal waste handlers must immediately contain all releases of universal waste and must determine whether any material released is a hazardous waste. If the material is determined to be hazardous, it must be managed according to all applicable hazardous waste regulations.

Section 7: Shipping waste off site

Universal waste handlers must ship their universal waste to another universal waste off-site collection site or to a universal waste destination facility. An off-site collection site is not the site where the waste was generated but is a location where the waste may be shipped for consolidation before shipment to a universal waste destination facility.

A universal waste destination facility is a facility that may treat, recycle or dispose of universal waste and is subject to hazardous waste facility management regulations. Universal waste shipped off-site must meet applicable state and federal transportation requirements for packaging, labeling, placarding and shipping papers.

Section 8: Tracking waste shipments

Small quantity universal waste handlers are not required to keep records of universal waste shipments (40 CFR 23.19). They are, however, encouraged to be able to provide documentation that their universal waste was properly managed, if requested by DEQ.

Large quantity universal waste handlers are required to maintain records of each shipment of universal waste shipped off site (40 CFR 273.39). The record may take the form of a log, invoice, manifest, bill of lading or other shipping document. The information must include name and address of the facility receiving the waste, quantity and type of each waste shipped, and date the shipment occurred. Shipping records must be maintained for at least three years from the date a shipment left the handler facility.

What's required of universal waste handlers who accept more than 2,200 pounds from off site?

In addition to the requirements outlined above, a universal waste handler who accumulates more than 2,200 pounds or 1,000 kilograms from off site has additional requirements to meet, including:

- Notification
- Reduced accumulation times
- Shipment only to a destination facility
- Reporting universal waste activities annually
- Tracking universal waste shipments

To better understand these requirements, refer to OAR 340 Division 113, Sections 0040 (off-site collection sites) and 0070 (pesticide collection programs).

How can I receive more information?

For specific regulatory guidance, refer to the actual rule (OAR Chapter 340, Division 113), that is available from DEQ. DEQ also has the following universal waste materials available:

- Universal waste battery fact sheet
- Universal waste mercury-containing equipment fact sheet
- Managing mercury-containing lamps fact sheet
- Universal waste activity form

DEQ's universal waste regulations are in Oregon Administrative Rules Chapter 340, Division 113

DEQ's hazardous waste regulations are in Oregon Administrative Rules Chapter 340, Division 102

Other related federal requirements of interest are on the federal website for Title 40, "Protection of the Environment."

- Part 261 (hazardous waste identification)
- Part 262 (hazardous waste generators)
- Part 273 (universal waste)

DEQ regional offices and assistance

For more assistance, see the DEQ hazardous waste program specialist in your area.

Northwest Region office: 700 NE Multnomah St., Suite 600, Portland, OR 97232, 503-229-5696

Bend office: 475 Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Drive, Salem, OR 97302, 503-378-8240

Eugene office: 165 E. 7th Ave., Suite 100, Eugene OR 97401, 541-686-7838

Alternative formats

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Fact Sheet

Used Oil Burning

Guidelines for burning used oil in space heaters, furnaces and boilers

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-6742
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Background

The burning of used oil is subject to state and federal environmental regulations. This fact sheet provides general regulatory guidance to burners of used oil. Information here should not be used as a replacement for the rules, but as a reference where specific rules may apply to used oil burners' activities.

Oregon has adopted the federal Environmental Protection Agency used oil management rules in Title 40 of the Code of Federal Regulations, Part 279 and has additional state used oil management requirements in Oregon Administrative Rules 340, Division 340. It's important to review both sets of rules to understand all used oil management requirements. For specific guidance, refer to the applicable regulation listed in brackets following each bold heading. For additional information sources, refer to the end of this fact sheet.

Used oil burner requirements [40 CFR 279, Subpart G]

Who's affected by used oil burning requirements? [40 CFR 279.60]

Persons burning used oil for energy recovery not meeting the specifications are subject to used oil burner regulations in most cases. See following section for exemptions.

Who's exempt from used oil burning requirements?

Persons are exempt from the used oil burning regulations found in 40 CFR 279, Subpart G if they burn:

- Only used oil meeting the specifications listed
- Used oil (regardless if it meets used oil specifications) in a used oil space heater; or,
- Used oil by a processor/re-refiner for purposes of processing used oil, which is considered incidental to used oil processing

Used oil specifications [40 CFR 279.11]

Used Oil Specification Levels 1:

Constituent/ Property	Allowable level
Arsenic	< 5 part per million
Cadmium	< 2 ppm
Chromium	< 10 ppm
Lead	< 100 ppm
Halogens	< 1,000 * ppm
Flashpoint	< 100° F minimum

*The actual halogens regulatory limit is 4,000 ppm. However, if total halogens exceed 1,000 ppm, the oil is presumed to be a hazardous waste unless proven otherwise. The 1,000 ppm maximum is a preliminary limit, but exceeding it could prevent the oil from being burned in off-site space heaters.

Restrictions on burning [40 CFR 279.61]

Used oil not meeting specifications can be burned in the following devices:

*Used oil space heaters, provided that:

The heater burns only used oil that the owner or operator generates or used oil received from household do-it-yourself used oil generators;

- The heater is designed to have a maximum capacity of not more than 0.5 million BTUs per hour;
- Combustion gases from the heater are vented to the outside air; and
- The heater is operated according to manufacturer's instructions

*Industrial furnaces identified in 40 CFR 260.10.

*Boilers, as defined in 40 CFR 260.10, that are identified as follows:

- Industrial boilers as defined in 260.10, located on the site of a facility engaged in a manufacturing process where substances are transformed into new products
- Utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids for sale

Burning of off-specification in these units may be subject to additional state or regional air quality regulations. Contact your nearest DEQ regional office, listed at the end of this fact sheet, for information about air quality requirements.

Used oil containing PCBs [40 CFR

Last Updated: 6/2017

279.10(i)]
Used oil containing detectable levels (2 ppm) of polychlorinated biphenyls is subject to regulations in 40 CFR 761.20(e). Used oil containing 2 ppm but < 50 ppm must be burned in a qualified incinerator as defined in 40 CFR 761.3 and include PCB incinerators, off specification used oil burning devices as defined in 40 CFR 279.61 and industrial boilers and furnaces defined in 40 CFR 260.10. Used oil burners of oil containing 2 to 49 ppm PCBs are subject to tracking and notice requirements in 40 CFR 279, subparts G and H and 279.66 and 40 CFR 279.72(b). See 40 CFR 761.20(e) for details.

Notification of used oil burning activity [OAR 340-111-040]
Used oil burners subject to the used oil burner requirements must notify DEQ of their used oil activity using the "Used Oil Activity Notification Form" available from DEQ.

Rebuttable presumption for used oil [40 CFR 279.63 & 40 CFR 279.10(b)(1)(ii)]
To ensure that used oil managed at a burner facility is not a hazardous waste, used oil burners subject to the used oil burner requirements must determine whether the used oil is above or below 1,000 (ppm total halogens. Used oil containing more than 1,000 ppm total halogens is "presumed" to have been mixed with a listed halogenated hazardous waste.
The used oil burner must make this determination by:

- Testing the oil
- Applying knowledge of the halogen content of the used oil in light of the materials or process used to produce it; or,
- Using information provided by used oil marketer or processor.

A used oil burner may "rebut" the presumption that the used oil has been mixed with hazardous waste by using analysis or process knowledge that hazardous waste has not been mixed with the used oil.

Records of analysis or information used to rebut the presumption must be maintained by the used oil burner for at least three years.
If the used oil contains greater than 1,000 ppm total halogens and the presumption that it has been mixed with hazardous waste cannot be rebutted, it must be managed as a hazardous waste.

Used oil storage [40 CFR 279.64]
Used oil burners subject to the burner requirements must:

- Store used oil in tanks or containers that are in good condition (no severe rusting, apparent structural defects or deterioration) and not leaking.
- Provide secondary containment for all above-ground tanks and containers, sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out of the system to the soil, groundwater, or surface water.
- Clearly label or mark all container and above-ground tanks and fill pipes used to transfer used oil to underground tanks with the words "Used Oil."
- Respond to releases of used oil as required in OAR, Division 108. Response to releases of used oil include but are not limited to:
  - Implementing applicable contingency plan if required
  - Containing the spill
  - Reporting the release if above reportable quantity
  - Cleaning up the spill or release

Countermeasures plan [40 CFR, Part 112]
Used oil burners storing larger amounts of used oil (> 660 gallons in any one above-ground tank, > 1,320 gallons total in above-ground tanks or > 42,000 gallons of petroleum material in underground tanks) may be required to prepare and maintain a Spill Prevention, Control and Countermeasures Plan. See 40 CFR, Part 112 for requirements.

Tracking [40 CFR 279.65]
Used oil burners must keep a record of each used oil shipment accepted for burning. These records may take the form of a log, invoice, manifest, bill of lading, or other shipping documents. The records must be maintained for at least three years and must include for each shipment the following information:

- Name, address and DEQ/EPA identification number of the transporter who delivered the used oil to the burner;
- Name, address and DEQ/EPA identification number (if applicable) of the used oil generator, processor or marketer from whom the used oil was received;
- Quantity of used oil accepted
- Date of acceptance of the used oil.

Notices [40 CFR 279.66]
Before a used oil burner accepts the first shipment of off-specification used oil, the burner must provide to the used oil generator, transporter or processor a one-time written and signed notice certifying that the burner has

notified DEQ stating the location and the general description of their used oil management activities as required in OAR 340-111-040 (see notification requirements above) and will burn off-specification used oil in an industrial boiler or furnace identified in 40 CFR 279.61(a). Maintain a copy of the certification for at least three years from the date the burner last receives shipment of an off-specification used oil.

Management of residues [40 CFR 279.67]

Used oil burners who generate residues from the storage or burning of used oil must manage the residues as specified in 40 CFR 279.10(e).

Space heater information [40 CFR 279.23]

Businesses, organizations and other persons may burn used oil in on-site space heaters if:

- The heater burns only used oil that the owner or operator generates himself/herself or used oil received from do-it-yourself used oil generators
- The heater is designed to have a maximum capacity of not more than 0.5 million BTUs per hour
- The combustion gases are vented to the outside air;
- The burner is operated following manufacturer's specifications

Common questions:

What is a space heater?

A space heater is a unit designed specifically to burn oil for space heating purposes. Wood stoves and open burn barrels are not considered space heaters.

Do I need a permit for a space heater?

No permit is needed from DEQ if the unit meets the requirements of 40 CFR 279.23. DEQ is not aware of any local requirements, but to be certain, contact your local fire marshal, air pollution control authority or building code department.

What if I own more than one business and want to burn used oil generated from one business location at another of my locations?

This is allowable as long as both operations are owned or operated by the same company, business or person. Check DEQ's used oil transporter fact sheet for transportation requirements.

Used oil specifications [40 CFR 279.11]

Constituent/ Property	Allowable level
Arsenic	< 5 part per million
Cadmium	< 2 ppm
Chromium	< 10 ppm
Lead	< 100 ppm
Halogens	< 1,000 * ppm
Flashpoint	< 100° F minimum

*The actual halogens regulatory limit is 4,000 ppm. However, if total halogens exceed 1,000 ppm, the oil is presumed to be a hazardous waste unless proven otherwise. The 1,000 ppm max is a preliminary limit, but exceeding it could prevent the oil from being burned in off-site space heaters.

Owners of space heaters generally may burn only their own used oil, or oil from do-it-yourself used oil generators. However, used oil from another business or organization may be burned in your space heater if the oil meets certain specifications and proper records are kept. Specifically, to take someone else's used oil, the burner (yourself) or the generator (your used oil supplier) must test the oil and follow these guidelines:

- If oil from another business exceeds any of the above-listed specifications, it cannot be burned in your space heater. Instead, it must be managed as off-specification used oil and handled by a blending or burning facility with an EPA identification number
- Keep copies of oil test results for three years
- Obtain an identification number from DEQ as a marketer. If you already have a DEQ hazardous waste identification number, complete a used oil notification form to identify your marketing activity
- For three years, keep a record of each shipment of used oil to the burner, including:
  - Name and address of the facility receiving the shipment
  - Quantity of used oil delivered,
  - Date of shipment
  - A cross-reference to the test results showing the oil meets the specifications

Does every batch of used oil need to be tested?

No. Test results need to be representative of used oil received. In general, as long as the process of generating the used oil remains unchanged, the initial test may remain representative. If something in the process changes (such as servicing mostly heavy equipment instead of vehicles, using different cleaners which could end up in the oil, maintaining new vehicles instead of old ones), another test is likely needed.

Ash from space heaters [40 CFR 261.3; 40 CFR 261.5]

As with any other waste, you must complete a hazardous waste determination on waste ash from space heaters. Ash determined to be a hazardous waste must be managed according to applicable hazardous waste management requirements.

Where to find more information

DEQ has other fact sheets about handling used oil. Go to DEQ's hazardous waste program web pages for more information.

DEQ's used oil regulations are in Oregon Administrative Rules Chapter 340, Division 111.

Federal used oil regulations are in Title 40, Part 279 of the Code of Federal Regulations .

Other related federal requirements of interest are on the federal website for Title 40, "Protection of the Environment."

- Part 261 (hazardous waste identification)
- Part 112 (federal spill prevention, control and countermeasure plan requirements)
- Part 716.20(e) (PCB used oil)

EPA's used oil webpage .

DEQ regional offices and assistance

For more assistance, see the DEQ hazardous waste program specialist in your area.

Northwest Region office: 700 NE Multnomah St, Suite 600, Portland, OR 97232, 503-229-5263

Bend office: 475 Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Drive, Salem, OR 97302, 503-378-8240

Eugene office: 165 E. 7th Ave., Suite 100, Eugene OR 97401, 541-686-7838

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011 or email deqinfo@deq.state.or.us.

Fact Sheet

Used Oil Generator Requirements

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.,
Suite 600
Portland, OR 97232-4100
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Background

This fact sheet describes state and federal used oil generator requirements. Numerous service and industrial activities generate used oil: auto repair, metalworking, machine lubrication, refrigeration and hydraulic equipment repair. Used oil can be recycled to make new lubricants or used as an industrial fuel under established safeguards. When properly recycled, it is excluded from hazardous waste regulation.

It's important to manage used oil to prevent potential pollution of the air, land, surface water and groundwater. Used oil can contain cancer-causing agents, metal contaminants and organic compounds that filter into the groundwater supply. Such contamination can result in serious human health hazards.

The topics listed below include references for specific rule sections. Federal used oil regulations are in the Code of Federal Regulations, Title 40, Part 279. State used oil regulations are in Oregon Administrative Rules Chapter 340, Division 111. For more detailed information, refer to the specific rules listed in these documents. (See link on page 4).

What is used oil? (OAR 340-111-0020)

The Oregon Department of Environmental Quality defines used oil as any oil that's been refined from crude or synthetic oil and used as one of the following:

- lubricant
- electrical insulation oil
- hydraulic fluid
- heat transfer oil
- brake fluid
- refrigeration oil
- grease
- machine cutting oil

Used oil does not include the following:

- used oil mixed with hazardous waste except for specific instances
- petroleum and synthetic-based products used as solvent
- antifreeze
- wastewaters from which the oil has been removed
- oil-contaminated media or debris

What is a used oil generator? (40 CFR 279.1 and 40 CFR 279.20)

A used oil generator is any person by site, whose act or process produces used oil or whose act first causes the used oil to be regulated. Generators subject to used oil regulations include but are not limited to: businesses, governments, schools and equipment maintenance facilities.

Used oil regulations in this fact sheet do not apply to:

- persons generating used oil through personal vehicle maintenance
- farmers generating an average of 25 gallons per month or less of used oil from vehicles or machinery used on the farm during a calendar year

Used oil storage (OAR 340-111-0032; 40 CFR 279.22 and 40 CFR, Part 112)

In storage units, used oil must be stored in tanks or containers without leaks and in good condition (no severe rusting, structural defects or deterioration). Containers or tanks must also be covered or closed to prevent rainwater from entering.

Labeling

Containers and above-ground tanks of used oil must be clearly labeled or marked with the words "used oil." Fill pipes used to transfer used oil to underground tanks must also be clearly marked with the words "used oil."

Response to used oil releases or spills

Upon identifying a release or spill of used oil to the environment, the used oil generator must stop the release and comply with provisions found in OAR Chapter 340, Division 142.

Spill prevention planning

Used oil generators may be required, under federal regulations (40 CFR, Part 112) to Spill Prevention Control and Countermeasure Plan requirements if they've used oil storage capacity in excess of the following:

- Above-ground storage tanks and containers equaling or exceeding 1,320 gallons total storage capacity
- Underground storage tanks equaling or exceeding 42,000 gallons total capacity

Burning used oil in on-site space heaters (OAR 340-111-0035 and 40 CFR 279.23)

Used oil generators may burn used oil in on-site space heaters provided that:

- the heater burns only used oil that the owner or operator generate

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themselves or used oil received from household do-it-yourself used oil households
- the heater has a maximum capacity of not more than 05.milion BTUs per hour
- the combustion gases vent to the outside air
- the burner operates following manufacturer specifications, meaning that the unit is designed to burn used oil

Transporting used oil (OAR 340-111-0037 and 40 CFR 279.24)

Used oil generators shipping more than 55 gallons of used oil at a time must use a DEQ-registered used oil transporter. The transporter must deliver all used oil collected from the generator to:

- another used oil transporter who also has obtained a DEQ or U.S. Environmental Protection Agency identification number
- a used oil processing/re-refining facility that has obtained a DEQ/EPA identification number
- an off-specification used oil burning facility that has obtained a DEQ/EPA identification number
- an on-specification used oil burning facility

Generators may self-transport their used oil without a DEQ/EPA identification number if all of the following apply**:**

- the used oil is transported in a vehicle owned or leased by the generator or an employee of the generator
- the generator transports no more than 55 gallons of used oil at any time
- the generator transports the used oil to:
  1) an aggregation point owned by the generator or
  2) a used oil collection center recognized by DEQ to manage used oil

Mixing waste with used oil (OAR 340-111-0010 and 40 CFR 279.10)

Mixing waste with used oil can degrade its recyclability and may result in higher management costs for the generator (Also, mixing used oil with hazardous waste may result in the waste becoming regulated hazardous waste.)

Wastes may be mixed with used oil in specific situations identified in more detail in OAR 340-111-0010 and 40 CFR 279.10. If used oil transporters suspect that the oil has been mixed with wastes, they may not pick it up for recycling.

Rebuttable presumption for used oil (40 CFR 279.10(b)(1)(ii))

State and federal used oil regulations presume that used oil containing more than 1,000 parts per million of total halogens has been mixed with listed hazardous waste and therefore must be managed as a hazardous waste. (Halogens include the elements fluorine, chlorine, bromine and iodine.) See 40 CFR 279.10(b) (3) for the conditionally exempt hazardous waste generator exception.

Because of this regulatory presumption, any used oil containing 1,000 ppm of halogens is usually hazardous waste. However, the used oil collector can rebut or refute the presumption that the used oil has been mixed with hazardous waste. The rebutter must demonstrate that the source of the halogens is not from listed waste or characteristic halogenated waste. A used oil collector can become a generator of hazardous waste through mixing if the collector cannot rebut that presumption.

There are several ways a used oil generator or collector can rebut that used oil is hazardous waste:

- Analytical tests methods can prove the used oil does not contain significant concentrations of halogenated hazardous constituents. Common testing methods are available at: www.epa.gov/wastes/hazard/testmethods/sw846/
- Demonstration that the contaminated used oil collected is exempt from hazardous waste regulation. There are two types of used oil always exempt from hazardous waste regulation: do-it- yourself used oil from households, and used oil mixed with conditionally exempt generator waste.

The rebuttable presumption does <u>not</u> apply to:

- Metalworking oils or fluids containing chlorinated paraffins if they're processed through a tolling agreement to reclaim them
- Metalworking oils or fluids if they're recycled in any other manner or disposed
- Oil removed from refrigerant if the refrigerant removed from the unit is destined for reclamation
- Used oil contaminated with refrigerant that's been mixed with used oil from other than refrigeration units

Materials containing or otherwise contaminated with used oil (40 CFR 279.10(c) and OAR 340-111-0010)

Materials containing or otherwise contaminated with used oil from which the used oil has been properly drained or removed to the extent possible such that no visible signs of free-flowing oil remain in or on the material are not used oil and thus not subject to the used oil rules of 40 CFR 279. A hazardous waste determination should be made on these materials if they are determined to be waste as the hazardous waste regulations of 40 CFR parts 124, 260 through 266, 268, and 270 may apply.

Materials containing or otherwise contaminated with used oil that are burned for energy recovery are subject to regulation as used oil. Wastes not otherwise deemed hazardous but which have a British Thermal Unit (BTU) value of more than 5,000 per pound may be burned for energy recovery as used oil at approved facilities.

Materials containing or otherwise contaminated with used oil cannot be burned for energy recovery as used oil if they contain less than 5,000 BTUs per pound and are subject to hazardous waste regulations.

Fuels and used oil (40 CFR 279.10(d))

Fuels such as gasoline, jet fuel, diesel and kerosene and that are unsuitable for their original intended use may be mixed with used oil and the mixture managed as used oil. Fuel needing treatment (such as water removed before incorporation into used oil as a fuel) is not exempt from applicable hazardous waste management regulations.

Wastewaters contaminated with used oil (40 CFR 279.10(f) and OAR 340-111-0010)

Wastewaters contaminated with used oil are not used oil and are subject to applicable hazardous waste regulations.

Used oil containing PCBs (40 CFR 279.1(i))

Used oil containing PCBs is subject to used oil regulations found in 40 CFR 279 and OAR 340-111, as well as PCB regulations in 40 CFR 761.20 (e).

Used oil for dust suppressant or pesticide (40 CFR 279.82 and OAR 340-111-0030(1))

Using regulated used oil as a dust suppressant (road oiling) or as a pesticide is prohibited.

Burning used oil for energy recovery devices other than space heaters (40 CFR, Subpart G, and OAR 340-111-0010, -0040, -0042 and -0050)

Generators of used oil may burn their own oil on-site for energy recovery. Specification used oil may be burned on site in furnaces and boilers without notifying DEQ. Depending on equipment size, a DEQ air quality permit may be required. Check with the appropriate DEQ regional office to determine if an air quality permit is needed. Refer to DEQ's Used Oil Burner fact sheet, Used Oil Transporters, Marketers and Collection Facilities fact sheet or the specific rule listed above for more information.

Used oil filters (40 CFR 261.4(b)(15) and OAR 340-111-0020)

Recycling. DEQ recommends recycling of used oil filters for their scrap metal value. Used oil filters should be crushed or punctured and hot drained to remove oil before recycling. (Hot draining means that the oil filter is drained near engine-operating temperature and above room temperature.) Used oil filters with oil removed are exempt from hazardous waste regulations when recycled for their scrap metal value.

Disposal. Used oil filters are exempt from hazardous waste regulations when they're properly processed before disposal as solid waste. This exemption does not apply to "terne plated" used oil filters. Terne plating is an alloy of lead and tin commonly used on larger truck oil filters. Contact the filter manufacturer or retailer to learn if your filters are terne plated.

For used oil filters to be exempt from hazardous waste regulations, they must be gravity drained, using one of the following methods:

- Puncturing the filter anti-drain back valve or the filter dome end and hot draining for at least 12 hours
- Hot draining and crushing
- Dismantling and hot draining
- Any other equivalent hot-drain method that removes used oil

Choosing a used oil management firm

As mentioned earlier, used oil can be exempt from hazardous waste regulations when properly recycled. You need to make certain that the firm managing your used oil does so properly. If a firm mismanages your used oil, you may be liable for future cleanup costs and hazardous waste management violations.

When evaluating used oil management firms, ask the following:

- Is the used oil being recycled or disposed of?
- Is the processing or transfer facility following good management procedures, such as preventing or immediately cleaning up spills?
- Is the used oil being re-refined or burned for energy recovery?
- Who will be burning the oil after it's blended into a fuel?
- Is off-specification used oil blended to specification used oil fuel or is it marketed as off-specification used oil fuel?
- What is the transporters' or processors' policy on mixing used oil with hazardous waste, and are you comfortable with this policy?
- What type of liability insurance does the transporter have?

For more precise evaluation of an oil management firm, consider visiting the processing facility or examining results of an independent audit.

Where to find more information

DEQ has other fact sheets about handling used oil. Go to DEQ's hazardous waste program web pages for more information.

DEQ's used oil regulations are in Oregon Administrative Rules Chapter 340, Division 111.

Federal used oil regulations are in Title 40, Part 279 of the Code of Federal Regulations.

Other related federal requirements of interest are on the federal website for Title 40, "Protection of the Environment."

- Part 261 (hazardous waste identification)
- Part 280 (underground storage tanks)
- Part 112 (federal spill prevention, control and countermeasure plan requirements)
- Part 716.20(e) (PCB used oil)

EPA's used oil webpage.

DEQ regional offices and assistance

For more assistance, see the DEQ hazardous waste program specialist in your area.

Northwest Region office: 700 NE Multnomah Street, Suite 600, Portland, OR 97232, 503-229-5696

Bend office: 475 Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Dr., Salem, OR 97302, 503-378-8240

Eugene office: 165 E. 7th Ave., Suite 100, Eugene OR 97401, 541-686-7838

Alternative formats

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Fact Sheet

Management of Waste Batteries under the Universal Waste Rule

State of Oregon
Department of
Environmental
Quality

Hazardous Waste
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5675
www.oregon.gov/DEQ

Background

The purpose of this fact sheet is to provide guidance for managing waste batteries under the universal waste management rule. Specific rule language citations are provided throughout the factsheet. Federal universal waste rules are found in Title 40 Code of Federal Regulations (CFR), Part 273. State universal waste rules are found in Oregon Administrative Rule (OAR) Chapter 340, Division 113. Both sets of rules need to be followed when managing universal waste.

What batteries are not subject to management as a universal waste?

(40 CFR 273.2(b)):

- Batteries that do not exhibit a characteristic of hazardous waste;
- Lead-acid batteries managed under 40 CFR 266, Subpart G;
- Batteries managed under household hazardous waste or conditionally exempt generator provisions; and
- Batteries that are not yet wastes. Used batteries become waste on the date they are discarded. Unused batteries become waste on the date the person decides to discard them.

Universal waste handler categories

(40 CFR 273.13, 273.33 and OAR 340-113-040)

A person who generates or receives universal waste, including universal waste batteries from off-site for the purpose of consolidation, is defined as a universal waste handler. There are two universal waste handler categories: (1) A small quantity handler of universal waste accumulates less than 11,000 pounds (5,000 kilograms) at any time, and (2) a large quantity handler of universal waste accumulates 11,000 pounds or more of universal waste at any time. For a detailed discussion of the handler requirements, please refer to DEQ's universal waste handler factsheet.

What are the universal waste battery management requirements?

(40 CFR 273.13(a) and 273.33(a))

A handler of universal waste batteries must manage them in a way that prevents the release of any waste or component of the waste to the environment. Any battery that shows evidence of leakage, spillage or damage that could cause leakage must be contained. The container must be closed, structurally sound, compatible with the battery's contents, with no sign of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.

Handlers of universal waste batteries are prohibited from disposing of universal waste batteries and are prohibited from diluting or treating universal waste batteries. Universal waste batteries must be treated, disposed or recycled by universal waste destination facilities.

Handlers of universal waste batteries may conduct the following activities (as long as the casing of each individual battery cell is not breached, remains intact and is closed, except when removing electrolyte):

- Sorting the batteries by type
- Mixing battery types in one container
- Discharging the batteries so as to remove the electric charge
- Regenerating used batteries
- Disassembling batteries or battery packs into individual batteries or cells
- Removing batteries from consumer products
- Removing electrolyte from batteries

Electrolyte removed from batteries or solid waste generated from the management of universal waste (for example, battery pack materials, discarded consumer products) is not universal waste and must be managed according to applicable hazardous waste management requirements, if the waste exhibits a characteristic of hazardous waste.

Labeling and marking

(40 CFR 273.14 and 273.34(a))

Individual batteries or containers of universal waste batteries must be labeled or marked clearly with one of the following phrases: "Universal Waste-Batteries," "Waste Batteries," or "Used Batteries."

Accumulation time

(40 CFR 273.15, 273.35)

Handlers generating universal waste, including universal waste batteries, are prohibited from accumulating universal waste for more than one year. Accumulation of universal waste longer than one year is permitted if the handler can demonstrate to DEQ that additional time is needed to accumulate such quantities as necessary to facilitate proper recovery, treatment or disposal.

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A handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste. Usually, this is done by placing the date on the battery or container holding the batteries on the date the battery becomes a waste.

Who should handle my waste batteries?

Be aware that as a generator of universal waste, you are ultimately responsible for the proper management, recycling or disposal of your batteries even after they leave your facility. Because of this, care should be taken in selecting a universal waste management company to ensure that your batteries are properly managed.

Universal waste batteries may be shipped from the location where they were generated either to a universal waste off-site collection site or to a universal waste destination facility. Off-site collection sites can include retail outlets that sell batteries, government-sponsored collection events, solid waste collection facilities that accept universal waste, as well as hazardous waste recycling and disposal firms. Universal waste destination facilities are businesses that recycle or dispose of universal waste and are subject to federal regulations governing hazardous waste recyclers and hazardous waste disposal facilities.

In choosing a universal waste management company, you should know how the waste is going to be managed, both at the off-site collection site and destination facility, and how the batteries will ultimately be processed**.**

Recycling versus disposal

Recycling is often, for environmental reasons, the preferred management method for waste batteries; however, few firms actually recycle batteries. A list of battery recyclers and service companies who manage batteries is located at the end of this fact sheet. When you are contracting with a battery recycling firm, be sure that you understand how the batteries are recycled, which battery materials are actually recycled and which battery components are disposed. It is recommended that you make sure that you receive a certificate or receipt indicating when your batteries were recycled. Retain this receipt for your files.

Recycling particular types of batteries may be limited or too costly as a reasonable management option. If this is the case, disposal of batteries in a hazardous waste landfill may be the best option. Again, be sure you understand how your batteries will be disposed, and request a certificate or receipt of disposal for the batteries.

Health and safety considerations when handling and storing batteries

Improper storage and handling of universal waste batteries can pose special health and safety risks. Steps should be taken during the handling and storing of batteries to minimize the risks.

Mercury vapors may accumulate in sealed drums if stored for an extended period of time when storing batteries containing mercury. Containers should be placed in a well-ventilated area to minimize worker exposure to mercury vapor emissions when they are opened to add or remove batteries.

When accumulating different types of batteries, be aware that some types of batteries may be incompatible with each other. Explosion is another potential risk when batteries are stored in contact with one another. Waste batteries that contain a residual charge when collected together may discharge each other, creating heat and forming hydrogen gas. If the container is not properly ventilated, there is a potential for an explosion.

There is a potential for partially corroded batteries to leak caustic chemicals. If proper precautions are not taken, workers handling batteries may get chemical burns on their skin. Workers handling batteries should protect themselves by wearing protective clothing, including rubber gloves, eye protection and rubberized aprons.

Management of waste batteries must comply with OSHA requirements and be consistent with the information provided with the battery material safety data sheet.

For specific accumulation and shipping management instructions, contact your waste management firm. If you don't know which types of batteries should not be combined, contact the battery manufacturer, company or site receiving your waste batteries.

Alternative formats

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DEQ regional offices and assistance

To request universal waste and hazardous waste technical assistance, contact the DEQ regional office nearest you.

For or more assistance, see the DEQ hazardous waste program specialist in your area.

Northwest Region Office: 700 NE Multnomah St, Ste 600, Portland, OR 97232, 503-229-5263

Bend office: 475 NE Bellevue, Suite 110, Bend, OR 97701, 541-388-6146

Pendleton office: 800 SE Emigrant, Suite 330, Pendleton OR 97801, 541-276-4063

Salem office: 4026 Fairview Industrial Dr., Salem, OR 97302, 503-378-8240, ext. 253

Eugene office: 165 E .7th Ave., Suite 100, Eugene OR 97401, 541-686-7838

Alternative formats

Alternative formats of this document can be made available. For more information, call 503-229-5696, Portland, or phone toll-free in Oregon at 1-800-452-4011, ext. 5696. Hearing-impaired persons may call 711.

Fact Sheet

What to do when you've had a spill

Contact local emergency services
Call 911 for medical emergency and public safety assistance from the local fire, police and medical services.

Report the spill immediately
Immediately report the spill or threatened spill to the Oregon Emergency Response System, 1-800-452-0311, when the spill or threat of a spill includes:

- Any amount of oil to waters of the state;
- Oil spills on land in excess of 42 gallons;
- Hazardous materials and reportable quantities that are equal to the Code of Federal Regulations, 40 CFR Part 302.

Provide information
When you report the spill to OERS, you will need to provide basic spill information:

- Contact names and phone numbers
- Type of oil or hazardous material
- Estimated quantity
- Location descriptions (land or water)

U.S. Environmental Protection Agency Notification
Some oil or hazardous material spills will require a separate notification to the National Response Center, 1-800-424-8802. Visit EPA's Emergency Response website for information necessary to determine if you need to report to the federal system.

Other actions to take

- Move away or upwind from the spill if you detect an odor and are unsure if it is safe.
- Avoid contact with liquids or fumes.
- Keep non-emergency people out of the area.
- Control and contain the spill.
- Clean up what you can immediately.
- Remove cleanup materials to an approved facility (such as a solid or hazardous waste landfill or recycling facility.) Save your receipts for documentation.
- Continue with long-term cleanup measures.
- File a completed Spill Release Report Form with DEQ

Your role
You are responsible for the immediate cleanup of your spill, regardless of the quantity involved.

The responsibility lies with the person who spills the product, as well as the person owning or having authority over the oil or hazardous material. You may need to hire a qualified contractor or properly trained and equipped personnel to respond immediately to the spill. If you fail to clean up your spill, DEQ may clean it up for you and, as allowed by law, fine you up to three times the cost of the cleanup, in addition to the actual cost of the cleanup (Oregon Administrative Rules 340-142).

Contractors can work to control, contain and mitigate difficult spills like this truck crash on the North Umpqua Highway that caused diesel to leak into the river.

DEQ's role
DEQ is responsible for ensuring that the cleanup is completed in a way that protects human health and the environment. Oregon law also requires DEQ to recover its costs in carrying out this responsibility.

Depending on the type and quantity of material spilled, and the potential threat to people or the environment, DEQ may choose to oversee the cleanup. This oversight may take the form of DEQ staff at the scene, phone contact, document review or a combination of these actions. You are responsible for these oversight costs and will normally be billed within 45 days.

For more information
Regional Emergency Response coordinators are listed in the margin. You may also visit the DEQ Emergency Response webpage.

Alternative formats
Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

State of Oregon
Department of Environmental Quality

Emergency Response
700 NE Multnomah
Portland, OR 97292
Phone: 503-229-6931
Fax: 503-229-5408
Contact: Mike Zollitsch
zollitsch.michael@deq.state.or.us

Contact the State On-Scene Coordinator in your area:

Northwest Region
Portland-Metro and North Coast
Michael Greenburg
503-229-5153
greenburg.michael@deq.state.or.us

Western Region
Willamette Valley, Cascades, Central and South Coast
Geoff Brown
541-686-7819
brown.geoff@deq.stete.or.us

Eastern Region
East of Cascades
Jamie Collins
541-633-2010
collins.jamie@deq.state.or.us

Last Updated: 9/11
By: K. Van Patten
08-LQ-090

Section Divider

Section Divider

Appendix J - Permitted Landfills

DEQ's list of Oregon's Solid Waste Active Permitted Facilities

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

Pmt #	Facility Name	Address	City	Zip	Class	Type	County	Reg	Phone	Permittee FstName	Permittee LstName	Organization Permittee	Address	City	Zip
1306	Dietrich Trucking LLC	7211 NE 43rd Ave Ste A	VANCOUVER	98661	Waste Tire	Carrier	?UNKNOWN?	???	360-573-2000	Tami	Webb	Dietrich Trucking, LLC	7211 NE 43rd Ave Ste A	Vancouver	98661-1377
1287	Regional Disposal Company	54 SOUTH DAWSON STREET	SEATTLE	98134	Municipal	Exporter	?UNKNOWN?	???	206-332-7768	Roger	Violette	Regional Disposal Company	54 S Dawson St	Seattle	98134-2425
1266	Ash Grove Cement Plant	300 CEMENT PLANT ROAD	DURKEE	97905	Waste Tire	Storage	BAKER	ER	541-877-2411	Norma	Job	Ash Grove Cement Company	PO Box 287	Durkee	97905-0287
152	Baker Sanitary Landfill	SE OF BAKER CITY	BAKER CITY	97907	Municipal	Landfill	BAKER	ER	(541) 523-2626	David	Henry	Baker Sanitary Service, Inc.	PO Box 169	Baker City	97814-0169
154	Haines Landfill	SEC 27, T7S, R39E	HAINES	97833	Municipal	Landfill	BAKER	ER	541-856-3366	Valerie	Russell	City of Haines	PO Box 208	Haines	97833-0208
438	Huntington Transfer Station	APPROX. 1 MILE EAST ON HWY 30, THEN SOUT	HUNTINGTON	97907	Municipal	Transfer	BAKER	ER	(541) 869-2202	Scott	Whelden	City Of Huntington	PO Box 369	Huntington	97907-0369
426	Larue Transfer Station	43401 Sag Rd	HALFWAY	97834	Municipal	Transfer	BAKER	ER	541-742-6857	Terry	Schmoe	LaRue Sanitary Service	PO Box 857	Halfway	97834-0857
1577	Second Life Recycling, LLC	33060 SHIRTTAIL CREEK ROAD	DURKEE	97905	Waste Tire	Carrier	BAKER	ER	208-850-6870	Jeff	Thompson	Second Life Recycling, LLC	1733 Simco Rd	Boise	83716-3426
441	UnityTransfer Station	1 1/2 - 2 MI. SOUTH OF UNITY	UNITY	97884	Municipal	Transfer	BAKER	ER	(541) 446-3544	Mark	Bennett	City Of Unity	PO Box 7	Unity	97884-0007
306	Coffin Butte Landfill	29175 COFFIN BUTTE RD	CORVALLIS	97330	Municipal	Landfill (Regional)	BENTON	WR	(541) 745-5792	Jenifer	Stuber	Valley Landfills, Inc.	28972 Coffin Butte Rd	Corvallis	97330-9592
1507	Gathering Together Farm, Inc	25159 GRANGE HALL ROAD	PHILOMATH	97370	Compost	Registration	BENTON	WR	541-929-4270	John	Eveland	Gathering Together Farm, Inc.	25159 Grange Hall Rd	Philomath	97370-9626
1418	Processing & Recovery Center	29969 CAMP ADAIR RD	MONMOUTH	97361	Compost	Full	BENTON	WR	(541) 745-5792	Randy	Bringle	Valley Landfills, Inc.	28972 Coffin Butte Rd	Corvallis	97330-9592
1539	SIF Biogas Plant	3122 STAHLBUSH ISLAND RD	CORVALLIS	97333	Compost	Full Anaerobic Digester	BENTON	WR	541-760-3127	Tina	Galloway	Stahlbush Island Farms, Inc.	3122 SE Stahlbush Island Rd	Corvallis	97333-2709
1516	Canby Landscape Supply	24370 S HIGHWAY 99E	CANBY	97013	Compost	Registration	CLACKAMAS	NWR	(503) 656-0663	Nancy	Traverso	Parker-Northwest Paving Company	24370 S Hwy 99 E	Canby	97013-7505
443	Canby Transfer & Recycling Center	1600 SE 4TH AVE	CANBY	97013	Municipal	Transfer	CLACKAMAS	NWR	(503) 266-3900	Andy	Kahut	Canby Transfer & Recycling, Inc.	PO Box 550	Canby	97013-0550

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1548	CarMax 7285	13750 SE JOHNSON RD	MILWAUKIE	97222-1240	Waste Tire	Storage	CLACKAMAS	NWR	804-747-0422			CarMax Auto Superstores West Coast Inc.	12800 Tuckahoe Creek Pkwy	Richmond	23238-1115
121	Clackamas County Garbage & Recycling Transfer Station	19600 SE CANYON VALLEY ROAD	SANDY	97055	Municipal	Transfer	CLACKAMAS	NWR	(503) 353-4466	Rick	Winterhalter	Clackamas County	150 Beavercreek Rd	Oregon City	97045-4302
1486	Compost 1	6822 S ANDERSON RD	AURORA	97002-9333	Compost	Registration	CLACKAMAS	NWR	503-969-9548	Rick	Jonas		PO Box 818	Canby	97013-0818
1487	Compost 2	5997 S ANDERSON RD	AURORA	97002-9329	Compost	Registration	CLACKAMAS	NWR	503-692-9666			Keystone Pacific LLC	9955 SW Potano St	Tualatin	97062-8619
1488	Compost 3	26241 S MERIDIAN RD	AURORA	97002-8303	Compost	Registration	CLACKAMAS	NWR	503-710-6136	R Marc	Anderson		PO Box 166	Aurora	97002-0166
480	KB Recycling Inc. Materials Recovery Facility	9602 SE CLACKAMAS RD	CLACKAMAS	97015-9731	Municipal	Material Recovery	CLACKAMAS	NWR	(503) 266-3900	Andy	Kahut	K. B. Recycling, Inc.	PO Box 550	Canby	97013-0550
1442	McFarlane's Bark, Inc.	13345 SE JOHNSON RD	MILWAUKIE	97222	Compost	Full	CLACKAMAS	NWR	(503) 659-4240	Daniel	McFarlane	McFarlane's Bark	13345 SE Johnson Rd	Milwaukie	97222-1270
350	Metro South Transfer Station	2001 WASHINGTON ST	OREGON CITY	97045	Municipal	Transfer	CLACKAMAS	NWR	503-234-3000	Penny	Erickson	Metro	600 NE Grand Ave	Portland	97232-2736
1263	Tire Disposal Co., Inc. dba: Molalla Discount Tire	14377 S MACKSBURG RD	MOLALLA	97038	Waste Tire	Combo	CLACKAMAS	NWR	(503) 829-8322	Tia	Schweizer	Tire Disposal Co., Inc.	14377 S Macksburg Rd	Molalla	97038-8405
1405	Universal Recycling Technologies	10151 SE JENNIFER ST	CLACKAMAS	97015-9509	Municipal	Material Recovery	CLACKAMAS	NWR	608-754-3400x133	Gary	Thompson	Universal Recycling Technologies LLC	2535 Beloit Ave	Janesville	53546-3046
1468	Valley Green Compost	27550 S Dryland Rd	Canby	97013	Compost	Registration	CLACKAMAS	NWR	503-964-1976	John	Appel	Valley Green Compost	PO Box 756	Canby	97013-0756
382	Astoria Transfer Station	1790 Williamsport Road	ASTORIA	97103	Municipal	Transfer	CLATSOP	NWR	503-474-4836	Walter	Budzik	Western Oregon Waste - Transfer Station	PO Box 509	McMinnville	97128-0509
1588	Astoria Transfer Station	1790 Williamsport Road	ASTORIA	97103	Municipal	Exporter	CLATSOP	NWR	503-474-4836	Walter	Budzik	Western Oregon Waste - Transfer Station	PO Box 509	McMinnville	97128-0509
1148	Georgia Pacific Consumer Pr Wauna Mill	92326 TAYLORVILLE RD	CLATSKANIE	97016-8264	Industrial	Pulp/Paper	CLATSOP	NWR	503-455-3236	Jeff	Sorensen	Georgia Pacific Consumer Products LP	92326 Taylorville Rd	Clatskanie	97016-8264

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1415	Laurelwood Farm Composting Facility	34154 Hwy 26	SEASIDE	97138	Compost	Registration	CLATSOP	NWR	503/738-5954	Michael	McEwan	Bob McEwan Construction Inc.	34154 Highway 26	Seaside	97138-3611
1435	Trails End Recovery Compost	34635-34661 AIRPORT LANE	WARRENTON	97146	Compost	Full	CLATSOP	NWR	(503) 861-6030	Dean	Larson	Trails End Recovery	2060 SE Airport Ln	Warrenton	97146-7401
496	Trails End Recovery MRF	34635-34661 AIRPORT LANE	WARRENTON	97146	Municipal	Material Recovery	CLATSOP	NWR	(503) 861-6030	Dean	Larson	Custom Excavating by Dean Larson Inc.	2060 SE Airport Ln	Warrenton	97146-7401
1424	Beaver Bark, Inc.	54000 WEST LANE ROAD	SCAPPOOSE	97056	Compost	Registration	COLUMBIA	NWR	503-543-3000	Ben	Holschef	BB Wood Products LLC	54000 W Lane Rd	Scappoose	97056-2507
1323	Columbia County HHW & Transfer Station	1601 RAILROAD AVENUE	ST. HELENS	97051	Municipal	Transfer	COLUMBIA	NWR	503-397-7213	Todd	Dugdale	Columbia County Solid Waste Program	230 Strand St	Saint Helens	97051-2040
1614	Port of Astoria-Tongue Point FV Recruit	300 RAILROAD WAY	ASTORIA	97103	SWLA	Management	COLUMBIA	NWR	503-741-3336	Matt	McGrath	Port of Astoria	10 Pier 1 Ste 308	Astoria	97103-6338
427	Vernonia Transfer Station	500 California Avenue	VERNONIA	97064	Municipal	Transfer	COLUMBIA	NWR	(503) 366-2613	Jeff	O'Leary	Waste Management of Oregon	1525 B St	Forest Grove	97116-2752
1450	Bandon Organic Compost Company	88154 BARNEKOFF LN	BANDON	97411-7273	Compost	Registration	COOS	WR	541-347-9393	Richard	Gagnon	Bandon Organic Compost Company	88154 Barnekoff Ln	Bandon	97411-7273
1519	Beaver Hill Solid Waste Facility	55722 HWY 101	COOS BAY	97420	Municipal	Transfer	COOS	WR	(541) 396-7660	Jessica	Johnson	Coos County Solid Waste Department	250 N Baxter St	Coquille	97423-1875
1097	Coquille Disposal Site	SEC02,T28S,R 13W	COQUILLE	97423	Industrial	Landfill (Captive)	COOS	WR	541-679-2130	Ellen	Porter	Roseburg Forest Products Company	PO Box 1088	Roseburg	97470-0252
1142	North Spit Landfill	HORSFALL BEACH RD	NORTH BEND	97459	Industrial	Landfill (Captive)	COOS	WR	713-400-2834	Rose	Haddon	Jordan Cove Energy Project LP	5615 Kirby Dr Ste 500	Houston	77005-2446
1612	ORC Properties LLC	63776 MULLEN ROAD	COOS BAY	97420	SWLA	Land Disposal	COOS	WR	817-771-1156	Jim	Randall	Oregon Resources Corporation	PO Box 1350	Coos Bay	97420-0300
1579	SeaCoast Compost	63073 SEVEN DEVILS RD	CHARLESTON	97420	Compost	Full	COOS	WR	541-888-6757	David	Boyer	SeaCoast Compost	63043 Seven Devils Rd	Charleston	97420-6662
401	West Coast Recycling And Transfer Inc. dba	1210 S. BROADWAY ST.	COOS BAY	97420	Municipal	Transfer	COOS	WR	(541) 756-5868	Pamela	Pawelek	West Coast Recycling & Transfer, Inc.	PO Box 956	Coos Bay	97420-0116
74	Crook County Landfill	5601 SW HOUSTON LAKE RD	PRINEVILLE	97754	Municipal	Landfill	CROOK	ER	(541) 447-6555	Seth	Crawford	Crook County	300 E 3rd St	Prineville	97754-1949
1471	Crook County Landfill Compost Facility	5601 SW HOUSTON LAKE RD	PRINEVILLE	97754	Compost	Registration	CROOK	ER	(541) 447-6555	Seth	Crawford	Crook County	300 NE 3rd St	Prineville	97754-1919

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1362	Grizzly Transport, LLC	3595 NE 3RD ST	PRINEVILLE	97754-8101	Waste Tire	Carrier	CROOK	ER	541/447-8377	David	Groves	Grizzly Transport, LLC	3595 NE 3rd St	Prineville	97754-8101
431	Paulina Transfer Station	E OF PRINEVILLE @ JUNCTION OF HWY 113 &	PAULINA	97751	Municipal	Transfer	CROOK	ER	(541) 447-6555	Leroy	Gray	Crook County Board of Commissioners	300 NE 3rd St	Prineville	97754-1919
482	Prineville Disposal Reload Station	1751 N MAIN ST	PRINEVILLE	97754-9136	Municipal	Transfer	CROOK	ER	(541) 447-5208	Steve	Holliday	Holliday Enterprises, LLC	PO Box 1468	Prineville	97754-0758
1175	Regional Tire Recovery And Disposal Facility	7220 NW O NEIL HWY	PRINEVILLE	97754-9345	Industrial	Landfill (Off-Site)	CROOK	ER	818-571-2425	Chandos	Mahon	Krider Construction, LLC	PO Box 83478	Portland	97283-0478
414	Brookings Transfer Station	17498 CARPENTERVILLE RD	BROOKINGS	97415	Municipal	Transfer	CURRY	WR	541-469-2425	Luke	Pyke	Curry Transfer & Recycling, Inc.	PO Box 4008	Brookings	97415-0229
327	Nesika Beach Transfer Station	6 MI. N OF GOLD BEACH ON HWY. 101	GOLD BEACH	97415	Municipal	Transfer	CURRY	WR	541-247-3291	John	Huttl	Curry County Counsel's Office	94235 Moore St Ste 123	Gold Beach	97444-9704
413	Port Orford Transfer Station	42750 ARIZONA ST.	PORT ORFORD	97465	Municipal	Transfer	CURRY	WR	541-247-3291	John	Huttl	Curry County Counsel's Office	94235 Moore St Ste 123	Gold Beach	97444-9704
1038	South Coast Lumber	NEAR BROOKINGS AIRPORT	BROOKINGS	97415	Industrial	Landfill (Captive)	CURRY	WR	(541) 469-2136	Patrick	Fadden	South Coast Lumber Company	PO Box 670	Brookings	97415-0198
419	Wridge Creek Transfer Station	T39S, R14W, S16WM	BROOKINGS	97415	Municipal	Transfer	CURRY	WR	(541) 469-2425		Curry Co Commissioners	Curry Transfer & Recycling, Inc.	PO Box 4008	Brookings	97415-0229
417	Alfalfa Transfer Station	WALKER ROAD	BEND	97702	Municipal	Transfer	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
1315	Deschutes County Transfer Station	61050 SE 27TH ST	BEND	97702	Municipal	Transfer	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
6	Knott Landfill	E SIDE OF BEND	BEND	97702	Municipal	Landfill	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
1477	Knott Pit Landfill Compost Facility	61050 SE 27TH ST	BEND	97702	Compost	Registration	DESCHUTES	ER	(541) 317-3163	Tim	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
430	Negus Transfer Station	OFF NEGUS WAY (COUNTY ROAD)	REDMOND	97756	Municipal	Transfer	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
418	Northwest (Fryrear) Transfer	68200 Fryrear Rd	SISTERS	97759	Municipal	Transfer	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278
408	Southwest Transfer Station	54580 Hwy 97	LA PINE	97739	Municipal	Transfer	DESCHUTES	ER	(541) 317-3163	Timm	Schimke	Deschutes County	61050 SE 27th St	Bend	97702-9278

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

249	Camas Valley Transfer Station	COUNTY RD. 214, 2 MI. N. OF CAMAS VALLEY	CAMAS VALLEY	97416	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
284	Canyonville Transfer Station	600 JORDAN CREEK ROAD	CANYONVILLE	97417	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
314	Elkton Transfer Station	END OF COUNTY RD. 320	ELKTON	97436	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
280	Glendale Transfer Station	240 GLENDALE TRANSFER ROAD	GLENDALE	97442	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
258	Glide Transfer Station	13921 GLIDE TRANSFER RD	GLIDE	97443	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
262	Myrtle Creek Transfer Station	300 MYRTLE CREEK TRANSFER RD.	MYRTLE CREEK	97457	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
268	Oakland Transfer Station	220 OAKLAND-SUTHERLIN TRANSFER RD.	OAKLAND	97462	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
464	Reedsport Transfer Station	300 REEDSPORT TRANSFER STATION ROAD	REEDSPORT	97467	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
1386	Riddle Ash Landfill	RIDDLE BY-PASS ROAD	RIDDLE	97469	Industrial	Landfill (Captive)	DOUGLAS	WR	541-679-2130	Ellen	Porter	Roseburg Forest Products Company	PO Box 1088	Roseburg	97470-0252
1061	Riddle Plywood Plant Disposal Site No. 1 & No.	3064 RIDDLE BYPASS RD.	RIDDLE	97469	Industrial	Landfill (Captive)	DOUGLAS	WR	541-679-2130	Ellen	Porter	Roseburg Forest Products Company	PO Box 1088	Roseburg	97470-0252
1075	Rifle Range Road Landfill	NEAR 556 RIFLE RANGE RD	ROSEBURG	97470	Industrial	Landfill (Captive)	DOUGLAS	WR	541-461-6233	Cameron	Krauss	Rifle Range Road Corporation	PO Box 851	Eugene	97440-0851
1065	Roseburg Forest Products Dillard Disposal Site	10700 OLD HWY 99S	DILLARD	97432	Industrial	Landfill (Captive)	DOUGLAS	WR	541-679-2130	Ellen	Porter	Roseburg Forest Products Company	PO Box 1088	Roseburg	97470-0252
265	Roseburg Landfill	376 ROSEBURG LANDFILL ROAD	ROSEBURG	97470	Municipal	Landfill	DOUGLAS	WR	(541) 440-4208	Tom	Manton	Douglas County Public Works Department	1036 SE Douglas Ave Rm 306	Roseburg	97470-3301

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

477	Roseburg Transfer Station	165 MCCLAIN WEST AVE.	ROSEBURG	97470	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
1053	Swanson Group Mfg. LLC Glide	1/2 MILE SOUTH OF 1577 GLIDE LOOP RD.	GLIDE	97443	Industrial	Landfill (Captive)	DOUGLAS	WR	541-492-1115	Jeff	Remington	Swanson Group Mfg. LLC Glide	PO Box 1168	Roseburg	97470-0200
251	Tiller Transfer Station	150 TILLER TRANSFER RD.	TILLER	97484	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
1058	Umpqua Lumber Company Landfill	HORIZON ROAD	DILLARD	97470	Industrial	Landfill (Captive)	DOUGLAS	WR	(541) 874-2231	Randy	Crockett	Umpqua Lumber Company	PO Box 66	Riddle	97469-0066
281	Yoncalla Transfer Station	555 YONCALLA TRANSFER RD	YONCALLA	97499	Municipal	Transfer	DOUGLAS	WR	541-440-4485	Linda	Mendenhall	Douglas County Solid Waste	1036 SE Douglas Ave Rm 220	Roseburg	97470-3301
391	Columbia Ridge Landfill And Recycling Center	18177 CEDAR SPRINGS LN	ARLINGTON	97812	Municipal	Landfill (Regional)	GILLIAM	ER	(541) 454-2030	James	Denson	Waste Mgmt Disposal Svcs of Oregon, Inc.	18177 Cedar Springs Ln	Arlington	97812-6512
1604	Columbia Ridge Landfill: Composting	18177 CEDAR SPRINGS LN	ARLINGTON	97812-6512	Compost	Registration	GILLIAM	ER	(541) 454-3201	James L.	Denson, Jr.	Columbia Ridge Landfill & Recycling Ctr.	18177 Cedar Springs Ln	Arlington	97812-6512
465	Columbia Ridge Transfer Station	18177 CEDAR SPRINGS LN	ARLINGTON	97812	Municipal	Transfer	GILLIAM	ER	(541) 454-2030	James	Denson	Waste Mgmt Disposal Svcs of Oregon, Inc.	18177 Cedar Springs Ln	Arlington	97812-6512
415	Condon Transfer Station	BROWN LANE	CONDON	97823	Municipal	Transfer	GILLIAM	ER	(541) 384-2711	Kathryn	Greiner	City of Condon	PO Box 445	Condon	97823-0445
1472	InEnTec Columbia Ridge, LLC (former S4)	18177 CEDAR SPRINGS LN	ARLINGTON	97812	Municipal	SW Treatment	GILLIAM	ER	541-454-3201	James	Denson	InEnTec Columbia Ridge, LLC	13225 NE 126th Pl	Kirkland	98034-8701
471	Hendrix (Clark's) Transfer Station	LUCE CREEK RD	JOHN DAY	97845	Municipal	Transfer	GRANT	ER	(541) 575-0059	Scott	Myers	Grant County Courthouse	201 S Humbolt St Ste 280	Canyon City	97820-6192
1567	Hendrix LF SWLA	4 M. WEST OF JOHN DAY	JOHN DAY	97845	SWLA	Land Disposal	GRANT	ER	541-575-0059	Scott	Myers		201 S Humbolt St Ste 280	Canyon City	97820-6192
478	Long Creek Transfer Station	55356 Paul Creek Lane	LONG CREEK	97856	Municipal	Transfer	GRANT	ER	(541) 421-3601	Don	Porter	City of Long Creek	PO Box 489	Long Creek	97856-0489
481	Monument Transfer Station	NORTH OF MONUMENT ON "AIRPORT ROAD"	MONUMENT	97864	Municipal	Transfer	GRANT	ER	(541) 934-2025	Dorothy	Jordan	City of Monument	PO Box 426	Monument	97864-0426
479	Seneca Transfer Station	SHIRTTAIL CREEK ROAD SEC34	SENECA	97873	Municipal	Transfer	GRANT	ER	(541) 542-2161	Raamin	Burrell	Seneca Transfer Station	PO Box 208	Seneca	97873-0208

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1578	Silvies Valley Ranch LLC	40000 E. COWBOY LANE	SENECA	97873	Municipal	Landfill	GRANT	ER	541-589-3994	Randy	Fulton	Silvies Valley Ranch, LLC	PO Box 332	Burns	97720-0332
1496	Burns-Hines Disposal Site	SEC 14, T23S, R30E	BURNS	97720	Municipal	Landfill	HARNEY	ER	541-573-6441	Rodd	Dinsmore	Black Crow Disposal, LLC	PO Box 418	Burns	97720-0418
312	Diamond Disposal Site	SEC 15, T29S, R32E	DIAMOND	97722	Municipal	Landfill	HARNEY	ER	(541) 573-6356	Pete	Runnels	Harney County	450 N Buena Vista Ave	Burns	97720-1533
202	Drewsey Disposal Site	SEC 7, T20S, R36E	DREWSEY	97904	Municipal	Landfill	HARNEY	ER	(541) 573-6356	Pete	Runnels	Harney County	450 N Buena Vista Ave	Burns	97720-1533
203	Fields Disposal Site	ANDREWS (UNINCORPORATED) SEC24,T35S,R33E	FIELDS		Municipal	Landfill	HARNEY	ER	(541) 573-6356	Pete	Runnels	Harney County	450 N Buena Vista Ave	Burns	97720-1533
204	Frenchglen Disposal Site	SEC 9, T32S, R32E	FRENCHGLEN	97736	Municipal	Landfill	HARNEY	ER	(541) 573-6356	Pete	Runnels	Harney County	450 N Buena Vista Ave	Burns	97720-1533
338	Riley Disposal Site	SEC 10, T23S, R26E	RILEY	97758	Municipal	Landfill	HARNEY	ER	(541) 573-6356	Pete	Runnels	Harney County	450 N Buena Vista Ave	Burns	97720-1533
1460	Columbia Gorge Organic Fruit Compost Facility	3510 CENTRAL VALE RD	HOOD RIVER	97031-9409	Compost	Registration	HOOD RIVER	ER	(541) 354-1066	Cheryl	Stewart	Stewart Farms, Inc.	3610 Central Vale Dr	Hood River	97031-7415
347	Hood River Recycling & Transfer Station	3440 GUIGNARD DR	HOOD RIVER	97031	Municipal	Transfer	HOOD RIVER	ER	(503) 288-7844	Jim	Winterbottom	Waste Connections of Oregon, Inc.	501 SE Columb Sh Blvd Ste 350	Vancouver	98661-8024
1275	Jubitz Tire/Soil Berm	8700 CLEAR CREEK RD.	PARKDALE	97041	Waste Tire	Beneficial Use Storage	HOOD RIVER	ER	(503) 292-0046	Al	Jubitz	Jubitz Investments Limited Partnership	5505 SW Hewett Blvd	Portland	97221-2253
190	Dry Creek Landfill	6260 DRY CREEK ROAD	EAGLE POINT	97524	Municipal	Landfill (Regional)	JACKSON	WR	541-494-5455	Jennifer	Stuber	Dry Creek Landfill, Inc.	PO Box 3187	Central Point	97502-0007
1601	Greb Pit	528 LINN ROAD	EAGLE POINT	97524	SWLA	Land Disposal	JACKSON	WR	(541) 899-4494	John	Holmes	Southern Oregon Rock LLC	PO Box 1347	Jacksonville	97530-1347
1429	Hilton Fuel & Supply Company	8087 BLACKWELL RD	CENTRAL POINT	97502	Compost	Registration	JACKSON	WR	541-664-3374	Michael	Hilton	Hilton Fuel & Supply Company	8087 Blackwell Rd	Central Point	97502-9601
1434	Rogue Compost Facility	6260 DRY CREEK RD	EAGLE POINT	97524-7914	Compost	Full	JACKSON	WR	541-779-4161	Lee	Fortier	Rogue Compost Facility	1 W Main St Ste 401	Medford	97501-2796
483	Rogue Transfer Station & Mrf	8001 TABLE ROCK RD	MEDFORD	97503-1021	Municipal	Transfer	JACKSON	WR	541-779-4161	Lee	Fortier	Rogue Transfer & Recycling, LLC	1 W Main St Ste 401	Medford	97501-2796
475	Valley View Transfer Station	3000 N. VALLEY VIEW RD.	ASHLAND	97520	Municipal	Transfer	JACKSON	WR	541-552-5602	Gary	Blake	recology Ashland	170 Oak St	Ashland	97520-1804
470	Box Canyon Transfer Station	1760 SE MCTAGGART	MADRAS	97741	Municipal	Transfer	JEFFERSON	ER	503-899-7248	Matt	Powlison	Jefferson County	PO Box 709	Madras	97741-0098

247	Camp Sherman Transfer Station	Intersection of NF Rd 14 and 1419	CAMP SHERMAN	97730	Municipal	Transfer	JEFFERSON	ER	503-899-7248	Matt	Powlison	Jefferson County	PO Box 709	Madras	97741-0098
1508	High Desert Organix, LLC	NE CHERRY LANE	MADRAS	97741	Compost	Registration	JEFFERSON	ER	541-475-2627	Greg	Williams	High Desert Organix, LLC	1921 NE Cherry Ln	Madras	97741-8957
491	Josephine Recycling And Transfer Station	1749 MERLIN RD	GRANTS PASS	97526-8260	Municipal	Transfer	JOSEPHINE	WR	(541) 479-3371	Ian	Macnab	Grants Pass Sanitation, Inc.	1920 NW Washington Blvd	Grants Pass	97526-3470
433	Kerby Transfer Station	OFF MAINLINE ROAD NORTHEAST OF KERBY, OR	KERBY	97544	Municipal	Transfer	JOSEPHINE	WR	(541) 479-5335	Trent	Carpenter	Southern Oregon Sanitation, Inc.	PO Box 6000	Grants Pass	97527-1000
1446	Southern Oregon Compost, LLC	5863 LOWER RIVER RD.	GRANTS PASS	97526	Compost	Registration	JOSEPHINE	WR	541-479-7409	Jeremy	Crouse	Southern Oregon Compost	5863 Lower River Rd	Grants Pass	97526-9608
492	Southern Oregon Sanitation Transfer Station	1381 REDWOOD AVE	GRANTS PASS	97527-5519	Municipal	Transfer	JOSEPHINE	WR	(541) 479-5335	Pat	Fahey	Southern Oregon Sanitation, Inc.	PO Box 6000	Grants Pass	97527-1000
452	Beatty Transfer Station	21000 YELLOW JACKET SPRINGS RD	BEATTY	97621	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
349	Bonanza Transfer Station	1101 Bonanza Cut-off Rd	BONANZA	97623	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
47	Chemult Landfill	400 Chemult Dump Road	CHEMULT	97731	Municipal	Landfill	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
48	Chiloquin Transfer Station	2301 Chiloquin Sprague River Hwy	Chiloquin	97624	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
457	Crescent Transfer Station	3 MI. WEST OF CRESCENT, ON CRESCENT CUT-	CRESCENT	97733	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
1613	Industrial Oil, Inc	1291 LAVERNE AVE.	KLAMATH FALLS	97603	Municipal	Transfer/Material Recovery	KLAMATH	ER	800-404-9124	Scott	Briggs	Industrial Oils, Inc.	1291 Laverne Ave	Klamath Falls	97603-4563
241	Keno Transfer Station	15353 KENO-WORDEN RD	KENO	97603	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

302	Klamath Falls Landfill	801 OLD FORT ROAD	KLAMATH FALLS	97601	Municipal	Demolition	KLAMATH	ER	(541) 883-4294	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
1483	Klamath Falls Landfill-compost facility	801 OLD FORT RD	KLAMATH FALLS	97601	Compost	Registration	KLAMATH	ER	541-883-5121	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
336	Merrill Transfer Station	13400 Lower Lake Rd	MERRILL	97633	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
235	Odessa Transfer Station	26000 Hwy 140 West	Rocky Point	97601	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
497	Rogue Klamath Transfer Station	4005 TINGLEY LN	KLAMATH FALLS	97603	Municipal	Transfer	KLAMATH	ER		Scott	Fowler	Rogue Klamath Transfer, LLC	1 W Main St Ste 401	Medford	97501-2796
1580	Shady Pine Road	11091 SHADY PINE ROAD	KLAMATH	97602	SWLA	Land Disposal	KLAMATH	ER	541-882-8377	Ron	Criss	Rocky Mountain Construction, LLC	4815 Tingley Ln Ste A	Klamath Falls	97603-9343
455	Sprague River Transfer Station	23101 DREWS RD	SPRAGUE RIVER	97639	Municipal	Transfer	KLAMATH	ER	(541) 891-1608	Tom	Crist	Klamath County - Solid Waste Management	305 Main St	Klamath Falls	97601-6332
1576	Stateline Compost	24600 HWY 97	KLAMATH FALLS	97627	Compost	Full	KLAMATH	ER	541-880-8318	Grant	Haigh		PO Box 447	Merrill	97633-0447
1608	Tulelake Compost Yard	23423 Old Malin Hwy	Malin	97632	Compost	Registration	KLAMATH	ER	623-853-9880	Jeremy	Vanderzyl	Duncan Family Farms	18969 W Mcdowell Rd	Buckeye	85396-5747
446	Christmas Valley Transfer Station	ON COUNTY RD 9-21, 4 MILES NORTH OF TOWN	CHRISTMAS VALLEY	97641	Municipal	Transfer	LAKE	ER	(541) 947-6048	Kevin	Hock	Lake County Road Department	PO Box 908	Lakeview	97630-0153
447	Fort Rock Transfer Station	3 MILES WEST OF FORT ROCK ON COUNTY ROAD	FORT ROCK	97735	Municipal	Transfer	LAKE	ER	(541) 947-6048	Kevin	Hock	Lake County Road Department	PO Box 908	Lakeview	97630-0153
1554	Glass Buttes Geothermal	OBSIDIAN ROAD	GLASS BUTTES	97758	SWLA	Land Disposal	LAKE	ER	(775) 336-0172	Kyle	Snyder	ORNI 40 LLC	6225 Neil Rd	Reno	89511-1136
1371	McGarva Ranch	16866 WESTSIDE RD	LAKEVIEW	97630-9037	Compost	Full-Pre2009Rules	LAKE	ER	541-947-4062	Ross + Kelly	McGarva	McGarva Farm	16866 Westside Rd	Lakeview	97630-9037
1462	McGarva Ranch	16866 WESTSIDE RD	LAKEVIEW	97630-9037	Compost	Registration	LAKE	ER	541-947-4062	Ross + Kelly	McGarva	McGarva Farm	16866 Westside Rd	Lakeview	97630-9037
448	Paisley Transfer Station	3 MILES NORTH OF PAISLEY	PAISLEY	97636	Municipal	Transfer	LAKE	ER	(541) 947-6048	Kevin	Hock	Lake County Road Department	PO Box 908	Lakeview	97630-0153

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1600	Razor Dome Exploration Project	FOREST SERVICE ROAD 3870	LAKEVIEW	97630	SWLA	Land Disposal	LAKE	ER	541-219-2413	Wolf	Schleiss	Quartz Mountain Gold LTD	1250 S M St	Lakeview	97630-1965
450	Silver Lake Transfer Station	3 MILES SOUTHEAST OF SILVER LAKE OFF HWY	SILVER LAKE	97638	Municipal	Transfer	LAKE	ER	(541) 947-6048	Kevin	Hock	Lake County Road Department	PO Box 908	Lakeview	97630-0153
1595	Thomas Creek Road Landfill	23980 THOMAS CREEK ROAD	LAKEVIEW	97630	Municipal	Landfill	LAKE	ER	(541) 947-6048	Gale	Poland	Landfill Superintendent	513 Center St	Lakeview	97630-1517
1596	Thomas Creek Road Transfer Station	23980 THOMAS CREEK ROAD	LAKEVIEW	97630	Municipal	Transfer	LAKE	ER	(541) 947-6048	Gale	Poland	Landfill Superintendent	513 Center St	Lakeview	97630-1517
1422	Bloomberg Park Leaf Composting Facility	BLOOMBERG RD	EUGENE	97405	Compost	Registration	LANE	WR	541-682-4800	Chris	Girard	City of Eugene	1820 Roosevelt Blvd	Eugene	97402-4159
1617	City of Coburg Wastewater Treatment Facility	N. COBURG ROAD	COBURG	97408	SWLA	Land Disposal	LANE	WR	541-682-7857	Brian	Harmon	City of Coburg Public Works Department	PO Box 8316	Coburg	97408
1502	Coburg Production Facility	92574 N COBURG RD	EUGENE	97408-9288	Compost	Registration	LANE	WR	541-342-1835	Jack	Hoeck	Rexius Forest By-Products Inc.	1275 Bailey Hill Rd	Eugene	97402-3002
1543	Cottage Grove Garbage	2055 GETTY CIRCLE	COTTAGE GROVE	97424	Municipal	Transfer	LANE	WR	541-942-8321	Tim	Alverson	Cottage Grove Garbage Service Inc.	PO Box 442	Cottage Grove	97424-0018
383	Cottage Grove Transfer Station	78760 SEARS RD.	COTTAGE GROVE	97424	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
384	Creswell Transfer Station	34293 E CLOVERDALE RD	CRESWELL	97426-9417	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
340	Delta Sand & Gravel Demolition Landfill	999 DIVISION STREET	EUGENE	97404	Municipal	Demolition	LANE	WR	(541) 688-2233	Sean	Leatham	Delta Sand & Gravel Company	999 Division Ave	Eugene	97404-2414
458	Ecosort Material Recovery Facility	3425 E 17TH AVE	EUGENE	97403-3200	Municipal	Transfer/Material Recovery	LANE	WR	(541) 726-7552	Rick	Ritz	EcoSort, LLC	3425 E 17th Ave	Eugene	97403-3200
416	Florence Transfer Station	2820 RHODODENDRON DR	FLORENCE	97439	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
289	Glenwood Central Receiving Station	3100 E. 17TH AVE.	EUGENE	97403	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1427	JC Compost Yard	HWY 99 STATION 140+75	JUNCTION CITY	97448	Compost	Full	LANE	WR	541-345-9085	Oren	Posner	Lane Forest Products, Inc.	2111 Prairie Rd	Eugene	97402-9738

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1598	Lane Apex Disposal Service	2399 HIGHWAY 99 N	EUGENE	97404	Municipal	Transfer/Material Recovery	LANE	WR	(541) 607-2042	Sam	Miller	Lane Apex Disposal	PO Box 40097	Eugene	97404-0010
1426	Lane Forest Products	2111 PRAIRIE ROAD	EUGENE	97402	Compost	Full	LANE	WR	541-345-9085	Oren	Posner	Lane Forest Products	2111 Prairie Rd	Eugene	97402-9738
216	London Transfer Station	73111 LONDON RD	COTTAGE GROVE	97424	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
226	Low Pass Transfer Station	22377 HWY. 36	CHESHIRE	97419	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
253	Marcola Transfer Station	38935 SHOTGUN CREEK ROAD	MARCOLA	97454	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
363	McKenzie Bridge Transfer Station	55805 MCKENZIE HWY	BLUE RIVER	97413	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1271	McKenzie Recycling, Inc.	110 NORTH CLEVELAND ST.	EUGENE	97402	Municipal	Transfer/Material Recovery	LANE	WR	541-688-5622	Brian	Bales	McKenzie Recycling, Inc.	PO Box 21442	Eugene	97402-0408
411	Oakridge Transfer Station	48977 KITSON SPRINGS RD.	OAKRIDGE	97463	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
273	Rattlesnake Transfer Station	82572 RATTLESNAKE RD (OFF HWY. 58)	DEXTER	97431	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1293	Reed's Fuel and Trucking	4100 COMMERCIAL AVE	SPRINGFIELD	97478-5775	Waste Tire	Carrier	LANE	WR	541/746-6535	Dan	Leavitt	Reed's Fuel and Trucking	PO Box 1793	Springfield	97477-0192
1524	Rexius Transfer Station	120 HWY 99	EUGENE	97402	Municipal	Transfer	LANE	WR	541-342-1835	Jack	Hoeck	Rexius Forest By-Products, Inc.	1275 Bailey Hill Rd	Eugene	97402-3002
221	Sharps Creek Transfer Station	74540 SHARPS CREEK RD	CULP CREEK	97427	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1491	Shell Oil Energies,	92757 HIGHWAY 99	JUNCTION CITY	97448	Industrial	SW Treatment	LANE	WR	541-234-2339	Dominic	Vacca	JC-Biomethane, LLC	1328 W 2nd Ave	Eugene	97402-4127
290	Short Mountain Landfill	84777 DILLARD ACCESS RD.	EUGENE	97405	Municipal	Landfill	LANE	WR	(541) 682-3761	Dan	Hurley	Lane County Public Works Department	3100 E 17th Ave	Eugene	97403-2282
243	Swisshome Transfer Station	13711 HIGHWAY 36	SWISSHOME	97480	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1497	The Big "B" Tire Store, Inc.	3709 FRANKLIN BLVD	EUGENE	97403-2358	Waste Tire	Carrier	LANE	WR	541-746-4193	Michael	Burnett	The Big B Tire Store	4432 Franklin Blvd	Eugene	97403-2437

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

274	Veneta Transfer Station	24444 BOLTON HILL RD	VENETA	97487	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
229	Vida-Leaburg Transfer Station	44041 CANAL LN (OFF HWY. 126)	LEABURG	97489	Municipal	Transfer	LANE	WR	(541) 682-4342	Jeff	Bishop	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
225	Walton Transfer Station	18585 TRANSFORMER RD.	WALTON	97490	Municipal	Transfer	LANE	WR	(541) 682-3773	Don	Strunk	Lane County Solid Waste Management	3100 E 17th Ave	Eugene	97403-2282
1452	Winter Green Farm	22481 WEST SHEFFLER RD	NOTI	97461	Compost	Registration	LANE	WR	541-935-1920	Wali	Via	WGF LLC dba Winter Green Farm	89762 Poodle Creek Rd	Noti	97461-9711
1542	Franko #6/Lincoln City	906 HWY 101S	LINCOLN CITY	97367	SWLA	Treatment-PCS	LINCOLN	WR	503-963-3200	Todd	Silbernagel	Goodwill Industries	1943 SE 6th Ave	Portland	97214-4508
1628	G-P Toledo MRF	1400 SE BUTLER BRIDGE ROAD	TOLEDO	97391	Industrial	Material Recovery	LINCOLN	WR	541-336-8318	Scott	Austin	Georgia-Pacific Toledo LLC	1400 SE Sutler Bridge Rd	Toledo	97391
1059	GP-Toledo Mill Landfill	1 BUTLER BRIDGE RD (NEAR SUNNYRIDGE RD)	TOLEDO	97391	Industrial	Landfill (Captive)	LINCOLN	WR	(541) 336-8041	Dan	Kunde	Georgia-Pacific Corporation	1400 SE Butler Bridge Rd	Toledo	97391-1900
423	Schooner Creek Private Transfer Station	288 S ANDERSON CREEK RD	LINCOLN CITY	97367	Municipal	Transfer	LINCOLN	WR	541-994-5555	Lon	French	Schooner Creek Transfer, Inc.	1726 SE Highway 101	Lincoln City	97367-2348
437	Schooner Creek Public Transfer Station	367 S ANDERSON CREEK RD	LINCOLN CITY	97367	Municipal	Transfer	LINCOLN	WR	541-994-5555	Lon	French	Schooner Creek Transfer, Inc.	1726 SE Highway 101	Lincoln City	97367-2348
439	South Lincoln Recycle & Transfer Station	3300 CRESTLINE DRIVE	WALDPORT	97394	Municipal	Transfer	LINCOLN	WR	(541) 336-2932			Dahl & Dahl, Inc.	PO Box 357	Toledo	97391-0357
377	Thompson's Transfer and Disposal Inc.	8096 NE AVERY ST.	NEWPORT	97365	Municipal	Transfer	LINCOLN	WR	(541) 265-5434	Rob	Thompson	Thompson's Sanitary Service, Inc.	PO Box 318	Newport	97365-0025
425	Toledo Transfer Station	SEC04,T11S,R 10W	TOLEDO	97391	Municipal	Transfer	LINCOLN	WR	(541) 336-2932	Russell	Dahl	Dahl & Dahl, Inc.	PO Box 357	Toledo	97391-0357
1078	Cedar Mill Road Landfill	40580 Cedar Mill Road	LYONS	97358	Industrial	Landfill (Captive)	LINN	WR	(503) 859-2121	Kyle	Freres	Freres Lumber Co., Inc.	PO Box 276	Lyons	97358-0276
1594	Divert Albany Processing	950 SE JACKSON ST	ALBANY	97322	Municipal	Material Recovery	LINN	WR	978-341-5417	Ryan	Begin	Divert Inc.	23 Bradford St Fl 3	Concord	01742-2971
1207	Eco-Flo Solid Waste Facility	101 41ST AVE SE	ALBANY	97322-3891	Sludge	Land Application	LINN	WR	(541) 926-0099	Chris	Rhodaback	Best Pots, Inc.	PO Box 444	Albany	97321-0127
1451	Ground-Up Soil Compost Facility	41389 HIGHWAY 226	SCIO	97374	Compost	Registration	LINN	WR	503-769-2057	Andrew	Westlund	Ground Up Soil, LLC	41154 Ridge Dr	Scio	97374-9311

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

367	Lebanon Transfer Station	33370 BREWSTER RD.	LEBANON	97355	Municipal	Transfer	LINN	WR	541-745-5792 ext. 22	Jenifer	Stuber	Valley Landfills, Inc.	28972 Coffin Butte Rd	Corvallis	97330-9592
1456	Stalford Seed Farms	1/4 MILE N OF 30737 GREEN VALLEY RD	SHEDD	97377	Compost	Registration	LINN	WR	541-926-4611	Cathy	Hess	Stalford Seed Farm	PO Box 268	Tangent	97389-0268
365	Sweet Home Sanitation Transfer Station	1325 18TH AVE.	SWEET HOME	97386	Municipal	Transfer	LINN	WR	(541) 367-2535	Scott	Gagner	Waste Connections of Oregon, Inc. DBA Sw	PO Box 40	Sweet Home	97386-0040
348	Lytle Boulevard Landfill	SEC 36, T20S, R45E	VALE	97918	Municipal	Landfill	MALHEUR	ER	(541) 473-5186)	Craig	Geddes	Malheur County Environmental Health	251 B St W Ste 9	Vale	97918-1375
436	Ontario Sanitary Service Transfer Station	1108 SE 6TH STREET	ONTARIO	97914	Municipal	Transfer	MALHEUR	ER	(541) 889-5719	Scott	Wilson	Ontario Sanitary Service Inc.	540 SE 9th Ave	Ontario	97914-3866
1286	Ontario Sanitary Service Transfer Station	1108 SE 6TH STREET	ONTARIO	97914	Municipal	Exporter	MALHEUR	ER	541-889-5719	Scott	Wilson	Ontario Sanitary Service, Inc.	540 SE 9th Ave	Ontario	97914-3866
1618	American Gypsum Recycling	12451 DUCK FLAT ROAD SE	TURNER	97392	Municipal	Transfer/Material Recovery	MARION	WR	971-413-4992	Chris	Stapleton	American Gypsum Recycling	PO Box 1155	Turner	97392
1510	Annen Bros. Composting	14358 DOMINIC ROAD	MT. ANGEL	97362	Compost	Registration	MARION	WR	503-634-2589	John	Annen	Annen Bros., Inc.	14358 Dominic Rd NE	Mount Angel	97362-9728
1421	Brown's Island Compost Facility	2895 FARAGATE ST SOUTH	SALEM	97302	Compost	Registration	MARION	WR	503-365-3147	Brian	May	Marion County Public Works Department	5515 Silverton Rd NE	Salem	97305
399	Brown's Island Demolition Landfill	2895 FARAGATE STREET SOUTH	SALEM	97302	Municipal	Demolition	MARION	WR	503-365-3147	Brian	May	Marion County Public Works Department	5515 Silverton Rd NE	Salem	97305
1558	Construction Waste Processing and Transfer	3121-3131 AIRWAY DR SE	SALEM	97302	Municipal	Transfer	MARION	WR	503-588-6647	Nitin	Joshi	City of Salem	1410 20th SE / Bldg 2	Salem	97302-1209
364	Covanta Marion Inc.	4850 Brooklake Road NE	BROOKS	97305	Municipal	Energy Recovery	MARION	WR	(503) 393-0890 x 254	Eileen	Tanner	Covanta Marion Inc.	PO Box 9126	Brooks	97305-0126
1200	Environmental Protection Services-Brooks	8905 PUEBLO AVENUE NE	BROOKS	97305	Industrial	SW Treatment	MARION	WR	(503) 393-1239	Brian	Meyers	Meyers Environmental Services, Inc.	PO Box 21763	Keizer	97307-1763
388	Gaffin Road Transfer Station	3250 DEER PARK RD SE	SALEM	97301	Municipal	Transfer	MARION	WR	503-363-8890	Rich	Dysinger	Capitol Recycling & Disposal Inc.	1890 16th St SE	Salem	97302-1437

502	Marion County Hshld HW Coll Fac	3230 DEER PARK DRIVE, SE	SALEM	97301	Municipal	Transfer	MARION	WR	503-365-3147	Brian	May	Marion County Public Works Department	5515 Silverton Rd NE	Salem	97305
1546	Marion County Road System	MERIDIAN ROAD 5 INTERSECTIONS	SALEM	97381	SWLA	Management	MARION	WR	503-365-3148	Linda	Martin	Marion County Public Works	5155 Silverton Rd NE	Salem	97305-3802
400	Marion Resource Recovery Fac	3680 BROOKLAKE RD NE	SALEM	97303-9750	Municipal	Material Recovery	MARION	WR	(503) 390-4000	Dan	Dudley	Marion Recycling Center, Inc.	PO Box 9130	Salem	97305-0130
240	North Marion County Disposal Facility	17827 WHITNEY LN NE	WOODBURN	97071	Municipal	Landfill	MARION	WR	503-365-3147	Brian	May	Marion County Public Works Department	5515 Silverton Rd NE	Salem	97305
1348	North Marion County Recycling &Transfer Station	17827 WHITNEY LN NE	WOODBURN	97071-9580	Municipal	Transfer	MARION	WR	503-365-3147	Brian	May	Marion County Public Works Department	5515 Silverton Rd NE	Salem	97305
1419	Recology NW Greenlands-Aumsville	8712 AUMSVILLE HWY	Salem	97317	Compost	Full	MARION	WR	415-875-1000	Ame	LeCocq	RECOLOGY NW GREENLAND-AUMSVILLE	50 California St Fl 24	San Francisco	94111-4796
136	Salem Airport Disposal Site	SEC 1, T8S, R3W	SALEM	97301	Municipal	Demolition	MARION	WR	(503) 588-6044x6398	Jason	Pulley	City of Salem	555 Liberty St SE Rm 325	Salem	97301-3513
1430	Willamette Landscape Supply Compost Facility	3425 BLOSSOM DR NE	SALEM	97305-1715	Compost	Registration	MARION	WR	(503) 393-6662	Duane	Stark	Stark Trucking, Inc.	PO Box 18005	Salem	97305-8005
381	Woodburn Recycle Center &	2215 N FRONT ST	WOODBURN	97071-9732	Municipal	Transfer	MARION	WR	971-338-5275	Matt	Cofer	Allied Waste	PO Box 608	Woodburn	97071-0608
394	Finley Buttes Regional Landfill	73221 Bombing Range Road	Boardman	97818	Municipal	Landfill (Regional)	MORROW	ER	541-965-1339	Kevin	Green	Waste Connections	2550 Steele Rd	The Dalles	97058-9685
1361	Klean Industries Boardman LLC	71722 NE COLUMBIA AVENUE	BOARDMAN	97844	Waste Tire	Storage	MORROW	ER	514-437-2966	Jesse	Klinkhamer	Klean Industries Boardman, LLC	PO Box 1029	Boardman	97818-1029
1366	Klean Industries Boardman LLC	71722 NE COLUMBIA AVENUE	BOARDMAN	97844	Conversion Technology	Registration	MORROW	ER	514-437-2966	Jesse	Klinkhamer	Klean Industries Boardman, LLC	PO Box 1029	Boardman	97818-1029
1261	North Morrow County Transfer Station	69900 FRONTAGE LANE	BOARDMAN	97818	Municipal	Transfer	MORROW	ER	541-989-9500	Burke	O'Brien	Morrow County	PO Box 428	Lexington	97839-0428
1534	Novus Pacific	71419 EAST COLUMBIA	BOARDMAN	97818	Compost	Full Anaerobic Digester	MORROW	ER	952-345-1055	Joseph	Burke	Novus Energy, LLC	6130 Blue Circle Dr Ste 600	Minnetonka	55343-9146
1583	Oregon Terrefaction, LLC	20 MARINE DRIVE	BOARDMAN	97818	SWLA	Demonstration	MORROW	ER	503 757 9322	Matt	Krumenauer	Oregon Torrefaction, LLC	PO Box 668	Prineville	97754-0668
406	South Morrow Transfer Station	Lexington/Heppner Hwy 74	LEXINGTON	97839	Municipal	Transfer	MORROW	ER	(541) 989-9500	Burke	O'Brien	Morrow County - Public Works	PO Box 428	Lexington	97839-0428

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1444	Allwood Recyclers Inc.	23001 NE MARINE DR	FAIRVIEW	97024	Compost	Registration	MULTNOMAH	NWR	(503) 667-5497	Randy	Wubben	Allwood Recyclers Inc.	PO Box 115	Fairview	97024-0115
1203	Columbia Blvd WWTP Lagoon Solids Monofill	5001 N. COLUMBIA BLVD.	PORTLAND	97203	Sludge	Landfill	MULTNOMAH	NWR	503-823-2437	Greg	Charr	City of Portland	5001 N Columbia Blvd	Portland	97203-2098
1458	Columbia Recycling PDX	11402 NE MARX ST	PORTLAND	97220-9026	Waste Tire	Combo	MULTNOMAH	NWR		Bang	Tran	Columbia Two, Inc.	1515 E Burnside St	Portland	97214-1452
1485	CORE Recycling	5726 NE 109TH AVE	PORTLAND	97220-1134	Municipal	Transfer/Material Recovery	MULTNOMAH	NWR	503-285-9940	Alando	Simpson	City of Roses Disposal & Recycling	PO Box 301427	Portland	97294-9427
1606	CORE Recycling	4530 NE 138TH AVENUE	PORTLAND	97230	Municipal	Material Recovery	MULTNOMAH	NWR	503-285-9940	Alando	Simpson	City of Roses Disposal & Recycling	PO Box 301427	Portland	97294-9427
387	Environmentally Conscious Recycling-ECR	12409 NE SAN RAFAEL	PORTLAND	97230	Municipal	Material Recovery	MULTNOMAH	NWR	(503) 253-0867	Vince	Gilbert	Environmentally Conscious Recycling	PO Box 20096	Portland	97294-0096
1091	Esco Sauvie Island	Gillihan Lp Rd & Alder Crk Lumber Rd	PORTLAND	97231	Industrial	Landfill (Captive)	MULTNOMAH	NWR	503-778-6477	Carter	Webb	Esco Corporation	2141 NW 25th Ave	Portland	97210-2578
1369	Foster Road Recovery Facility	6400 SE 101ST AVE	PORTLAND	97266-5142	Municipal	Material Recovery	MULTNOMAH	NWR	503-285-8777	David	Dutra	Recology Oregon Material Recovery Inc.	9345 N Harborgate St	Portland	97203-6314
1336	Greenway Recycling	4135 NW ST HELENS RD	PORTLAND	97210-1438	Municipal	Transfer/Material Recovery	MULTNOMAH	NWR	(503) 793-9238	Terrell	Garrett	Greenway Recycling LLC	PO Box 4483	Portland	97208-4483
1392	Gresham Sanitary Service	2131 NW BIRDSDALE AVE	GRESHAM	97030	Municipal	Transfer	MULTNOMAH	NWR	(503) 665-2424			Gresham Sanitary Service, Inc.	PO Box 1560	Gresham	97030-0515
1492	McLean Landscaping - Maintenance	1230 SW FREEMAN ST	PORTLAND	97219-4345	Waste Tire	Carrier	MULTNOMAH	NWR	503-977-2057	David	McLean	McLean Landscaping - Maintenance	1230 SW Freeman St	Portland	97219-4345
409	Metro Central Transfer Station	6161 NW 61ST AVE	PORTLAND	97210-3675	Municipal	Transfer/Material Recovery	MULTNOMAH	NWR	503-234-3000	Penny	Erickson	Metro	600 NE Grand Ave	Portland	97232-2736
1364	Oil Re-Refining Company	4150 N SUTTLE RD	PORTLAND	97217-7717	Industrial	SW Treatment	MULTNOMAH	NWR	(503)286-8352	Bill	Briggs	ORRCO	4150 N Suttle Rd	Portland	97217-7717
1364	Oil Re-Refining Company	4150 N SUTTLE RD	PORTLAND	97217-7717	Industrial	SW Treatment	MULTNOMAH	NWR	503-286-8352	Scott	Briggs	Oil Re-Refining Co., Inc.	4150 N Suttle Rd	Portland	97217-7717
1559	PPV Inc.	4927 NW FRONT AVE	PORTLAND	97210-1100	Industrial	Transfer	MULTNOMAH	NWR	(503) 261-9800	Joe	Thuney	PPV, Inc.	4927 NW Front Ave	Portland	97210-1100
1411	RB Recycling, Inc.	9945 N BURGARD WAY	PORTLAND	97203-6430	Waste Tire	Combo	MULTNOMAH	NWR	503-201-3638	Pete	Daly	RB Recycling	9945 N Burgard Way	Portland	97203-6430
1441	Sunderland Recycling Facility - City of Portland	9325 NE Sunderland Ave	PORTLAND	97211	Compost	Registration	MULTNOMAH	NWR	(503) 823-4409	Jill	Jacobsen	City of Portland PBOT	2929 N Kerby Ave	Portland	97227-1611

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

501	Suttle Road Recovery Facility	4044 N SUTTLE RD	Portland	97217-7732	Municipal	Material Recovery	MULTNOMAH	NWR	503-285-8777	Ame	LeCocq	Recology Oregon Materials Recovery Inc.	9345 N Harborgate St	Portland	97203-6314
1268	Tire Disposal and Recycling, Inc.	9333 N HARBORGATE ST	PORTLAND	97203	Waste Tire	Combo	MULTNOMAH	NWR	(503) 240-1919	Mark	Hope	Tire Disposal and Recycling	PO Box 83478	Portland	97283-0478
459	Troutdale Transfer Station	869 NW EASTWIND DR	TROUTDALE	97060	Municipal	Transfer/Material Recovery	MULTNOMAH	NWR	(503) 666-2896	William	Carr	Waste Management of Oregon, Inc.	869 NW Eastwind Dr	Troutdale	97060-9554
1623	Urban Gypsum	8823 N HARBORGATE	PORTLAND	97203	Municipal	Material Recovery	MULTNOMAH	NWR	503.232.6130	Casey	Lane	Urban Gypsum LLC	8823 N Harborgate St	Portland	97203-6316
1624	URBAN GYPSUM LLC-SWLA	8823 N HARBORGATE	PORTLAND	97203	SWLA	Land Disposal	MULTNOMAH	NWR	503.239.6858	Casey	Lane	Urban Gypsum LLC	8823 N Harborgate St	Portland	97203-6316
1294	Waste Management of Oregon	7227 NE 55TH AVE	PORTLAND	97218-1215	Waste Tire	Carrier	MULTNOMAH	NWR	503/493-7879	Margaret	Valdez	Waste Management of Oregon	7227 NE 55th Ave	Portland	97218-1215
1565	WasteXpress	11618 N LOMBARD ST	PORTLAND	97203-6468	Municipal	Material Recovery	MULTNOMAH	NWR	(503) 224-3206	Arthur	Marx	WasteXpress	11618 N Lombard St	Portland	97203-6468
1448	Rod Mclellan Company	6500 HANNA RD	INDEPENDENCE	97351-9609	Compost	Registration	POLK	WR	503-838-2811	Robert	Day	Rod McLellan Company	PO Box 70	Independence	97351-0070
1409	Oregon Raceway Park	93811 BLAGG LANE	GRASS VALLEY	97029	Waste Tire	Beneficial Use Storage	SHERMAN	ER	503-292-5410	Thomas	Miller	Pacific Motorsports Managements, LLC	PO Box 386	Beaverton	97075-0386
440	Sherman County Transfer Station	OFF WELK RD, NEAR BIGGS JUNCTION	BIGGS	97823	Municipal	Transfer	SHERMAN	ER	541-386-2272	Jim	Winterbottom	Waste Connections of Oregon, Inc.	3440 Guignard Dr	Hood River	97031-8602
1443	Dairy Compost, Inc.	6020 HANGER RD	TILLAMOOK	97141	Compost	Registration	TILLAMOOK	NWR	(503) 801-3191	Michelle	Bradley	Compost, Inc.	6020 Hangar Rd	Tillamook	97141-9641
1346	Don Averill Waste Transfer Station	6440 BLIMP RD	TILLAMOOK	97141	Industrial	Transfer	TILLAMOOK	NWR		Don	Averill	Don G. Averill Recycling, Inc.	PO Box 417	Tillamook	97141-0417
1300	Don G. Averill Recycling, Inc.	1315 ECKLOFF RD	TILLAMOOK	97141-9576	Waste Tire	Carrier	TILLAMOOK	NWR	503/842-5189	Don	Averill	Don G. Averill Recycling, Inc.	PO Box 417	Tillamook	97141-0417
1572	Don G. Averill Trucking, Inc.	1500 MAIN AVE N	TILLAMOOK	97141-7718	Waste Tire	Carrier	TILLAMOOK	NWR	503-842-5186	Don	Averill	Don G. Averill Trucking, Inc.	PO Box 417	Tillamook	97141-0417
342	Manzanita Transfer Station	34995 Necarney City Road	MANZANITA	97130	Municipal	Transfer/Material Recovery	TILLAMOOK	NWR	503-815-3975	David	McCall	Tillamook County Public Works	503 Marolf Loop Rd	Tillamook	97141-3205
343	Pacific City Transfer Station	S BROOTEN RD	PACIFIC CITY	97135	Municipal	Transfer	TILLAMOOK	NWR	503-815-3975	David	McCall	Tillamook County Public Works	503 Marolf Loop Rd	Tillamook	97141-3205

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

1550	Port of Tillamook Bay Manure Digester Hangar	6018 HANGAR A RD	TILLAMOOK	97141-9641	Compost	Full Anaerobic Digester	TILLAMOOK	NWR	(503) 842-2413	Michelle	Bradley	Port of Tillamook	4000 Blimp Blvd Ste 100	Tillamook	97141-9680
1132	POTB Wood Waste Landfill	4000 Blimp Blvd	TILLAMOOK	97141	Industrial	Wood	TILLAMOOK	NWR	(503) 842-2413	Michelle	Bradley	Port of Tillamook Bay Main Offices	4000 Blimp Blvd	Tillamook	97141-9639
395	Tillamook Transfer Station	1315 ECKLOFF RD	TILLAMOOK	97141-9576	Municipal	Transfer/Material Recovery	TILLAMOOK	NWR	503-815-3975	David	McCall	Tillamook County Public Works	503 Marolf Loop Rd	Tillamook	97141-3205
217	Humbert Refuse Landfill	GERKING FLAT RD	ATHENA	97813	Municipal	Landfill	UMATILLA	ER	(541) 938-4188	Sam	Humbert	Humbert Refuse and Recycling, Inc.	53293 Triangle Rd	Milton Frwtr	97862-7347
106	Milton-Freewater Sanitary Landfill		MILTON-FREEWATER	97862	Municipal	Landfill	UMATILLA	ER	(541) 938-8272	Brian	Steadman	City of Milton-Freewater	PO Box 6	Milton Frwtr	97862-0006
444	Pendleton Transfer Station	REITH ROAD	PENDLETON	97801	Municipal	Transfer	UMATILLA	ER	(541) 276-1271	Mike	McHenry	Pendleton Sanitary Service, Inc.	PO Box 1405	Pendleton	97801-0839
1459	Pendleton Transfer Station Compost Facility	5500 NW RIETH RD	PENDLETON	97801	Compost	Registration	UMATILLA	ER	(541) 276-1271	Mike	McHenry	Pendleton Sanitary Service, Inc.	PO Box 1405	Pendleton	97801-0839
1173	Pilot Rock Sawmill Landfill (Kinzua Resources, LLC)	ONE-HALF MILE WEST OF PILOT ROCK	PILOT ROCK	97850	Industrial	Wood	UMATILLA	ER	541-953-7866	Greg	Demers	Kinzua Resources, LLC	PO Box 876	Veneta	97487-0876
1461	Quality Compost Composting	51856 SEVEN HILLS RD	MILTON-FREEWATER	97862-7330	Compost	Registration	UMATILLA	ER	509-956-6275	Travis	Trumbull	Quality Compost, LLC	53377 Robin Ln	Milton Frwtr	97862-7951
429	Sanitary Disposal Transfer Station	TAX LOTS 101 AND 107	HERMISTON	97838	Municipal	Transfer	UMATILLA	ER	(541) 567-8842	Bill	Kik	Sanitary Disposal, Inc.	PO Box 316	Hermiston	97838-0316
1131	Boise Cascade Wood Products, LLC - Elgin	90 S 21ST AVE	ELGIN	97827-9614	Industrial	Wood	UNION	ER	541-962-2047	Rhonda	Smith	Boise Cascade Wood Products, LLC	1917 Jackson Ave	La Grande	97850-3748
370	Elgin Transfer Station	Hemlock Road	ELGIN	97827	Municipal	Transfer	UNION	ER	(541) 437-2253	Brock	Eckstein	City of Elgin	PO Box 128	Elgin	97827-0128
1463	Waste Pro Compost Facility	3412 HIGHWAY 30	LA GRANDE	97850	Compost	Full	UNION	ER	541-963-5459	Darin	Larvik	Waste Pro	3412 Highway 30	La Grande	97850-5380
442	Waste Pro Recovery Transfer Station	HIGHWAY 30	LA GRANDE	97850	Municipal	Transfer	UNION	ER	(541) 963-5459	Darin	Larvik	Waste Pro Recovery Transfer Station	3412 Highway 30	La Grande	97850-5380
1338	Waste Pro Transfer Station	3412 HIGHWAY 30	LA GRANDE	97850	Industrial	SW Treatment	UNION	ER	541-963-5459	Darin	Larvik	Waste Pro	3412 Highway 30	La Grande	97850-5380
261	Ant Flat Landfill	SEC 25, T1S, R44E	ENTERPRISE	97828	Municipal	Landfill	WALLOWA	ER	(541) 426-4543	Ed	Gomes	Wallowa County	101 S River St Ste 202	Enterprise	97828-1363
266	Joseph Transfer Station	AIRPORT RD	JOSEPH	97846	Municipal	Transfer	WALLOWA	ER	(541) 426-3492	Brian	Rahn	Rahn's Sanitary Service	PO Box 249	Enterprise	97828-0249
296	Lostine Transfer Station	Caudle Lane	LOSTINE	97857	Municipal	Transfer	WALLOWA	ER	(541) 426-3492	Brian	Rahn	Rahn's Sanitary Service	PO Box 249	Enterprise	97828-0249

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

288	Wallowa Transfer Station	Hwy 82	WALLOWA	97885	Municipal	Transfer	WALLOWA	ER	(541) 426-3492	Brian	Rahn	Rahn's Sanitary Service	PO Box 249	Enterprise	97828-0249
490	Antelope Disposal Sites	SEC 30, T7S, R17E	ANTELOPE	97001	Municipal	Transfer	WASCO	ER	(541) 489-3352	Robin	Moats	City of Antelope	PO Box 105	Antelope	97001-0105
1274	Mosier Tire/Soil Berm	PO BOX 456	MOSIER	97040	Waste Tire	Beneficial Use Storage	WASCO	ER	541-478-3505	Kathleen	Fitzpatrick	City of Mosier	PO Box 456	Mosier	97040-0456
456	Shaniko Transfer Station	2ND AND "F" STREETS	SHANIKO	97057	Municipal	Transfer	WASCO	ER	(541) 489-3226	Goldie	Roberts	City of Shaniko: Mayor	PO Box 17	Shaniko	97057-0017
462	The Dalles Transfer Station	1317 W 1ST ST	THE DALLES	97058-3591	Municipal	Transfer	WASCO	ER	(541) 298-5149	Jim	Winterbottom	The Dalles Disposal Service	PO Box 1430	The Dalles	97058-8001
53	Wasco County Landfill	2550 Steele Road	THE DALLES	97058	Municipal	Landfill (Regional)	WASCO	ER	(541) 296-4082	Nancy	Mitchell	Wasco County Landfill, Inc.	2550 Steele Rd	The Dalles	97058-9685
500	Wasco County Landfill Barge	2649 RIVER RD	THE DALLES	97058-3522	Municipal	Transfer	WASCO	ER	5419651339	Kevin	Green	Wasco County Landfill	2550 Steele Rd	The Dalles	97058-9685
1377	Aloha Garbage Co.	3755 SW 205TH PLACE	ALOHA	97007	Municipal	Material Recovery	WASHINGTON	NWR	503-649-3727	Stephen	Miller	Aloha Garbage Company	PO Box 6329	Aloha	97007-0329
1296	Carothers Tire	235 SW OAK ST	HILLSBORO	97123-3932	Waste Tire	Carrier	WASHINGTON	NWR	503-648-7099	Doug	Carothers	Carothers Tire	235 SW Oak St Ste C	Hillsboro	97123-3984
368	Forest Grove Transfer Station	1525 B ST	FOREST GROVE	97116-2752	Municipal	Transfer	WASHINGTON	NWR	503-493-7858	Jeff	O'Leary	Waste Management of Oregon	7227 NE 55th Ave	Portland	97218-1215
1433	Grimm's Fuel Co.	18850 SW CIPOLE RD	TUALATIN	97062	Compost	Full	WASHINGTON	NWR	(503) 636-3623	Jeffery	Grimm	Grimm's Fuel Company	18850 SW Cipole Rd	Tualatin	97062-6935
403	Hillsboro Garbage and Disposal	4945 SW Minter Bridge Road	HILLSBORO	97045	Municipal	Transfer	WASHINGTON	NWR	(503) 648-4219			Hillsboro Garbage Disposal, Inc.	PO Box 99	Hillsboro	97123-0099
112	Hillsboro Landfill	3205 SE MINTER BRIDGE ROAD	HILLSBORO	97123	Municipal	Demolition	WASHINGTON	NWR	503-640-9427	Michelle	Wittenbrink	Hillsboro Landfill Inc.	3205 SE Minter Bridge Rd	Hillsboro	97123-5350
1439	N2K Berry Farm	29000 SW FARMINGTON RD	HILLSBORO	97123-9256	Compost	Registration	WASHINGTON	NWR	971-404-6124	Chuck	Rood	N2K Berry Farm	33470 SW Chinook Plz # 204	Scappoose	97056-3726
1514	New Earth Farm	11000 NW JACKSON QUARRY RD	HILLSBORO	97124	Compost	Registration	WASHINGTON	NWR	503-913-2641	Randall Scott	Olson	New Earth Farm	11000 NW Jackson Quarry Rd	Hillsboro	97124-8120
1440	Northwest Environmental And Recycling,	1045 N 4th Ave	CORNELIUS	97113	Compost	Registration	WASHINGTON	NWR	(503) 638-1011	Casey	Stroupe	Northwest Environmental & Recycling, Inc	20200 SW Stafford Rd	Tualatin	97062-9731
1615	Northwest Landscape Services	1800 NE CORNELIUS PASS ROAD	HILLSBORO	97124	Municipal	Transfer/Material Recovery	WASHINGTON	NWR	425-481-0919	Michael	Bernards	Monarch Landscape Companies	PO Box 2979	Redmond	98073-2979
1603	Northwest Landscape Services (NLS)	1800 NW CORNELIUS PASS RD	HILLSBORO	97124-6598	SWLA	Land Disposal	WASHINGTON	NWR	360-348-7376	Harold	Ruppert	02Compost	PO Box 1026	Snohomish	98291-1026

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

422	Pride Recycling Company	13910 SW TUALATIN SHERWOOD RD	SHERWOOD	97140-9726	Municipal	Transfer/Material Recovery	WASHINGTON	NWR	(503) 625-6177	Michael & Cynthia	Leichner	Pride Recycling	PO Box 1150	Sherwood	97140-1150
1445	Recology Organics - North Plains	9570 NW 307th Ave	NORTH PLAINS	97133	Compost	Full	WASHINGTON	NWR	503-283-2015	Phil	Graham	Recology Oregon Compost	9345 N Harborgate St	Portland	97203-6314
1474	S&H Recycling	1748 NE 25TH AVE	HILLSBORO	97124-5942	Municipal	Transfer/Material Recovery	WASHINGTON	NWR	503-638-1011	Casey	Stroupe	S&H Recycling	20200 SW Stafford Rd	Tualatin	97062-9731
1573	SORT Bioenergy	10295 SW RIDDER RD	WILSONVILLE	97070-8890	Compost	Full Anaerobic Digester	WASHINGTON	NWR	208-859-8257	Paul	Woods	SORT Bioenergy LLC	3668 N La Fontana Way	Boise	83702-1527
1280	Tualatin Valley Waste Recovery	3215 SE MINTER BRIDGE RD	HILLSBORO	97123	Municipal	Material Recovery	WASHINGTON	NWR	(503) 331-2221	Matt	Stern	Waste Management of Oregon, Inc.	7227 NE 55th Ave	Portland	97218-1215
435	WRI Willamette Resources Inc TS/MRF	10295 SW RIDDER RD	WILSONVILLE	97070	Municipal	Transfer/Material Recovery	WASHINGTON	NWR	(503) 570-0626	Wanda	Dawson	Willamette Resources, Inc.	10295 SW Ridder Rd	Wilsonville	97070-8890
472	Fossil Solid Waste Transfer Station And Recycling Station	17487 BLACK BUTTE, COUNTY RD 19	FOSSIL	97830	Municipal	Transfer	WHEELER	ER	(541) 763-3460	N. Lynn	Morley	Wheeler County	PO Box 447	Fossil	97830-0447
469	Mitchell Transfer Station And	HWY 207	MITCHELL	97750	Municipal	Transfer	WHEELER	ER	(541) 763-4207	N. Lynn	Morley	Wheeler County	PO Box 447	Fossil	97830-0447
468	Spray Solid Waste Transfer Station And	40337 KAHLER BASIN RD	SPRAY	97874	Municipal	Transfer	WHEELER	ER	(541) 763-4207	N. Lynn	Morley	Wheeler County	PO Box 447	Fossil	97830-0447
1436	Alderman Farm	14301 SE WALLACE RD	DAYTON	97114	Compost	Registration	YAMHILL	WR	503-868-7971	Allan	Elliott	Carlton Plants, LLC	PO Box 398	Dayton	97114-0398
1115	Buck Hollow Landfill	FT. HILL RD. BETWEEN FT. HILL & WILLAMIN	FORT HILL	97338	Industrial	Wood	YAMHILL	WR	(503) 876-2322	Avery	Shipley	Willamina Lumber Company	1000 SW Willamina Creek Rd	Willamina	97396-8500
1522	Ecology Composting	14425 SE WALLACE RD	DAYTON	97114-8227	Compost	Full	YAMHILL	WR	503-969-9545	Bob	Jonas	Barnards Holdings, Inc.	PO Box 1130	Wilsonville	97070-1130
1437	Gordon Farm	13205 WEBFOOT RD	DAYTON	97114	Compost	Registration	YAMHILL	WR	503-868-7971	Allan	Elliott	Cartlton Plants, LLC	PO Box 398	Dayton	97114-0398
366	Newberg Transfer And Recycling Center	2904 WYNOOSKI RD.	NEWBERG	97132	Municipal	Transfer	YAMHILL	WR	(503) 462-0508	David	Huber	Waste Management of Oregon, Inc.	PO Box 1000	Newberg	97132-8000
1420	Recology NW Greenlands McMinnville	RIVERBEND RD	MCMINNVILLE	97128	Compost	Full	YAMHILL	WR	(503) 474-4856	Fred	Stemmler	Western OR Waste-Valley Recovery Zone In	1850 NE Lafayette Ave	Mcminnville	97128-3434

State of Oregon Department of Environmental Quality

Oregon's Solid Waste Active Permitted Facilities

345	Riverbend Landfill	13469 SW HIGHWAY 18	MCMINNVILLE	97128	Municipal	Landfill (Regional)	YAMHILL	WR	(503) 472-8788			Riverbend Landfill Co., Inc.	13469 SW Highway 18	McMinnville	97128-8634
1258	Valley Recovery Zone	2200 NE ORCHARD AVE	MCMINNVILLE	97128	Municipal	Material Recovery	YAMHILL	WR	(503) 434-5549	Ame	LeCocq	Recology Western OR-Valley Recovery Zone	PO Box 509	McMinnville	97128-0509
1431	Yamhill County Mushrooms, Inc.	7246 LILAC HILL RD	YAMHILL	97148	Compost	Registration	YAMHILL	WR	503-662-4131	Robert	Darm	Yamhill County Mushrooms	PO Box 219	Yamhill	97148-0219

Section Divider

Section Divider

Appendix K - Spill Prevention Control and Countermeasures

List of Maintenance Yards in the ODOT Spill Prevention Control and Countermeasure (SPCC) Program

SPCC Requirements – At A Glance (general outline of SPCC requirements)

		Original SPCC Plan Written	SPCC Plan Revised After EPA Issued Guidance	SPCC Plan Updated After Containment Construction	O&M Plan for Designed Containment	5-yr Review of SPCC Plan	5-yr Review of SPCC Plan
01	**Clatskanie**	10/23/2012	NA	NA	10/22/2012	10/18/2017	
01	**Manning**	9/15/2003	11/29/2006	10/23/2007	6/13/2005	10/23/2012	10/18/2017
01	**Warrenton**	8/21/2009	NA	NA	4/28/2009	8/21/2014	8/28/2019
02B	**East Portland**	11/15/2004	9/28/2006	10/23/2007	5/14/2007	10/23/2012	10/18/2017
02B	**Lawnfield**	12/13/2016	NA	NA	21/13/2016		
02B	**Milwaukie**	5/10/2004	12/20/2006	10/23/2007	5/14/2007	10/23/2012	10/18/2017
02B	**North Portland**	9/15/2003	9/28/2006	10/23/2007	5/29/2007	10/23/2012	10/18/2017
02C	**Bennett Pass**	3/24/2003	Removed from SPCC List on 06-29-2006. Unlikely to impact navigable water.				
02C	**Cascade Locks**	11/15/2004	11/29/2006	NA	5/14/2007	9/28/2011	9/28/2016
02C	**Government Camp**	Removed from SPCC List on 05-10-2004. Unlikely to impact navigable water.					
02C	**Parkdale**	5/10/2004	Removed from SPCC List on 06-29-2006. Unlikely to impact navigable water.				
02C	**Sandy**	12/15/2003	4/20/2006	NA	6/13/2005	6/7/2011	5/30/2016
03	**Salem**	12/2/2004	9/28/2006	NA	NA	9/28/2011	9/28/2016
04	**Albany**	6/7/2011	NA	NA	6/7/2011	5/30/2016	
04	**Ona Beach**	4/23/2003	10/23/2007	NA	5/14/2007	10/23/2012	10/18/2017
04	**Rose Lodge**	11/15/2004	10/23/2007	NA	5/14/2007	10/23/2012	10/18/2017
05	**McKenzie Bridge**	5/10/2004	12/20/2006	NA	5/14/2007	9/28/2011	9/28/2016
05	**Oakridge**	4/25/2003	4/20/2006	10/23/2007	5/9/2007	10/23/2012	10/18/2017
05	**Odell Lake**	12/17/2003	4/20/2006	NA	6/13/2005	6/7/2011	5/30/2016
07	**Hunter Creek**	9/15/2003	4/20/2006	NA	6/13/2005	6/7/2011	5/30/2016
08	**Steamboat**	9/19/2003	11/29/2006	10/23/2007	5/29/2007	10/23/2012	10/18/2017
09	**Moro**	12/15/2003	4/20/2006	NA	5/26/2006	6/7/2011	5/30/2016
09	**The Dalles**	9/15/2003	11/29/2006	NA	12/12/2006	9/28/2011	9/28/2016
10	**Bend**	Removed from SPCC List on 11-15-2004. Unlikely to impact navigable water.					
10	**Madras**	8/27/2015	NA	NA	8/27/2015	8/28/2019	
10	**Mitchell**	11/15/2004	4/20/2006	NA	in Plan	6/7/2011	5/30/2016
10	**Prineville**	5/10/2004	4/20/2006	NA	in Plan	6/7/2011	5/30/2016
10	**Silver Lake**	5/10/2004	12/20/2006	10/23/2007	5/29/2007	10/23/2012	10/18/2017
11	**Adel**	Removed from SPCC List on 11-15-2004. Unlikely to impact navigable water.					
11	**Lake of the Woods**	5/10/2004	Removed from SPCC List on 06-29-2006. Unlikely to impact navigable water.				
12	**Meacham**	9/19/2003	12/20/2006	NA	6/13/2005	9/28/2011	9/28/2016
12	**Spray**	5/10/2004	9/28/2006	10/23/2007	6/5/2007	10/23/2012	10/18/2017
13	**Flora**	12/17/2003	12/20/2006	NA	6/5/2007	9/28/2011	SOLD
14	**Austin**	12/17/2003	11/29/2006	NA	5/17/2007	9/28/2011	9/28/2016
14	**Jordan Valley**	Removed from SPCC List on 05-10-2004. Unlikely to impact navigable water.					
14	**Juntura**	Removed from SPCC List on 05-10-2004. Unlikely to impact navigable water.					
14	**Vale**	5/10/2004	9/28/2006	10/23/2007	6/11/2007	10/23/2012	10/18/2017

28 **facilities need to comply with SPCC regulations.**

SPCC REQUIREMENTS – AT A GLANCE

This is a general outline of SPCC requirements. Some of the items are not applicable at every yard. Refer to the yard's SPCC Plan for site-specific requirements.

Action	Included Items	Frequency	Description of Action	Records
Visual inspection	☑ Tanks and supports ☑ Portable tanks ☑ Drums ☑ Oil-filled equipment ☑ Piping (aboveground) ☑ Secondary containment ☑ Oil/water separators ☑ Drainage outlets	Monthly	☑ Look for evidence of leaks, spills, corrosion, and/or damage. ☑ Repair, maintain, or replace as needed.	EMS Monthly Field Audit
	☑ Fencing ☑ Gate(s) ☑ Lighting	Monthly	☑ Look for damage. ☑ Look for evidence that additional security is needed ☑ Repair or replace as needed.	EMS Monthly Field Audit
	☑ Buried piping	Whenever exposed	☑ Look for corrosion ☑ Repair or replace as needed	EMS Monthly Field Audit
Periodic actions by yard staff	☑ Spill cleanup supplies	As needed	☑ Replenish supplies as needed to contain specified volume of oil for area. ☑ Make sure supplies are visible ☑ Store in weather resistant containers where appropriate	None needed
	☑ Routine maintenance of secondary containment structure	As needed	☑ Remove debris ☑ Remove snow and ice ☑ Post instructions for delivery driver to close valve before delivering fuel	EMS Monthly Field Audit
	☑ Secondary containment valve	Monthly or as instructed in O&M Manual	☑ Make sure valve works	EMS Monthly Field Audit
	☑ Secondary containment structure	As needed	☑ Check for the presence of oil before releasing stormwater	Log
	☑ Secondary containment structure	Annual or as instructed in O&M Manual	☑ Visually Check integrity	EMS Monthly Field Audit
	☑ Oil spills	If a spill occurs	☑ Use secondary containment to keep spill onsite (within level of training) ☑ Notify supervisor ☑ Notify OERS of spills over reportable quantities ☑ Initiate cleanup	If quantity is reportable (42 gal of oil to ground or any to water), use the "Spill Response Form for Spills in ODOT Maintenance Yards"
	☑ Tank alarms and overfill devices	Monthly	☑ Ensure alarms and monitoring equipment is functional	EMS Monthly Field Audit
	☑ Emergency contact information	Once, update as needed	☑ Post near SDS book	Use Emergency Notification form in EMS Manual

Action	Included Items	Frequency	Description of Action	Records
Testing by contractor	☑ Bulk fuel tank	15 yrs after install then every 10 yrs	☑ Facilities will schedule periodic tank integrity testing. ☑ Notify Facilities if excessive corrosion observed ☑ Testing is not required for tanks with a capacity less than 1,100 gallon if secondary containment is provided.	Facilities will have tank tags updated. Keep copies of test results onsite.
	☑ All tanks	When repaired	☑ Have repair contractor test for leaks and integrity	Keep repair and test records onsite.
	☑ Buried piping	When installed or repaired	☑ Have contractor test for integrity and leaks	Keep records or repairs onsite
Inspection and actions by fuel delivery driver	☑ Containment valve	Before delivery	☑ Close containment valve before delivering fuel	None
	☑ Fuel tank	Before delivery	☑ Verify available volume	None
	☑ Tanker truck	Before delivery	☑ Use wheel chocks	None
	☑ Secondary containment structure	Before opening containment valve	☑ Check for oil inside structure	None
	☑ Tanker truck	Before leaving yard	☑ Check for delivery truck leaks and/or open valves	None
Training	☑ Spill prevention briefings - *Course number: MA006522*	Annual	☑ Review the SPCC checklist ☑ Review Spill FAQ Sheet in EMS Manual ☑ Discuss changes (if any) to onsite SPCC practices or spill prevention measures ☑ Discuss spills, near misses, or incidents	Use employee training records
	☑ Spill Response Training	Annual	☑ Have employees take First Responder Training or equivalent	Use employee training records
	☑ SPCC Training - *Course number: MA006521*	Once per employee Additional at discretion of TMM	☑ Watch the SPCC video ☑ Review the site specific SPCC checklist ☑ Review Spill FAQ Sheet in EMS Manual	Use employee training record
SPCC Plan revisions and evaluations	☑ Periodic evaluation	5 years	☑ MOB will visit yard and revise SPCC Plan as needed	Revisions, amendments, and evaluations will be noted in "SPCC History" section of SPCC Plan
	☑ Amended SPCC Plan	As needed	☑ If spill over 1,000 gals occurs ☑ If two spills over 42 gals occur in one year ☑ If changes occur that affect potential for oil discharge	
	☑ Revised SPCC	As needed	☑ New regulations ☑ New SPCC guidance	

Section Divider

Section Divider

Appendix L - Poly Tanks

Stationary Poly Tank Inspection Form

Supplemental Information on Inspecting Poly Tanks

Risk Assessment for Deicer Tank Locations

Stationary Poly Tank Inspection Form

DATE				LOCATION OF TANK						ASSET NUMBER
OKAY	NEEDS ATTN.	WORK COMPLETE	SEE COMMENTS	ITEM	SEVERITY OKAY	MINOR	MODERATE	SIGNIFICANT	SEE COMMENTS	ITEM
				EQUIPMENT REVIEW						**TANK REVIEW**
				Are pipes cracked or broken?						Is the tank damaged (e.g. dented, discolored, or flaking)?
				Is there damage to pipes from vibration, expansion, settlement, or impact?						Is there bending or swelling of the tank wall that is different from normal expansion?
				Are there leaks or drips (unusual moisture) along the pipe runs?						Does the tank wall feel spongy?
				Is the tank lid broken or missing?						Are cracks visible without using a detailed inspection test (listed below)?
				Are fittings or flanges pulling away from the tank?						**DETAILED INSPECTION of POLY TANK**
				Are the tanks, pipes, and fittings adequately supported and secured?						*Complete one or both tests if any response other than "okay" is checked on a tank review question*
				Are valves or gaskets misaligned, loose, brittle, or deteriorated?						**BLACK MARKER TEST – for a specific area** Are stress cracks visible in the tested area?
				Are pumps and other equipment adequate for the workload?						**LIGHT TEST – for the whole tank** Are stress cracks visible?
				Are plumbing fittings or hoses loose, broken, or worn?						*Complete test if stress cracks are observed. Recheck for stress cracks after baseball bat test.*
				Do pumps or other equipment need servicing or replacement?						**BAT TEST – for affected areas** Did the impact affect the tank?

COMMENTS:

INSPECTION FREQUENCY IS BASED ON THE SEVERITY OF VISIBLE DETERIORATION
OKAY = ANNUAL; MINOR OR MODERATE = 6 MONTHS; SIGNIFICANT = OUT OF SERVICE

NEXT INSPECTION DUE BY:

INSPECTED BY:

REVIEWED BY:

CREW SUPERVISOR:

Supplemental Information on Inspecting Poly Tanks

Baffles on Transport Tanks (horizontal tanks)

Baffles may be internally mounted or temporary (e.g. baffle balls). Baffles provide wave energy deflection (i.e. soften the blow of the liquid going from one end of the tank to the other). Baffle balls reduce the ability to mix materials (e.g. powdered herbicides). Knee baffles are about 50% less effective at providing wave deflection than standard baffles but allowed better in-tank mixing.

Rubber Insulation on Skid Assembly (transport tanks)

Rubber insulation is used on some tank systems to minimize or prevent movement between the tank and the skid. The rubber should be installed across the full width of the tank saddle and glued with contact cement, weather stripping adhesive, or other approved adhesive. Rubber insulation is not necessary if the tank has a different system that prevents tank movement.

Inspecting Tanks and Plumbing for Wear and Damage

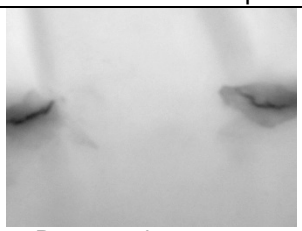
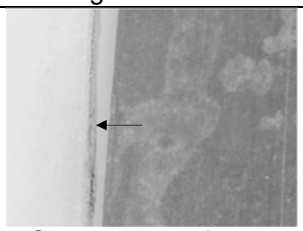
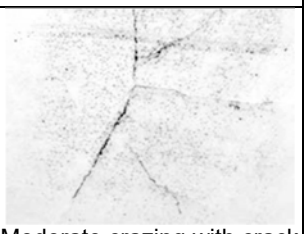
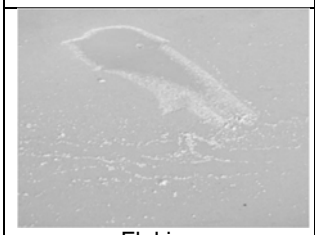
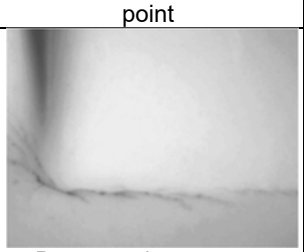
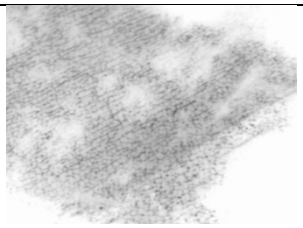
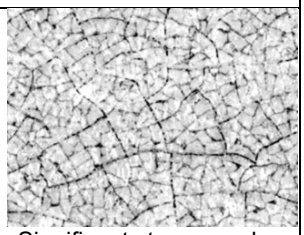
Damage to tanks may be caused by impact, frequent loading or unloading, product movement during transport, sunlight, or normal aging. Signs of damage may include dents, cuts, punctures, or cracks. A tank may fail before damage is visible for no apparent reason; inspection and maintenance are important. The severity of deterioration and damage should be used to determine if tanks are fit for continued use.

Valves, gaskets, or fittings may become misaligned, loose, or deteriorated resulting in seepage, gapping, or brittleness and should be replaced as needed. Pumps and other equipment should be repaired as necessary (e.g. if leaking, fouling, corroding, or worn). In general, poly tanks are not repairable.

Damage is frequently observed on stationary tanks at the fittings and near the bottom of the tank.

Damage is frequently observed on transport tanks in the sump area and at contact points (e.g. edge of the skid). Fittings and hoses in the sump area are difficult to inspect. Transport tank should be pulled out of the rig, where necessary, to thoroughly inspect. Quick starts and stops may increase tank movement and loosen or damage baffles. Watch for improper tension or damage to tank bands.

Examples of Damage

<table>
<tr>
<td> 
Surface scratch or cut</td>
<td> 
Deep crack at recess point</td>
<td> 
Cut next to metal strap</td>
<td> 
Moderate crazing with crack</td>
</tr>
<tr>
<td> 
Flaking</td>
<td> 
Deep crack at recess point</td>
<td> 
Moderate stress cracks</td>
<td> 
Significant stress cracks</td>
</tr>
</table>

Supplemental Information on Inspecting Poly Tanks

Detailed Stress Crack Inspections

Scratches can usually be felt on the surface of the tank. Cracks appear as very abrupt lines, which may (or may not) be felt on the surface of the tank. Stress cracks (or crazing) are a serious sign of damage and frequently occur at stress points. Stress cracks appear as a network (or spider web) of lines and are often not visible without close inspection. Conduct one or more of the stress crack inspections listed below when a tank shows signs of damage.

Stress points on stationary tanks
- fittings
- impact points
- near the top
- the 'knuckle' (bottom bend)

Stress points on transport tanks
- where piping is attached
- recessed areas and sumps
- contact points
- outer bulkheads
- near the top
- the widest unsupported area

BLACK MARKER TEST – USE TO INSPECT A SPECIFIC AREA

- Choose an area where cracking is likely to occur (e.g. a stress point)
- Use a black, water-soluble marker to fill in a small area (e.g. 3"x3" square).
- Before the marker dries, quickly rub off the excess ink with a cloth.
- Stress cracks will remain black when the excess ink has been removed.

LIGHT TEST – USE TO INSPECT THE ENTIRE TANK (LESS EFFECTIVE WITH A LARGE TANK)

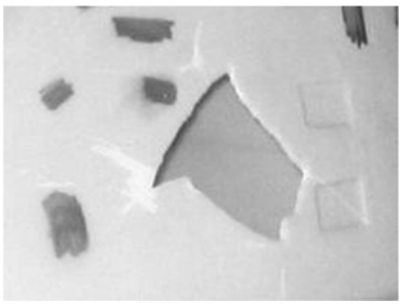
- Remove product before beginning process.
- Lower a bright light into the tank or shine a bright light through the tank wall.
- Confined space assessments are required before entering a poly tank.
- Closely inspect stress points for fine webs or lines.

BAT TEST – USE TO VERIFY DAMAGE TO AREAS IDENTIFIED BY OTHER TESTS

- Remove product before beginning process.
- Strike the area where stress cracks are observed with a baseball bat (or similar tool).
- Strike the sides of the tank and areas that receive the most sunlight
- The tank should flex and rebound under pressure.
- Recheck the area(s) for crack and crazing

Bat test

Failed bat test



Failed bat test

Supplemental Information on Inspecting Poly Tanks

Inspection Frequency and Tank Replacement

Tanks with significant damage must be taken out of service.

Tanks with moderate damage should be replaced as soon as practical. Tanks with moderate damage that cannot be replaced quickly should be inspected frequently (e.g. at least bi-annually).

Minor Damage	Moderate Damage	Significant Damage
Annual inspection.	Should be taken out of service. Frequent inspection if in use.	Must be taken out of service.

• Repairable puncture
• Scratches
• Discoloration due to sun
	• Thin, fine stress cracks
	• Deep crack
	  o <2" long at a stress point
	  o <4" long at a non-stress point
	• Limited brittleness
		• Thick, wide, or deep stress cracks
		• Deep crack
		  o >2" long at a stress point
		  o >4" long at a non-stress point
		  o Through the tank wall
		• Intense swelling
		• Widespread brittleness

RISK ASSESSMENT FOR DEICER TANK LOCATIONS

Instructions

1. Look at the site where the tanks are or will be located.
2. Pick the answer from Box 1 and 2 that best describes the site and surrounding area. Write the number of points that corresponds to the description in the blank column.
3. Add the points from all statements in Box 3 that describes the site. (12 possible points)
4. Add the points for Boxes 1, 2, and 3. Compare total points to the risk level for the site.

LOCATION	DATE	
Box 1- Drainage Around Tank		Points for Box 1
Direct discharge *A large spill would flow into a piped system or a ditch that discharges to surface water or a flood plain*	**7 points**	
Indirect discharge *A large spill would flow across the ground toward surface water*	**3 points**	
Infiltration *A large spill would flow across or sink into the ground*	**1 point**	
Box 2- Presence of Surface Water *(within ¼ mile downslope)*		Points for Box 2
Small freshwater stream, wetland, closed basin, flood plain, or lake	**7 points**	
Large freshwater stream or river	**3 points**	
No fresh surface water	**1 point**	
Box 3- Bonus Points (total the points for all statements that apply to the site)		Points for Box 3
A spill would flow across the ground **and** the adjoining downslope property is agricultural or residential (non-ODOT)	**3 points**	
A spill would flow toward a protected waterbody (e.g. scenic waterway, reservoir, or significant community involvement)	**3 points**	
Property is not owned by ODOT	**3 points**	
A well is located onsite within 250' of tank or the property is located in a wellhead protection zone or groundwater restriction area.	**3 points**	

Risk Level for the Site			**Total Points**
14 - 26 points	High	Secondary containment **must** be provided.	
9 - 13 points	Medium	Secondary containment should be provided. Evaluate local conditions such as natural barriers and soil.	
2 - 8 points	Low	Secondary containment is not required.	

Section Divider

Section Divider

Appendix M - Roadwaste

ODOT Roadwaste Management Chart

ODOT Deer and Animal Carcass Composting Plan
Composting Guidance and Instructions for ODOT Maintenance Crews
ODOT Animal Carcass Composting Trail (2010) – Project and Cost Summary

Regarding the Disposal of Dead Animals – Burial Clarification
Disposal of Animal Mortality and Byproducts
Large Animal Mortality – Safe and Legal Disposal of Animal Carcasses

Incineration Fact Sheet

Beneficial Use Determination (BUD-20181204) Highway shoulder soil throughout Oregon
Impacts to Maintenance from DEQ's BUD of ODOT Highway Shoulder Soils
Permission To Place Fill Material On Private Property

ODOT Roadwaste Management Chart

	Landfill	Other Disposal	Fill on ODOT ROW	Non-residential Fill	Clean Fill	Quarry Reclamation	Other Uses
			Stockpiling is allowed if actively managing material for future use. Remove visible litter and organics. No obvious signs of contamination. Use erosion and sediment control as needed. Follow Blue Book guidance for uses and placement.				
Litter **- Includes personal property stored beyond hold time**	Yes	Recycling center	NA	NA	NA	NA	NA
Shoulder soils **- Soil outside of the highway pavement and within the ROW**	Yes	NA	Pre-approved*	Pre-approved in most areas	Pre-approved in limited locations	Pre-approved statewide	Contact MOB or HazMat
Pickup sweeping **– Material picked up from the pavement that is not recovered abrasives.**	Yes	NA	Possible depending on contaminant level – not pre-approved	Possible depending on contaminant level – not pre-approved	NA	Possible depending on contaminant level – not pre-approved	Fines are pre-approved for use as absorbent Contact MOB or HazMat for other uses
Recovered abrasives **- Recovered material that is at least 90% coarse grain**	Yes	NA	Possible depending on contaminant level – not pre-approved	Possible depending on contaminant level – not pre-approved	Possible depending on contaminant level – not pre-approved	Possible depending on contaminant level – not pre-approved	Pre-approved for use as sanding material Contact MOB or HazMat for other uses
Catch basin cleaning **- Material removed sumps that is not recovered abrasives**	Dried solids	Liquids: sanitary sewer or evaporation or limited infiltration	NA	NA	NA	NA	Contact MOB or HazMat for other uses and decant options
Slide debris	NA	NA	Yes	Yes	Yes	Yes	NA
Stripe grindings **– stripe is removed separately from the pavement**	Testing required	Possible HazWaste	NA	NA	NA	NA	NA
Asphalt grindings **– may include striping removed with pavement**	NA	NA	Pre-approved as fill from centerline to edge of ROW	NA	NA	NA	Pre-approved for asphalt pavement
Brush and Woody Debris	Yes	Recycling center Limited burning	NA	NA	NA	NA	Compost / mulch Riparian habitat
Noxious weeds	Yes	NA	NA	NA	NA	NA	NA
Roadkill	Where available	Drag & drop Incinerator Compost	NA	NA	NA	NA	NA

*Material collected in proximity to contaminant sources has potential to be hazardous waste or potentially unsafe for workers. Using hazardous waste as fill is not allowed under any circumstances.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
Litter **- Includes personal property stored beyond hold time**	Litter is solid waste. Solid waste must be taken to a permitted landfill or recycling facility. Solid waste cannot be stockpiled longer than 6 months without DEQ approval or a permit.	Stockpiling, storing, or burying litter can pose risks to human health and the environment. Public perception and nuisance conditions are also concerns.	• Take to a permitted landfill, transfer station, or recycling facility as appropriate. Where practical collect litter separately from other highway waste. • Keep sorting operation and stockpiles of litter well managed and tidy. • Bulk materials (highway shoulder soils, catch basin cleaning, street sweepings, etc.) that contain visible litter are classified as solid waste unless litter is removed/screened from the pile. In many cases reuse options are available after the litter is removed.
Shoulder soils - ODOT and DEQ have defined shoulder soil as soil outside of the highway pavement and within the highway right-of-way.	DEQ has approved the beneficial use of highway shoulder soil as fill. General use limitations and allowances differ by physiographic provinces. Refer to BUD – 20181204. DEQ Clean Fill Internal Management Directive (IMD) provides guidance on making Clean Fill Determinations. DSL Removal Fill may apply when placing shoulder soil in wetlands or waters of the State. Erosion/sediment control may be required. Under limited circumstances shoulder soil that has been identified as appropriate for fill in residential zones may be placed on private property with the permission of the landowner.	Regulated pollutants can be present in shoulder soils. ODOT has found contaminant levels vary widely in shoulder soils. ADT is not a good indicator of contaminant level. Sampling has identified that surface soil (0-1.5 feet) adjacent to state highways have potential to contain contaminants exceeding DEQ's clean fill values regardless of ADT. Increased contamination may be present from small, non-reportable spills over long periods. Material collected from areas in proximity to known contaminant sources may increase soil contamination levels. Potential contaminate sources include town centers, fuel stations, industrial facilities, or commercial crop land.	• Stockpiling is allowed if material will be used as fill. Erosion and sediment control may be necessary at stockpiles or fill areas. • ODOT REC should assess storage and fill sites for environmental concerns (removal fill permits, wetland impacts, etc.). • Screening may be needed to remove litter or excessive amounts of organic debris. • Shoulder soils may be reused within the ODOT right-of-way without testing. • Soils from all areas including from the Portland Basin province have been approved by DEQ for use as mine reclamation fill.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
	DOGAMI regulates the reclamation of mines. The ODOT Routine Road Maintenance Guide (Blue Book) contains BMPs for maintenance actions. Storage or fill sites must be suitable (proximity to wetlands or streams). Shoulder soils that will not be used as fill are classified as solid waste and must be taken a permitted landfill or recycling center. Bulk materials (highway shoulder soils, catch basin cleaning, street sweepings, etc.) that contain visible litter are classified as solid waste unless litter is removed/screened from the pile. Stockpiling is not allowed unless future use is planned. Solid waste (material with visible litter or material that will not be used as fill) cannot be stockpiled longer than 6 months without DEQ approval.	Proper stockpile placement and erosion/sediment control are concerns even if material is clean.	• Shoulder soils may be used as fill in non-residential zones (e.g. transportation, commercial, industrial, non-food crop agriculture) with the following exceptions: a. Shoulder soils collected in proximity to potential contaminate sources are allowed as fill on a case-by-case basis. Pollutant testing/waste characterization is required to determine if material collected in proximity to potential contaminate sources is can be used as fill. Contact HazMat for assistance. b. Shoulder soils outside of town centers from Blue Mountain and Basin and Range provinces are allowed to be used as fill in residential zones as well as non-residential zones. c. Shoulder soils outside of town centers collected 15-feet or more from the edge of pavement in Deschutes Columbia, Coast Range, High Lava Plains, and South Willamette Valley provinces are allowed to be used as fill in residential zones as well as non-residential zones with the exception of near surface soil (0 - 0.5 foot) in Deschutes Columbia and South Willamette Valley. Near surface soil in Deschutes Columbia and South Willamette Valley can be used in non-residential zones. d. Shoulder soils from the Portland Basin province are allowed as fill on a case-by-case basis. Supplemental, pile specific, sampling is required to determine if material can be used as fill.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
Street Sweepings – Material picked up from the pavement that is not recovered abrasives.	Classified as industrial process waste. Materials must be must be taken to a permitted landfill or recycling facility unless future use is planned. Bulk materials (highway shoulder soils, catch basin cleaning, street sweepings, etc.) that contain visible litter are classified as solid waste unless litter is removed/screened from the pile. DSL Removal Fill may apply when placing street sweeping in wetlands or waters of the State. Erosion/sediment control may be required. Stockpiling is not allowed unless future use is planned. Solid waste (material with visible litter or material that will not be used as fill) cannot be stockpiled longer than 6 months without DEQ approval. The ODOT Routine Road Maintenance Guide (Blue Book) contains BMPs for maintenance actions. Storage or fill sites must be suitable (proximity to wetlands or streams).	Hydrocarbons (oil, diesel, gasoline) and heavy metals are common pollutants in sweepings. These pollutants are regulated and can pose health risks to humans and the environment. If pollutant contamination levels are high, special management or disposal may be required. Proper stockpile placement and erosion/sediment control are concerns even if material is clean. Sweepings that are high in organic levels (leaves, twigs, etc.) can make poor fill. As organics break down material shrinks and bacteria and nitrates can become pollutant problems	• Work with HazMat or MOB to determine contaminant levels, methods for reducing contaminants (screen trash, stockpile for natural break down of hydrocarbons), and use options (e.g. concrete manufacture, fill, shoulder repair, quarry reclamation, compost, or soil amendment). Testing may be necessary. • ODOT REC should assess storage and fill sites for environmental concerns (removal fill permits, wetland impacts, etc.). • Sort sweepings for disposal or use. • Screening may be needed to remove litter or excessive amounts of organic debris. • Stockpiling for more than 6 months is allowed if use is planned. BMPs may be needed to ensure contaminants do not migrate into the environment or the ground (store on pavement, cover storage piles, etc.). • Erosion and sediment control may be required for stockpiles and fill areas. • Dispose of sweepings that are not suitable for future use at a permitted landfill or incinerator.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
Catch basin / sump cleaning **–** Material removed from a sump that is not recovered abrasives.	Sump debris is a solid waste unless stockpiled for future use. Solid waste must be taken to a permitted landfill or recycling facility. Material collected from areas where chemical spills, roadway accidents, or illicit dumping occurred has potential to be hazardous waste.	The waste is typically not structurally suitable for use as fill. Material recovered from cleaning catch basins, sumps, and culverts has not been pre-approved by DEQ for use as fill. Functional options for future use are very limited. Urban vactor solids typically contain high pollutant levels. Regulated toxic pollutants such as hydrocarbons and heavy metals are common in sump debris. Clay and fine soil is more likely to bind with chemical pollutants than coarse soil or sand and gravel. If pollutant contamination levels are high enough special management or HazWaste disposal may be required. Catch basin/sump material collected in highly urbanized areas or maintenance compounds may have high pollutant levels that pose health risks to humans and exceed DEQ pollutant clean-up stand. Catch-basins that are frequently cleaned the lower the pollutant levels.	• Take to a permitted landfill, transfer station, or recycling facility. Where practical collect litter separately from other highway waste. • Liquids and solids must be separated prior to disposal. Solids typically go to a landfill or incinerator. Liquids typically go to a sewerage treatment facility or are evaporated off a paved surface. • ODOT REC should assess storage and fill sites for environmental concerns (removal fill permits, wetland impacts, etc.). Use erosion and sediment control where necessary. • Partner with local jurisdictions and develop waste management options (construct decant facilities, share disposal contracts, etc.). Contaminated waste is primarily an urban issue. Local transportation agencies often share ODOT's need for waste management. • Work with ODOT staff to identify appropriate areas to decant water and methods reduce contaminants and dispose of waste.
Recovered sand and gravel - Recovered sand and gravel has at least 90% coarse grain material.	DEQ has pre-approved the use of recovered sand provided the material is picked up within 6 months of application (or re-exposure after snow melt) and separated from street sweepings. The material may not be reused if there a known source of contamination (e.g. fuel spill) within the material.	Recovered sand and gravel typically has low pollutant levels if it is picked up quickly. The presence of litter, brush, or chemical pollutants limit future use options.	• If recovered abrasives meet specifications the material may be placed back on the pile and used for sanding rock. • ODOT REC should assess storage and fill sites for environmental concerns (removal fill permits, wetland impacts, etc.). Erosion and sediment control may be required for stockpiles and fill areas.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
	The material is solid waste if regulated pollutants are present. However, these materials can often meet clean fill requirements. DEQ has not pre-approved the use of recovered sand for fill. DSL Removal Fill may apply when placing recovered aggregate in wetlands or waters of the State. Erosion/sediment control may be required. Under limited circumstances clean surplus materials generated through the operation and maintenance of State Highways may be placed on private property with the permission of the landowner. The ODOT Routine Road Maintenance Guide (Blue Book) contains BMPs for maintenance actions. Storage or fill sites must be suitable (proximity to wetlands or streams).	Proper stockpile placement and erosion/sediment control are concerns even if material is clean. Material collected from areas in proximity to known contaminant sources may increase contamination levels. Potential contaminate sources include town centers, fuel stations, industrial facilities, or commercial crop land.	• Screening may be needed to remove litter or excessive amounts of organic debris. • Stockpiling for more than 6 months is allowed if use is planned. BMPs may be needed to ensure contaminants do not migrate into the environment or the ground (store on pavement, cover storage piles, etc.). • Testing is needed if pollutants are suspected.
Slide Debris	Placement rules apply (erosion, cut/fill, wetlands, etc.) when storing and using material. Erosion/sediment control may be required. DEQ considers slide material to be clean fill unless obviously contaminated or containing non-native debris. Under limited circumstances surplus materials generated through the operation and maintenance of highways may be placed on private property with the	There is a shortage of suitable disposal locations for landslide material in some areas. Material can be difficult to manage and reuse because of excess mud, organics, etc. Proper stockpile placement and erosion/sediment control are concerns even if material is clean. Turbidity can also be an issue.	• Stockpiling is allowed if material will be used as fill. Erosion and sediment control may be necessary at stockpiles or fill areas. • Use as clean fill.

ODOT Roadwaste Management Chart

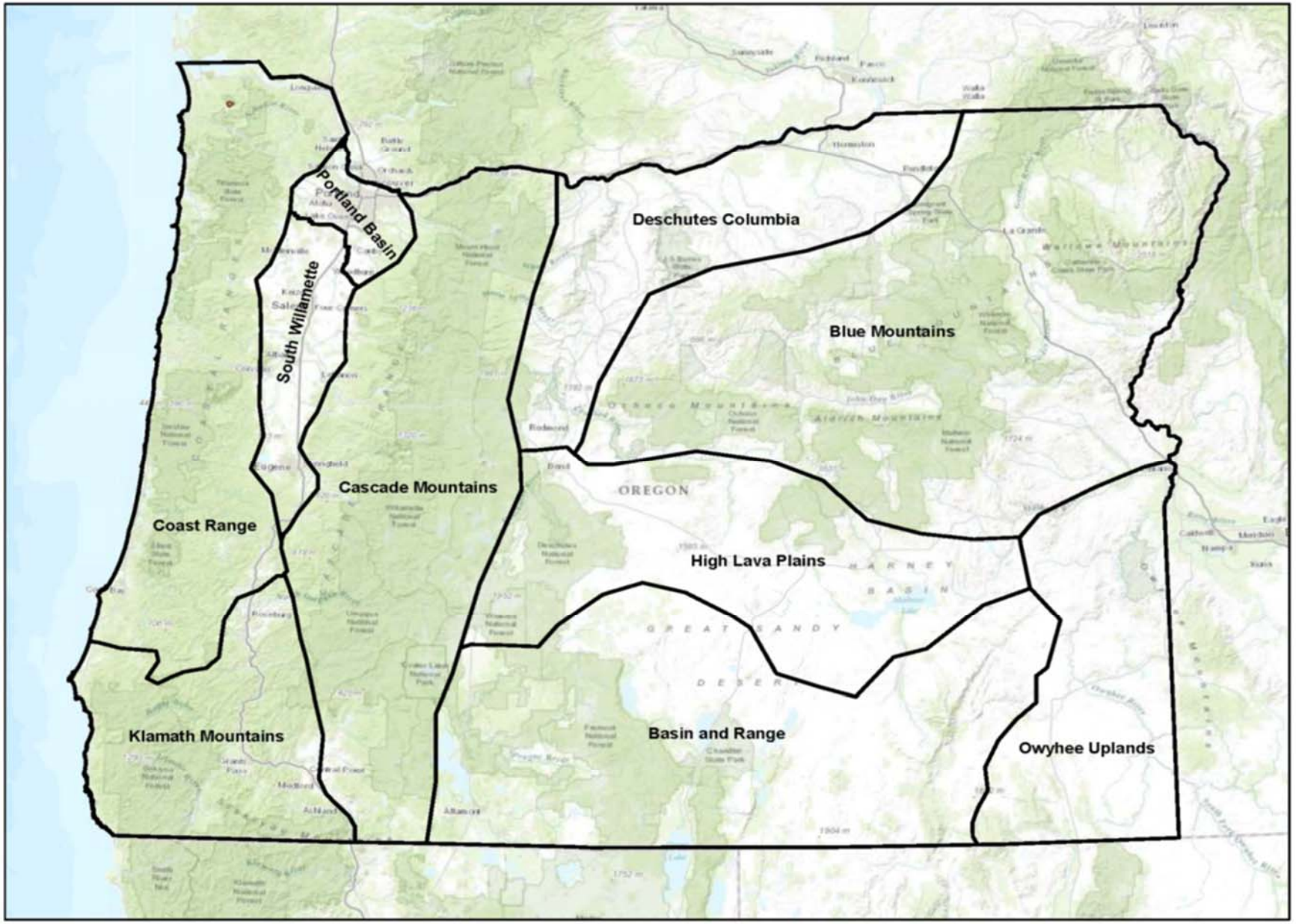
ACTIVITY	RULES	CONCERNS	MANAGEMENT
	permission of the landowner. The ODOT Routine Road Maintenance Guide (Blue Book) contains BMPs for maintenance actions. Storage or fill sites must be suitable (proximity to wetlands or streams).		
Stripe grindings **– stripe is removed separately from the pavement**	Classified as a solid waste. Must be managed at permitted landfill.	Stripe grindings may be classified as hazardous waste because of concentration of metals in old highway paints. Level may remain high even if lead-free paint has been placed over old striping.	• Dispose at a landfill (or other permitted waste facility). • Test material prior to disposal to determine if hazardous waste.
Asphalt grindings **– may include striping removed with pavement**	DEQ has approved the beneficial use of asphalt grindings as fill within the road prism. DEQ's definition of road prism includes from centerline to edge of right-of-way. DEQ has also approved the beneficial use of asphalt grinding in the production of new asphalt pavement.	Material must be proper placed (no impact to wetlands or streams). Some crews are not allowed to stockpile on Forest Service land (Forest Service does not accept DEQ's clean fill determination)	• Use as fill within the road prism. • Use in the production of new asphalt
Brush and woody debris	Brush and woody debris is solid waste. Solid waste must be taken to a permitted facility (landfill or composter) or a recycling facility. Within specific restrictions brush and woody debris is also allowed to be burned, composted, or used for habitat improvement. Organic wastes are regulated as potential health hazards. Local county health	Solid waste cannot be stored in one location for longer than 6 months. Stockpiling is allowed for longer period if use or recycling Large quantities of decomposing organic waste are associated with a number of pollutants including bacteria, methane, nitrogen, nutrients, and low oxygen levels.	• Separate brush and reuse or dispose at a landfill (or other permitted waste facility). • Grind or chip brush and woody debris. Use for compost or mulch. • Coordinate placing large woody debris in waterways to improve fish habitat with ODOT REC and ODFW.

ODOT Roadwaste Management Chart

ACTIVITY	RULES	CONCERNS	MANAGEMENT
	departments usually regulate the management of organic wastes and many offer management assistance. DEQ prohibits burning in certain parts of the State and may restrict open burning anywhere in the state on a day-to-day basis depending on air quality and weather conditions. Composting more than 20 tons/year requires a DEQ permit Noxious weeds (including seeds) are regulated by ODA. The disposal of brush and cuttings from suspected diseased plants and trees must be coordinated with ODA, USFS, or ODF.	Decomposing vegetation is associated with a number of water quality pollutants including bacteria, nutrients, and low oxygen levels. Permits may be required. Noxious weeds may be present. Follow District IVM Program.	• Burning is allowed only in limited areas: outside riparian corridors, where air quality allows, etc. Various permits may be required. • Bag noxious weeds and dispose at a permitted landfill.
Roadkill	The disposal of dead animals is regulated by DEQ and ODA. The restrictions on legal burial of animals make this disposal option functionally impractical. DEQ Air discharge permits are required for the operation of animal carcass incinerator. Animal carcasses cannot be open burned. Composting more than 20 tons/year requires a DEQ permit.	Organic wastes are regulated as potential health hazards. Local county health departments usually regulate the management of organic wastes and many offer management assistance. Improper disposal of animal carcasses can pollute ground water and surface water. Improper disposal can also jeopardize the health of livestock, wildlife and pets. Carcasses left on the ground or buried in shallow pits may pose a threat to ground or surface water or jeopardize the health of domestic animals or wildlife.	• Allowed management practices o Drag and drop o Composting o Incineration o Burial at permitted landfills • Supplemental information on composting, incineration, and burying on ODOT property is located in separated documents in Appendix M of the EMS Manual. • Limit the number of carcasses dropped in the same location.

ODOT Roadwaste Management Chart

Physiographic Provinces in Oregon



July 15, 2008

Oregon Department of Transportation (ODOT)
Deer and Animal Carcass Composting Plan

Purpose

This plan provides composting guidance and instructions to ODOT Maintenance crews on how to compost deer carcasses that can accumulate on ODOT highway right of way. Deer carcasses can pose safety, human health, and environmental risks in some situations. Dead deer and other large animal carcasses are defined as waste by Oregon Department of Environmental Quality (DEQ). DEQ is the primary state agency in Oregon that regulates and enforces waste management practices. Managing deer carcass waste using the composting methods outlined below addresses the risks associated with this special waste and complies with DEQ waste rules and requirements.

ODOT intends to work with DEQ and local regulating authorities to develop several small animal composting facilities around the State. The facilities will be located where high numbers of deer carcasses are associated with vehicle collisions on ODOT roads. Composting operations outlined below provide a basic ODOT composting plan as required by DEQ and other local regulators in Oregon for composting permits. ODOT Composting Plans will consist of this composting guidance document as well as additional information, plans, and documents that outline specific composting operations for individual ODOT composting facilities.

Washington Dept. of Transportation deer composting operations near Maryhill, WA

COMPOSTING GUIDANCE AND INSTRUCTIONS
For ODOT Maintenance Crews

Permits

Before any composting can begin, you must first have all operating permits in place as required by Oregon Department of Environmental Quality (DEQ) and local land use authorities. Call ODOT Maintenance and Operations Branch in Salem (503-731-8289) prior to setting up your composting operations. Staff at the Maintenance Office can assist you in determining if permits will be required for your composting operations.

DEQ does not require a composting permit if you compost less than 20 tons of feedstock annually. For deer carcasses this will work out to approximately 1 deer per day if the carcasses you are collecting average 100-120 lbs. You need to estimate number and weight of carcasses you will be composting to determine if a permit is necessary.

Composting permits typically require a detailed compost site and operation plan. A Composting Plan will consist of this guidance document as well as additional documents that describe compost operations and concerns specific to your composting location. Additional documents will include maps, property descriptions, site plans, and written descriptions of composting details or activities not provided in this plan. Staff at ODOT Maintenance and Operations Branch can assist you in preparing documents and obtaining permits.

Site Location

Find a well drained site with minimal slope, at least 300 feet from waterways and wetlands. Composting sites are not allowed inside a flood plain. Sites with hydro-geological or environmental concerns (unstable slopes, wetlands, shallow groundwater, endangered species habitat, etc.) should be avoided. The site should be isolated or screened from near by residences and situated such that composting will occur at least 100 feet from adjacent property lines. Prevailing wind direction and aesthetic impact on neighbors and passersby should be considered when choosing a site. Odor, scavengers, and other issues typically associated with animal carcasses should not be problematic if you follow the composting guidance outlined below, but realize there is potential for these issues to be associated with your site.

The site will need a paved surface made of asphalt, concrete, or compacted asphalt grindings that can be used as a base for setting up composting bins. Composting bins will be constructed on top of the paved surface with walls made from Jersey barrier (or a similar type of mobile concrete barrier structure). Bins will be a minimum of 20 feet wide by 20 feet deep. The number of bins and size of paved surface will depend on number of deer to be composted but its likely four bins on a 50 ft square pad (approx.) will be typical for small ODOT composting operations (see “Sizing the Bins” below).

What You Need

- Bulking material (finished compost, woodchips, sawdust, straw, or combination of materials)
- Starter compost material
- 3-4 foot long compost thermometer
- Supply of water. Where there is no water access, a water tank with a hose set up so you can spray the pile and/or bulking material is an option.
- Loader
- Jersey barrier (or equivalent) for constructing bins.
- Asphalt, concrete, or asphalt grindings to make a hard base surface for the bins.
- Latex or vinyl gloves for handling material.
- Composting log book or log sheets to record composting data and activities.

To Start Your Compost Pile

- Prepare a hard, flat surface. This will be the base surface for your composting bins and should be made of asphalt, concrete or compacted asphalt grindings. This pad will protect underlying groundwater from compost process water and stormwater that comes in contact with the compost piles. Compost water can be contaminated with bodily fluids from the deer carcasses or contain pollutants associated with composting, such as nitrogen, bacteria, or high pH (acid) levels. The pad will also provide a good working surface for composting operations during all weather conditions. (The “Sizing Bins” section below will help you to determine what size of pad you need.)
- The working base pad should be slightly sloped (1-3%) so that water will not pool or collect on the pad.
- The pad should be designed so that water runoff from the pad is directed to a single edge or spot. This way, if there is runoff, it can be collected or treated as necessary. (See “Runoff and Water Management” below.)
- Soil next to the pad should be sloped to prevent stormwater run-on.
- Sufficient quantities of bulking material (wood chips, shrub and tree grindings, finished compost) must be at the site before any carcasses arrive to ensure composting piles can be formed in a timely manner.
- Size and construct bins (see “Sizing Bins” below). To construct bins start with the back wall of your first bin made of at least two jersey barriers lined up end to end. Add to the ends of this back wall two perpendicular side walls also made of at least two jersey barriers. The jersey barriers should form an open ended square at least 20 ft. x 20 ft. The size and number of square bins you make will depend on the volume of deer you compost and the size of the equipment (front loader) you will be using.
- Lay a foundation of dry bulking agent (wood chips, tree grindings, or compost) in the bottom of the bin 18 to 24 inches deep. Make sure this foundation bed is large enough to allow for at least a 2 foot margin around any added deer carcasses. This dry foundation material is intended to absorb bodily fluids from

the deer carcasses and excess water from the composting process. Deer carcasses you place in the pile are comprised of approximately 50% water. You want to contain and manage all fluids associated with the carcasses.

- Top this foundation with at least 6 inches of damp, high-carbon material such as wood chips or recycled deer compost (see “Moisture” section below).
- Lay animals in the center of the bed, back to back, in a single layer. It may be challenging to lay the deer back to back when using a loader, but this configuration will aid in achieving higher compost temperatures. The primary objective is to make sure the deer are in close proximity to each other in order to get the piles to heat up. It may be adequate to simply lay the carcasses on the pile and whack them a few times with a loader bucket.
- Completely cover and surround carcass with at least 6 inches of damp, high-carbon material such as wood chips or recycled deer compost. It is helpful to either use fresh compost or blend some fresh compost material into the damp high carbon bulking material that immediately surrounds the carcasses. Using active or fresh compost will ensure your pile is inoculated with microbes needed to get the composting process started. For your initial piles you can use commercial compost.
- If there are not sufficient carcasses for a full layer, cover the edges of the placed carcasses with at least 12 inches of wood chips or compost and then add more carcasses later when the deer become available. Always leave the compost pile with all parts of every carcass buried under at least 12 inches of cover material, even if extra wood chips or compost must be added.
- When building your pile and adding more carcasses there should always be at least 6 inches of damp high carbon bulking material between newly placed carcasses and those underneath. New carcasses should be placed as before with a minimum of 6 inches of damp, high-carbon material (with some compost added) surrounding all sides of the carcasses.
- Depending upon the size of the bin and your method of loading, you may not want to start your pile with a whole layer covering the bottom of the bin. This is because your loader may not be able to reach the back area of the bin when you want to add more carcasses (never drive equipment on top of your pile). You can avoid this by building the pile from the back, adding material up and forward simultaneously.
- Continue this layering procedure until the bin is full. Do not stack bins over 6 feet high. An increase in the temperature of the pile to 125 degrees Fahrenheit or higher indicates that the compost process is working.
- Leave 6-12 inches between edge of pile and walls of bin.
- The last layer used to cap the bin should be 12-24 inches of bulking material or finished compost (wood chips, sawdust, shrub and tree grindings/chippings, coarse compost, or straw). This layer should curtail odors and dissuade scavengers. Again, do not stack bins over 6 feet high.

- You need to keep detailed records of work done every time you work on the compost piles (i.e. carcasses added, compost or bulk material added, water added, temperature readings for the pile, etc.). See section on “Logbook Notes” below.

Turn pile

When the temperature of the pile drops after its initial heating, the pile must be turned (see “Temperature” section below).

- Check for moisture and add water if necessary (see “Moisture” section below). Add water before turning.
- Estimated time for the first turning of the pile is 30 to 60 days.
- Piles should be turned from the top of the bottom layer of bulking material and up. Turning from the top of the bottom layer gives the operator sufficient distance to avoid disturbing the bin floor and introducing unwanted material into the compost (asphalt from the underlying pad).
- Prior to turning the pile, layer the bottom of a second empty bin with 12 inches of bulking agent. Then use a front-end loader to move the material from the primary bin to the secondary bin. This aerates the pile. If an additional bin is not available, piles may be turned in place.
- You may notice bits of fur or bone as you are turning the pile. This material should break down further as the pile goes through a second 30-60 day composting/heating process.
- Finish turning the pile and cover the turned pile with 12 inches of bulking agent.
- After the pile has been turned and covered manage it again as you did through its initial 30–60 composting/heating process (checking moisture and temperature).
- Once the primary bin is empty you can use it to start composting a new pile of carcasses. If you have finished compost on site, you can use it as bulking agent for the new pile.

Finished pile

If you can no longer see flesh, and you have documented three days at 130+ °F, the compost is probably finished.

- Completed compost will be a dark brown or black; it will have a soil-like texture and very little odor. Bones should be so brittle they are easily crushed.
- Finished compost can be used to start new compost piles. If there is more compost then can be used for starting new piles, you can use finished compost within the right-of–way as a soil amendment product.
- Finished compost should be tested at a laboratory prior to use in order to ensure bacteria levels are acceptable and that the finished compost meets compost standards (see “Testing and Analysis” section below).

Sizing the Bins
The size of bin you need, will depend on the size and numbers of animals you are composting and the size of equipment used to turn the compost.

- Bin width should be at least twice the width of the blade or bucket on the equipment you'll be using.
- Using estimates provided by the Minnesota Dept. of Agriculture a bin anywhere from 1300 to 2000 ft^3 is needed to compost 400 carcasses per year at 120 lbs each. A bin sized at 20 ft. x 20 ft x 6 ft high gives you a volume of 2,400 ft^3. This should be large enough to compost a little over 400 deer annually.
- Washington DOT trial compost operations found this estimate of 400 deer per bin (annually) may be high for composting operations in the Pacific Northwest. Wash. DOT operators found they could fit roughly 20 deer per pile and initial turnings took 4–6 weeks. However, they felt it is likely this rate could increase as they improved pile management techniques. Wash. DOT recommends closely monitoring moisture levels and using fresh compost as a bulking material around deer carcasses to improve composting rates.
- Composting volume rates will vary depending on the operating factors of your individual facility. However, using the volume estimates above it is likely you will be able to compost roughly 500 deer annually with the use of two 20 ft. x 20 ft. bins.
- Estimate the number of deer you will need to compost in a year. Consider the fact that you will be picking up more deer and need more space at different times of the year. Then using the above rate estimates you should be able to estimate the size and number of bins you will need.
- Even if a single bin is large enough to manage the volume of deer you will be generating, consider that using two bins will make turning a pile easier since it enables you to move material from one bin to another.
- In most situations, if you pick up a deer a day (averaged over a year's time), four bins (20 ft. x 20 ft.) will provide you with ample composting volume. The extra bin space will allow for easy pile turning and surplus space during those times of the year when you have high deer counts.
- The minimum base or pad size for four 20 foot jersey barrier bins placed back to back will be just over 40 square ft. Consider a larger pad if you want margin space around your bins or room for storage of finished compost or feedstock (woodchips, grindings, etc.).

Bulking agents

The ratio of carbon to nitrogen in the materials you are composting is an important consideration in optimizing the composting process.

- A Carbon:Nitrogen (C:N) ratio of 25-30:1 will give you the best composting results (20-40:1 is acceptable). This means in order to compost deer carcasses that are high in nitrogen requires a bulking agent that is high in carbon.
- You want to use a bulking agent with a high Carbon:Nitrogen (C:N) ratio. Woodchips have a C:N ratio (weight to weight) of approx. 400:1, sawdust has a C:N ratio of 100-750:1 whereas straw, has a C:N ratio of 48-150:1.
- Recycled deer compost can also be used as a bulking agent. The compost you make will likely have a high carbon ratio because of high wood chip content. Commercial compost typically has a carbon ratio of approximately 10:1.
- In addition to choosing a bulking agent with a high C:N ratio, you want to choose one with a large enough particle size to allow for air flow, but not so large that it cools the pile. Air circulation and oxygen are needed by the microbes that you want to have growing in your compost pile.
- If you are using sawdust or another fine material as your bulking agent and wind erosion is occurring, consider a top layer of coarser chips. The coarser material will allow water and air to pass into the pile while keeping the underlying sawdust in place and protecting it from wind erosion.
- You can mix bulking agents if it is helpful. If you can get sawdust cheaper than woodchips, but the sawdust is blowing from the pile, you can mix the sawdust with woodchips, compost, or another coarse grained high carbon bulking agent.

Temperature

- Temperature of your compost pile should increase to between 125° to 150°F within a week of starting your compost pile. Once pile reaches 125°-130°F., it should remain there for at least a week.
- Use a temperature probe (bimetal thermometer) with a four-foot extension to take temperature readings of your pile. The probe should be placed so readings are taken 12”–36” from the top of the pile and directly in the areas of the pile where carcasses are located. During the initial trial, temperatures should be taken at several depths and locations in each cell.
- For pathogen reduction, it must be shown that the carcasses achieved a temperature of 131°F or greater for 3 consecutive days (high temperatures will kill most pathogens of concern). Do not start counting the days until the area that you last added to pile reaches this temperature. It is very important, to record these high temperatures on your log sheets. Thermometer readings should be taken daily during the height of the heating process to document high temperatures.

- Leave the pile undisturbed until the temperature has subsided to about 115 degrees near the carcasses. After this first heat cycle you can turn the pile which will introduce more air and increase aerobic activity. After the temperature subsides the 2nd time, the compost should be finished and ready for curing.
- After the second heat cycle, the compost goes to a curing pile for at least 30 days. This curing can take place off the pad.

Moisture

Composting works best when the pile is sufficiently, but not overly moist. The amount of water you add depends on the moisture content of the bulking agent and the carcasses.

- A moisture content of about 60% is recommended. This is the point where a handful of material will just begin to stay together when squeezed (wear rubber gloves when squeezing compost).
- 60% is the amount of moisture you want surrounding the carcass or in the active part of your pile. The bottom layer of your pile should initially be dry so that it can absorb excess water that moves down through the pile. You do not want water running out the bottom of your pile.
- The simplest way to check for moisture is to dig into the pile and grab a hand sample. If material falls apart when squeezed, it is too dry. If free water drips from the squeezed material or if a film of water is left on the hand, then the material is too wet.
- If the pile is too dry you can spray water directly on to the pile to add moisture. Add water slowly so you are sure you do not over saturate the pile with water. Monitor the amount of water you add to the pile. This will enable you to better judge how much water you need to add next time the pile is dry.
- Too much water reduces air in the pile and encourages anaerobic microbes or microbes that thrive in a low oxygen environment. Most anaerobic microbes will cause odors in your pile. If your pile starts to have bad odors it may mean water content is too high.
- You might find it easiest to add water by adding it first to your wood chips or compost and then adding them to the compost pile.
- If the pile is too wet, spread the material a bit and allow it to air dry, or mix the wet material with drier material to lower the moisture content before adding it to the compost pile.
- <u>If pile dries out (25 – 45% moisture), and if piles are too large, spontaneous combustion can occur.</u> Fire is a real risk when composting. Plan on monitoring your pile daily when the pile is at the height of its heating process. You will need to monitor for both moisture and temperature.
- A variety of moisture probes are available that might be helpful in monitoring the moisture level of your pile. But this monitoring equipment is optional and testing moisture content by hand can provide adequate information.

Logbook notes

- Record the number and type of carcasses added to the pile along with the date. There needs to be records for each bin you are operating on site. Number your bins so that it is clear which bin you are tracking what has been added to each bin.
- Record when bulking agent is added and what type of material is used (i.e., chips, saw dust, recycled compost).
- Record temperatures within the piles once/day.
- Odors should be recorded. Indicate whether there are odors disseminating in the downwind direction, and if so, estimate how many feet downwind it is noticeable.
- Check moisture daily and record when and how much water is added. You can check draw down levels to measure amount of water added if you are using a water tank.
- Make note of when last the last carcass is added to a pile (the bin is at capacity).
- It's a good idea to have a weather proof box or storage unit on site where you can store your daily log notes and small equipment (thermometer, rubber gloves, etc.). Some crews have welded a locking pickup box on a metal stand for use at their composting sites.
- When compost pile is finished, file the records at your office.
- Make note of problems such as critter-interest, odors or other complaints.
- Keep records of any modifications to your management methods. This information can be used to update your site plans or this guidance manual.

Managing Water Runoff

Compost water can be contaminated with pollutants such as nitrogen, bacteria, or high pH (acid) levels. Past experience by other agencies using this method of composting has shown that preventing process water from leaving compost piles is not a problem as long as the pile is managed properly and water management methods are in place. These include:

- Placing a sufficient absorbent layer of dry bulking material at the bottom of your pile to help capture excess water.
- Paving the base of your compost bins to prevent compost water from seeping into the ground.
- Designing your paved composting area so that it does not receive storm water run-on from adjacent property.

Other water management methods to consider include:

- Keep dry bulking materials on hand that can be used to soak up excess water leaving the piles. Once absorbent material is saturated it can be picked up, dried out on the pad or mixed with dry material to 60% moisture, and added to the pile.
- If you have designed your paved surface to drain to one edge or one spot this will make capturing excess water with absorbent material easier.
- Stormwater that comes in contact with your piles must be managed. Keep a tarp on site that can be tied or weighted down over the pile during heavy rains. This will prevent stormwater from being exposed to the pile and can also help prevent your pile from getting too wet.

Managing water may take more effort if you are in a wet weather climate where rainfall is plentiful.

- The shape of your pile influences how much rain water can penetrate the pile. A steep pointy pile will shed water, where as a flat topped pile has a larger surface area that will allow water to penetrate and soak in.
- Plan for excess stormwater flowing off the paved area. Pavement should be slightly sloped so that excess water will discharge to one edge or one spot. Water can then be collected and held for use on the pile during dry weather or directed for passive treatment. Pollutants in compost water can generally be easily captured and treated in a lined vegetated swale. Maintenance and Operations Branch can work with you and your local ODOT hydraulic designers to help develop a stormwater treatment facility for excess runoff if necessary.
- Manage wet weather piles by increasing the amount of dry absorbent material placed in the pile and working with tarps.
- You may want to consider locating your compost piles under cover. A suitable roof structure might already exist such as underneath an overpass or bridge if the structure is isolated and not associated with a river, stream, or water body.
- Roof structures can be constructed for composting in wet climates. Keep in mind roof structures can be very expensive because of the height clearance needed for operating equipment. You might consider a cheap temporary roof structure just for the wet season.

Testing and Analysis

If you are generating more compost than can be recycled back into your compost piles you can use the excess for landscaping purposes along your right of way.

- If you plan to use the compost, it should be tested at a laboratory first to make sure bacteria levels are acceptable and it meets compost manufacture standards. Contact Maintenance and Operations Branch and they can assist you in collecting samples and sending them to an appropriate laboratory for analysis.

- If you are required to obtain a permit for your composting operations, periodic testing for bacteria levels will be required. Pathogens and bacteria are a concern when managing animal carcasses. Again, Maintenance and Operations Branch can assist in setting up and collecting any needed lab samples.

Winter

You can compost in the winter. Active piles will continue to heat in the winter.

- New piles should not be started during the winter unless active, hot compost is available as a bulking agent. Smaller piles may not reach ideal temperatures in winter.
- New carcasses should not be allowed to freeze and should not be added to a pile that has dropped below 60°F.
- The compost pile must be large enough to be self-insulating. A thick layer of bulking agent between the carcasses and the floor and walls of the bin will insulate microbial activity from cold air.
- Warm material from a pile ready for the first turning should be used in place of the sawdust bulking agent and the six inch compost layers. The thickness of the six inch compost layers should be increased to one foot and the first turning material should be used for the top and bottom layers of bulking agent also. The top layer can be covered with additional chips if needed for insulation or erosion control.
- Do not turn the pile on extremely cold days.
- You can also compost in or next to a heated area in winter.

Odors/pests/miscellaneous

- Control odors by having an adequate quantity of bulking agent around the carcass.
- The presence of flies can be caused by inadequate cover over carcasses, poor sanitation conditions, failure to achieve proper temperatures, or the pile being too wet. Carcasses should be covered with a minimum of one foot of bulking agent.
- A hot, active compost pile, adequately covered will reduce the potential to attract varmints.

Emergency Operations

Preventative and emergency procedures should be planned in case of fire or other possible emergency situations.

- Know the phone numbers of local fire and county health services in the area and have them posted where they are easily accessible on site.
- Make sure trucks are equipped with adequate communication equipment and/or communication equipment is available on site in case of emergency.

- Staff should know communication plans and who they need to contact in case of emergency.
- Spill kits should be easily accessible in case of fuel spills or spills of other hazardous materials on site.

Operational Concerns

Site upgrades and changes may be needed to prepare a site for use as a composting facility. Some site improvements can require approval or review from local authorities (adding fill, paving access roads, setting up water lines, etc.). Maintenance and Operations Branch can assist with having plans reviewed by local authorities. Develop a site plan that considers operational needs and impacts.

- Consider hours of use and if operation activities will have negative impacts to the surroundings. Impacts can be caused by traffic, noise, lighting, etc.
- Screen operations as much as possible. It may be possible to use vegetation plantings or landscape berms to help reduce impacts to neighbors or the general public.
- Consider if access roads should be paved, if locked gates or fencing is needed, if extra security measures or signing is needed, etc. If your site is remote and naturally screened, you may be able to avoid these types of site improvements.
- For animal composting, compost feed stock is restricted to animal carcasses only. If you also do vegetation composting, both types of composting can be located at the same site but plant and animal composting piles and operations should be kept completely separate.
- Your compost site should be located where travel time and access will not be issues. When piles are at the height of the heating process they need to be monitored daily. Transporting and unloading deer carcasses should be done discreetly and out of public view.

Facility Closure

Bacteria and pathogens are associated with mortality composting. When closing a deer composting facility health precautions should be taken.

- Finish composting all piles on site as set forth in this operations plan prior to closing a facility.
- Decontaminate the pad and jersey barriers using a 5 - 10 percent solution of house hold bleach in water.
- Notify your local Health Department (and DEQ) 60 days prior to facility closure.

Additional Information
There are various documents posted on the internet regarding mortality composting that may be useful.

Cornell University has an excellent composting web site that includes a number of guidance documents specifically aimed at DOT composting operations for deer carcasses. Visit their website at: http://cwmi.css.cornell.edu/

The Texas A&M University system also offers several excellent mortality composting guidance documents aimed at composting farm animals. Visit their website at: http://tammi.tamu.edu/index.html

Call ODOT Maintenance and Operations Branch (503-731-8289) if you have questions regarding this composting plan or your composting operations.

Oct 5, 2010

ODOT Animal Carcass Composting Trial (2010)

Introduction
Disposal of ODOT roadkill carcasses in burial pits is no longer allowed due to stricter environmental regulations. Many rendering plants that used to accept roadkill waste have closed down. New methods are needed to manage ODOT roadkill waste.

The ODOT Compost Project
A variety of disposal options for roadkill waste were investigated including incineration, composting, landfills, and mobile rendering. Of these, composting seems adaptable and affordable. In 2009 the District 12 Heppner Maintenance crew initiated a composting trial to investigate affordability and benefits and concerns of composting roadkill waste.

The Trial
The Heppner crew constructed a composting facility at an old quarry site with placement such that quarry operations were still possible. The compost trial lasted one year and was coordinated with Deptartment of Environmental Quality (DEQ) and Morrow County to ensure compliance with composting and permitting rules. Following the trials, both DEQ and the County endorsed the composting facility. The Heppner crew was pleased with the trial and plan to continue their composting operations.

Affordability
Total $18,100 ($11,600 = site development and permits / $6,500 = annual operations)

- **Set up of the site - approximately $5,000**

Construction of an asphalt pad was required to contain compost moisture and runoff. Bins to contain the piles were made by placing moveable Jersey barriers on top of the pad. There was a requirement to screen the site from public view by constructing an earth berm adjacent to the highway. A gate was required to better secure the facility.

- **Permits and Land Use Approval - $1,600**

Morrow County charged $600 for land use approval. DEQ required two six month waste management permits which cost $500 apiece. (No more DEQ permitting is required.)

- **Annual Operations - approximately $6,500**

Composting requires routine maintenance of piles, monitoring, and record keeping.

- **Site Improvements – approximately $5,000**

Installation of a water tank and pump will improve fire safety and compost operations.

Benefits and Concerns

- Composting seems affordable and can meet state waste management requirements.
- Composting variables and limitations are site specific, but operations are flexible.
- Finished compost can be used for landscaping but pathogen testing is required.
- Water runoff from piles is a high concern. Roofs and pads can alleviate this problem.
- Compost permits are quantity driven and may be required if roadkill counts are high.
- Constant tracking and monitoring of compost piles is required (temperature/moisture).
- Land use approval for compost facilities can be difficult to obtain

Composting has a high potential as a preferred waste management method for roadkill but it may not be suitable for all ODOT maintenance crews or locations.

Regarding the Disposal of Dead Animals – Burial Clarification

The disposal of dead animals is regulated by the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA). DEQ regulates dead animals under Chapter 459 – Solid Waste. ODA regulates dead animals under Chapter 601 – Dead Animals.

In 2006, DEQ and ODA prepared cooperatively authored guidance on the Disposal of Animal Mortality and Byproducts. In recognition of dwindling disposal options due to the declining number of rendering plants in Oregon, the regulating agencies provided alternative disposal options that included: natural disposal, landfill, incineration, burial, and composting.

The Maintenance Guide and the EMS Manual provide ODOT Maintenance folks guidance on agency expectations in handling dead animals. All options allowed by the regulators are covered in current ODOT guidance with the exception of burial. The restrictions on legal burial of animals make this disposal option functionally impractical for highway maintenance so direction has been simplified: Do Not Bury Dead Animals.

By law, burial of a single carcass is allowed if all the following conditions are met

- The bottom of the hole must be dry (above the water table).
- The hole must be at least 500' from surface water or wells and preferably downslope from wells.
- The entire animal must be at least 4-feet below the natural surface of the ground.
- The entire animal must be covered with quicklime and covered by at least 4-feet of soil.

The law allows for the burial of a single carcass and does not allow for multiple carcasses in one location. The burial of large volumes of dead animals is not allowed unless conducted under a DEQ approved Catastrophic Animal Mortality Management Plan. Since dead animals are classified as solid waste, large volume burial can also occur at state licensed landfills.

Informal conversations with DEQ staff have indicated that DEQ may be willing to issue a permit to ODOT for the burial of up to three animals in a single hole with multiple pits at one location if holes are spaced at least 50' apart. This option has not been pursued because the waiver does not appear to provide a practical disposal option for ODOT.

Guidance on natural disposal is provided in Activity 134 of the Maintenance Guide. Call local landfills to determine if dead animals are accepted and the associated cost. Information on composting is located in Appendix M of the EMS Manual. Information on incineration is provided in the Incinerator Fact Sheet posted on the website. Review the list of known archaeological sites prior to ground disturbance. Contact the REC if known resources are present in a proposed burial location.

Where can I get info?

Oregon Revised Statutes, Chapter 601- Dead Animals
www.leg.state.or.us/ors/601.html

Disposal of Animal Mortality and Byproducts
www.oregon.gov/ODA/NRD/docs/pdf/animaldispose.pdf

Oregon Department of Agriculture
Animal Health Division – Salem
(503) 986-4680
http://oregon.gov/ODA/AHID

Natural Resources Division – Salem
(503) 986-4700
http://oregon.gov/ODA/NRD

Oregon Dept. of Environmental Quality
www.deq.state.or.us/lq/sw/compost/index.htm

www.deq.state.or.us/about/locations.htm

How do I file a complaint?

Call your local County Sheriff's office to report improper animal disposal. Tell them you want to file a complaint in reference to Oregon Revised Statute 601. Your county may also have its own ordinance.

Oregon Department of Agriculture

Contains Recycled Materials

All publications produced by ODA will be made available in alternate formats when needed

Additional Internet Resources

A Low Maintenance Approach to Large Carcass Composting
American Society of Agricultural Engineers Meeting Paper No. 032263.
http://tammi.tamu.edu/carcasscompostasae032263b.pdf

Natural Rendering: Composting Livestock Mortality and Butcher Waste
Cornell Waste Management Institute.
http://cwmi.css.cornell.edu/naturalrendering.htm

Animal Mortality Facility
Natural Resources Conservation Service (NRCS) Conservation Practice Standard 316
ftp://ftp-fc.sc.egov.usda.gov/NHQ/practice-standards /standards/316.pdf

Composting Facility
NRCS Conservation Practice Standard 317 *ftp://ftp-fc.sc.egov.usda.gov/NHQ/practice-standards/standards/317.pdf*

Carcass Disposal
Minnesota Board of Animal Health
http://www.extension.umn.edu/administrative/disasterresponse/bmp96.html

Whole Animal Composting of Dairy Cattle
New Mexico Cooperative Extension
http://cahe.nmsu.edu/pubs/_d/D-108.pdf

Composting Animal Mortalities
University of Minnesota
http://www.mda.state.mn.us/animals/animals/composting.htm

Carcass Disposal: A Comprehensive Review
http://fss.k-state.edu/featuredContent/CarcassDisposal/CarcassDisposal.htm

August 2011

LARGE ANIMAL MORTALITY

Safe and legal disposal of animal carcasses

Brochure available at:
www.oregon.gov/ODA/NRD/docs/pdf/water/carcass.pdf

Safe and Legal Disposal of Animal Carcasses

These carcasses were disposed of illegally.

WHY IT MATTERS

It happens everyday. A cow or horse dies unexpectedly. Owners of these animals need to know that there are sound and appropriate ways to dispose of the carcasses.

Improper disposal of animal carcasses can pollute ground and surface water, and can jeopardize the health of livestock, wildlife and pets.

Carcass disposal must comply with the law. Disposal of animal carcasses is regulated under Oregon Revised Statutes (ORS) Chapter 601. Some counties also have their own disposal-related ordinances.

ORS 601.140 states no person shall leave the carcass of any domestic animal within 1/2 mile of any dwelling or within 1/4 mile of any running stream of water for longer than 15 hours without burying or burning it.

WHAT TO DO

Fortunately, there are several methods to dispose of carcasses in a legal and safe manner.

Burial

You may bury carcasses on your farm if the bottom of the hole is dry and the carcass is covered with hydrated lime. Carcasses should be buried at least 500 feet from surface waters or wells and have at least four feet of soil mounded on top to allow for settling as the carcass decomposes. Burial is not legal for disposing of commercial butcher waste.

Burial of large numbers of carcasses requires a Catastrophic Animal Mortality Management Plan. If carcasses are brought to your farm from other locations, you may be subject to additional regulations from the Oregon Department of Agriculture (ODA), Department of Environmental Quality (DEQ), or your local land-use planning agency.

Landfill

Certain landfills are allowed to take carcasses as well as butchering waste. Call your local landfill to find out if they can accept animal carcasses. If the landfill does not, DEQ may grant an exception.

Open Burning

Animal carcasses and byproducts cannot be open burned. Openly burning carcasses of animals that died or were destroyed because of an animal disease emergency is allowed only when authorized by ODA.

Incineration

Animal mortalities and byproducts can be incinerated in a DEQ-approved incinerator or cremation unit. However, this option is not generally available and may be expensive.

Natural Disposal

You must place the carcass at least 1/2 mile from any dwelling and at least 1/4 mile from any open waterway and let scavengers eat the carcass. This method is not legal for numerous carcasses or for disposal of commercial butcher waste. It is not recommended for *chemically euthanized animals* to prevent harm to predators. **It is illegal to leave carcasses on public lands.**

You need a large farm or ranch to make this work. Carcasses left on the ground or buried in shallow pits may pose a threat to ground or surface water or jeopardize the health of domestic animals or wildlife.

Composting

Composting dead animals and byproducts allows you to recycle the nutrients in the carcasses and is a sound environmental practice. You must have a composting plan on file with ODA, and be implementing that plan. You may also need a DEQ permit.

Disposal of Animal Mortality and Byproducts

Prepared by:
Mike Gamroth, Oregon State University

Updated in September 2006 in coordination with:
Zach Loboy, Oregon Department of Environmental Quality
Eric Moeggenberg, Oregon Department of Agriculture
Don Hansen, Oregon Department of Agriculture

Rendering plants once offered quick, affordable pickup of animal mortalities and byproducts. However, recent declines in the price of useful commodities produced from animal carcasses have curtailed or eliminated many rendering operations in Oregon. Now, sending animal mortalities and byproducts for rendering may no longer be an economically viable option for many of Oregon's livestock owners.

This document has been prepared to provide alternate disposal options for animal mortalities and byproducts where rendering services are not available or economical.

Natural Disposal

It is legal to simply allow nature to take its course. If you choose this action you must deposit the dead animal to a location that is at least one-half mile from any dwelling and at least a one-quarter mile from any open water way (ORS 601.140) and let scavengers eat the carcass. It is important to note that this method of disposal is not acceptable in instances where numerous carcasses must be disposed of, and is not available for disposal of animal byproducts generated during butchering.

You need a large farm or ranch to make this work and it is the least desirable of the alternatives for many reasons. Animal carcasses left to decay naturally above ground or buried in shallow pits pose a hazard to groundwater and surface water and can jeopardize the health of domestic livestock, wildlife and pets.

Landfill

Certain permitted landfills are allowed to take small and large animal carcasses as well as waste animal byproducts. There may be an extra fee to dump large carcasses and large volumes of animal mortality and byproducts. Call your local landfill to find out if they can accept animal carcasses. A list of landfills and phone numbers can be found on the Internet at www.deq.state.or.us/lq/sw/disposal/permittedfacilities.htm. If the landfill does not accept animal carcasses, the Oregon Department of Environmental Quality (DEQ) may be able to grant an exception. You would need to work with both the landfill operator and your local DEQ office to see if an exception is possible. Phone numbers to local DEQ offices can be found in most phone books in the blue tabbed Government pages, or at the following Web site: www.deq.state.or.us/about/locations.htm.

Incineration

Animal mortalities and byproducts can be incinerated in a DEQ approved incinerator or cremation unit. Operation of an incinerator or cremation unit requires a permit from the DEQ Air Quality program. Economic reasons, and availability of incineration units in the state, currently make this option generally unavailable. More information on incinerator regulations can be found at www.deq.state.or.us/aq/permit/incinrul.htm

Animal mortality and byproducts can not be open burned [OAR 340-264-0060(3)]. The open burning of carcasses of animals that have died or been destroyed because of an animal disease emergency is allowed only when authorized by Oregon Department of Agriculture (ODA) [ORS 596.393 and OAR 340-264-0040(10)].

Burial

It is legal to bury animal mortalities on your farm if certain requirements are met and specific recommendations are followed. The bottom of the hole must be dry (not in a water table). The dead animal should be covered with hydrated lime, and then covered with at least 4' of soil mounded up to allow for settling as the carcass decomposes [ORS 601.090(7)]. Burials should be at least 500' from surface waters or wells, preferably downhill from the well. Burial of large dead animals will probably require a backhoe because an adult cow burial takes a hole approximately 2' x 7' x 8' deep.

It is important to note that this method of disposal is not acceptable for disposal of animal byproducts generated during butchering. Burial of large volumes of dead animals is not appropriate unless conducted under a Catastrophic Animal Mortality Management Plan. It should also be noted that if you bring in animals from other locations to be buried on your farm you may be subject to additional disposal regulations from the DEQ, the ODA, and the local land use planning authority. Please contact the DEQ, and the ODA, and the local land use planning authority before burying dead animals on your property if the animals did not originate from your farm.

Composting

While not the simplest method of disposal, composting animal mortalities and byproducts allows you to recycle the nutrients in the carcasses and is a sound environmental practice. If you are going to compost animal mortalities and byproducts on your farm, you must have a composting plan on file with ODA, and be implementing that plan. The plan must include a drawing of your composting area, a description of how you will contain any runoff from the compost piles or bins, a description of the process you will use, and a description of how the compost will be used on the farm. Details of the plan and assistance are available from the Natural Resources Division at the Oregon Department of Agriculture, (503) 986-4700. If you are going to compost animal mortalities and byproducts and intend to bring in animal mortality and byproducts from off-farm sites you will need a composting permit from the DEQ.

The basic composting process is relatively easy. **It must be done on concrete or a similar impervious surface that prevents nutrient leaching.** In western Oregon, it is wise to have a roof to control moisture added by rainfall. Bins or walls on the compost pile make turning the compost easier. To compost dead animals, start with a 12" layer of dry straw, sawdust, or dry manure solids. Drag or lift the carcass onto this layer. A small opening in the body cavity will prevent bloating. Some sources recommend cutting open the body cavity and large muscle groups for faster decomposition, however livestock farmers report this is not necessary. Cover the carcass with 2' to 3' of manure solids, sawdust, or other carbon source. Maintain moisture in the pile about like silage; damp, not wet. Add more manure solids , or other carbon material like sawdaust, and water as needed. The pile must heat to over 131° Fahrenheit for at least 3 days to kill human, and animal, pathogens. The pile will be ready to turn in 15-30 days and will need to be turned about 5 times. The carcass should be fully composted in about 180 days. Some literature recommends reusing some of the finished compost as the base for the next pile. Up to 30% of the total volume of the base material required can be from the finished compost. Also, some of the left over bones can add structure to the foundation material for enhanced aeration.

Applying this compost to crops directly consumed by people is not currently recommended. The Cornell Waste Management Institute has stated that the compost can be used on hay, corn, winter wheat, tree plantations and forestland.

Other resources on composting and animal mortality disposal can be found in the "Additional Resources" section at the end of this document.

****Caution****

It is unclear whether prions, the proteins that cause Bovine Spongiform Encephalitis (Mad Cow Disease), are destroyed in the composting process. Animals showing signs of a neurological disease must be reported to the ODA and disposed of in an appropriate manner. Animals that show signs of a neurological disease, and those with anthrax, should not be composted.

Additional resources

Oregon Department of Environmental Quality composting webpage
www.deq.state.or.us/lq/sw/compost/

Oregon Department of Agriculture
www.oregon.gov/ODA/

Oregon Revised Statutes, Chapter 601- Dead Animals
www.leg.state.or.us/ors/601.html

National Renderers Association Membership Directory
www.rendermagazine.com/pages/NRA2006Directory.pdf

Mukhtar, S.; Auvermann, B.; Heflin, K.; Boriack, C. "A Low Maintenance Approach to Large Carcass Composting." American Society of Agricultural Engineers (ASAE) Meeting Paper No. 032263. St. Joseph, Mich. ASAE, 2003.
http://tammi.tamu.edu/carcasscompostasae032263b.pdf

Bonhotal, J.; Telega, L.; Petzen, J. Natural Rendering: Composting Livestock Mortality and Butcher Waste--Fact Sheet. Cornell Waste Management Institute Educational Resources, 2002.
http://compost.css.cornell.edu/NaturalRenderingFS.pdf

NRCS, NHCP. Natural Resources Conservation Service (NRCS) Conservation Practice Standard 316-Animal Mortality Facility. March, 2003.
www.nrcs.usda.gov/technical/Standards/nhcp.html

NRCS, NHCP. Natural Resources Conservation Service (NRCS) Conservation Practice Standard 317--Composting Facility. October, 2003.
www.nrcs.usda.gov/technical/Standards/nhcp.html

Carcass Disposal. Minnesota Board of Animal Health, May, 2006
www.bah.state.mn.us/animals/carcass_disposal/carcass_disposal.htm

Whole Animal Composting of Dairy Cattle, Guide D-108. Michael Looper, New Mexico Cooperative Extension. May, 2002.
http://cahe.nmsu.edu/pubs/_d/D-108.pdf#search=%22composting%20carcasses%22

Composting Animal Mortalities, Debra Morse, University of Minnesota/Minnesota Department of Agriculture. July, 2001.
http://www.mda.state.mn.us/composting/compostguide.pdf

INCINERATOR FACT SHEET

Introduction

Disposal of roadkill carcasses in burial pits is no longer allowed due to stricter environmental regulations. Many rendering plants that previously accepted carcasses have closed down. ODOT is investigating new methods for managing this waste. In 2009, composting was added to the list of management options for roadkill carcasses. However, composting is not practical for all areas.

The Milwaukie Maintenance crew has installed ODOT's first animal carcass incinerator. The incinerator was installed at the Canemah Stockpile site. The initial costs were high but annual operation costs are low. The crew likes the incinerator because they don't have to work around decaying carcasses at drag-and-drop locations. The unit became operational on March 21, 2012.

Cost

- Unit: $85,364.00
- Site prep:
  - Design: $800
  - Power, gas, and water
  - Pad and enclosure
- Permits and Land Use Approval:
  - $1565.62
- Operation:
  - Annual permit fee: $360
  - Natural Gas: $200 per month
  - Cleaning: minimal

Equipment

Model: G-8-P

Manufacturer: Therm Tec Inc. (Tualatin, OR)

Unit measurement: 64" wide by 102" long and is 79"high.
Exhaust stack consists of 3-6' sections of 20" OD pipe for a total height of 18'. Larger units are available.

Unit weight: 7732 lbs. (9662 lbs. with the exhaust stack)

Burn rate: 600 – 800 lbs. a day
The actual burn rate depends on several factors such as size and type of material being incinerated.

Fuel: natural gas at a rate of 800 to 1200 CFH

The incinerator, control panel, and accessories are inside a 20' by 8' shipping container. The unit had a 5'9" canopy over the incineration chamber door. The canopy was removed to allow a one ton truck to back closer to the unit.

Site Preparation

Space required: 40’ by 15’

Utility Requirements:

- 1600 CFH, 2 to 5 lb Natural Gas
- 115 Volt, 20 Amp, Single Phase 3 wire connection.
- Water is not required for operation but is recommended for general cleaning near the door.

Pad: The manufacturer recommends a 10’ by 30’ concrete pad that is 6” thick and reinforced with #4 rebar on 24”centers.

Clackamas County had additional requirements because the site is near a hundred year flood plain (the Willamette River is 300’ west of the site). The pad needed to be large enough to prevent the unit from floating in the event of a catastrophic flood event. Clackamas County allowed the manufacturers recommendations over most of the pad, but the edge was required to be 18” deep and 6” wide. Clackamas County was also concerned about wind impact to the stack. The anchors mount locations were required to be 24” thick and 18” deep across the entire width of the pad.

Security:

- The man door and end door of the container should be locked at all times.
- The incinerator door is also lockable.
- The site should be lit and fenced.

Local Construction Permits:

At the Canemah stockpile site, the local construction permits were the most problematic and time consuming (about 1 year).

The Canemah Stockpile site is just south of Oregon City along Highway 99E. The location was chosen because rural sites are recommended and many of the deer hits in this section are along Highway 99E.

Clackamas County required the project comply with local land use and zoning requirements. ODOT had to apply for an Alteration of a Nonconforming Use for the stockpile site. A Habitat Conservation Area District Construction Management Plan was also required. These were reviewed and approved by the County on March 14, 2011.

Following the approval ODOT submitted the project to the Clackamas County Building Permits Department.

The original submission stated the unit would be set on a standard 6” deep concrete pad reinforced by #4 rebar. Clackamas County rejected this design and required ODOT to provide design for an engineered pad.

ODOT hired an independent engineer to design a concrete pad. The County rejected the first design. The cost of the design was $800.

A new design that included deeper and wider piers along the edges and at points where the unit would be anchored was submitted and approved on August 9, 2011. The cost of the County building permit was $1565.62.

A private contractor completed the site prep and framing of the pad on October 25, 2011. The County Inspector rejected the work and required widening along the edges of the pad. On November 16, 2011, the framing passed the County inspection and the concrete pad was poured using Class 5000 Reinforced Concrete. After 4 weeks of cure time, the unit was placed on the pad. Electrical power was installed on January 13th, 2012. Natural gas was plumbed in to the site and installed in February 2012.

The Unit became operational on March 21, 2012.

DEQ Operating Permits

DEQ required ODOT to obtain a Basic Air Contaminant Discharge Permit for operation of the incinerator.

The DEQ application and approval permit process took three months. The permit has a $120 application fee and $360 annual renewal. The permit requires an initial inspection and operator training.

An annual report must be submitted to DEQ. Records of incinerator operation must be kept and made available to DEQ upon request.

Training and Certification

The DEQ permit requires all operators to be trained and certified. Operator training is available from Therm Tec (the manufacturer) and DEQ provides a certification course.

The cost of initial training from the vendor is included in the price of the unit. The DEQ classes are free. Both classes are approximately three hours. Refresher training is not required.

Folks who haven't been trained and certified to operate the unit leave carcasses near the unit and contact a certified operator to load and start the incineration process.

Operation

Material is dragged into the chamber by hand. Therm Tec offers a conveyer system to load material into the unit at an additional cost.

Usage to Date:

- Over 50 deer have been incinerated in the unit – mostly male deer
- Sizes have ranged from a 40 lb. fawn to a 200 lb. male deer.
- Smaller carcasses have also been incinerated (e.g. coyote and a large dog)
- The average carcasses incinerated is a 100 lb. +/-
- It takes five to six hours per incineration cycle
- The incinerator is used two to three times a week on average. Usage depends on a lot of different factors (e.g. time of year, local deer population, movement, and weather).

- Several small animals have been incinerated at once but never more than a couple medium sized deer. Additional animals aren't loaded into the chamber after the process has begun.

Operational Cost: The operating cost is mostly natural gas needed to fuel the incineration (normally less than $200 a month). The electricity used is minimal. Very little clean-up required. The small amount of ash can be put anywhere.

Operational Issues: There have been no real operational issues. The unit is equipped with a secondary combustion feature in the stack and that has failed a couple times. Combustion failure keeps the unit from running. The vendor has been very responsive in making repairs.

Loading area (canopy has been removed)

Interior of incinerator

Back of the unit

Back of the incinerator

Control panel

Controls and operating instructions

Oregon

Kate Brown, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5263
FAX (503) 229-6945
TTY 711

July 2, 2019

Mr. Shawn Rapp
Statewide HazMat Program Coordinator
999 NW Frontage Rd., Suite 250
Troutdale, OR 97060

RE: Beneficial Use Determination (BUD-20181204), Highway shoulder soil throughout Oregon

Dear Mr. Rapp:

The Department of Environmental Quality (DEQ) has reviewed the June 2, 2017 application for a solid waste beneficial use determination (BUD) for highway shoulder soil material generated throughout Oregon.

ODOT defines "highway shoulder soil" to be soil outside of the current highway pavement and within highway rights of way generated during highway maintenance or construction activities. For the purposes of this BUD the highway shoulder soil is categorized by physiographic province, lateral distance from the edge of pavement (to a maximum of 30 feet from edge of pavement), and vertical distance from ground surface (to a maximum depth of 1.5 feet below ground surface). The approved beneficial uses by physiographic province and distance from pavement are provided in the tables below.

Shoulder soil material with indications of contamination (e.g., staining, odor) or in proximity to known potential contaminant source areas (e.g., industrial facilities, service stations, agricultural land, and areas where road-side spraying has been done for weed control) is not included in this BUD.

ODOT hired Cascadia Associates, LLC to review existing data on shoulder soil material, perform sampling to supplement the data, and to provide a statistical analysis of shoulder soil material to examine concentrations of hazardous substances in highway shoulder soil in Oregon. The results of the evaluation and recommendations for soil management were presented in the *2017 Statewide Highway Shoulder Soil Evaluation Results Report*, prepared by Cascadia and dated June 30, 2017.

DEQ has determined that the beneficial use proposal meets the requirements for a case-specific Beneficial Use Determination (BUD) under Oregon Administrative Rule (OAR) 340-093-0260 through 340-093-0290. This BUD is issued to ODOT and local governments who contract with ODOT for road maintenance and is limited to the materials, approved uses, and conditions specified in the Tables below. The conditions of the BUD are intended to prevent adverse effects to human health and the environment.

DEQ's determination is based on a review of ODOT's application for beneficial use of highway shoulder soil, demonstrating the case-specific beneficial use performance criteria outlined in OAR 340-093-0290 are met for the approved uses. Details of DEQ's review are provided in the attached case-specific evaluation report.

Per OAR 340-093-0290(9), DEQ may modify or revoke this case-specific BUD at any time based on new information showing the potential to cause adverse impact to public health, safety, welfare, or the environment.

Tables 1 – 5: Approved beneficial uses by physiographic province and distance from pavement.

Table 1: Deschutes Columbia

Province: Deschutes Columbia			
Depth (ft bgs) ↓	**Distance from edge of pavement (ft)** →		
	0-15	**15-30**	**30+**
0-0.5	Non-residential construction fill	Non-residential construction fill	CFD
0.5-1.0	Non-residential construction fill	CFD	CFD
1.0-1.5 ↓	Non-residential construction fill	CFD	CFD

Table 2: Coast Range

Province: Coast Range			
Depth (ft bgs) ↓	**Distance from edge of pavement (ft)** →		
	0-15	**15-30**	**30+**
0-0.5	Non-residential construction fill	CFD	CFD
0.5-1.0	Non-residential construction fill	CFD	CFD
1.0-1.5 ↓	Non-residential construction fill	CFD	CFD

Table 3: High Lava Plains

Province: High Lava Plains			
Depth (ft bgs) ↓	**Distance from edge of pavement (ft)** →		
	0-15	**15-30**	**30+**
0-0.5	Non-residential construction fill	CFD	CFD
0.5-1.0	Non-residential construction fill	CFD	CFD
1.0-1.5 ↓	CFD	CFD	CFD

Table 4: South Willamette Valley

Province: South Willamette Valley			
Depth (ft bgs) ↓	**Distance from Pavement (ft)** →		
	0-15	**15-30**	**30+**
0-0.5	Non-residential construction fill	non-residential construction fill	CFD
0.5-1.0	Non-residential construction fill	CFD	CFD
1.0-1.5 ↓	Non-residential construction fill	CFD	CFD

Table 5: Other approved beneficial uses by physiographic province

Province	Entire area (0-30 ft from edge of pavement and 0-1.5 feet bgs)
Basin and Range	CFD
Blue Mountains	CFD
Owyhee Uplands	Non-residential construction fill
Cascade Range	Non-residential construction fill
Klamath Mountains	Non-residential construction fill
Portland Basin	Mine reclamation fill

Notes to Tables 1-5:

CFD = Make a clean fill determination using the most recently updated version of State of Oregon Department of Environmental Quality, *Internal Management Directive: Clean Fill Determinations.* For material requiring a CFD in the tables above, that is determined to not be clean fill, please contact the local DEQ materials management/solid waste specialist. This material is solid waste and may be disposed under a location-specific permit exemption, a solid waste letter authorization, or in a permitted landfill. The material also potentially may be reused under the authority of a separate Beneficial Use Determination.

Table 6: Conditions on use

Beneficial use	Conditions on use
All proposed uses	1. Concentrations of hazardous substances must be below the higher of DEQ-approved human health occupational risk-based screening levels or naturally occurring background for contaminants of concern. 2. Material must not have any indications of contamination (e.g., staining, odor). 3. Material must not have been in proximity to (i.e. has the potential to have been contaminated by) known potential contaminant source areas (e.g., industrial facilities or service stations). 4. Material must be free of organic material (grass, roots, etc.) 5. At least every 5 years ODOT shall re-evaluate data collected during the previous 5-year period. This re-evaluation will be to confirm existing approved beneficial uses and assess if the data supports additional or modified beneficial uses are warranted. One year prior to the end of each 5-year period, ODOT shall submit a workplan for the next 5-year evaluation period for DEQ review and approval. 6. ODOT must ensure the material is covered during transport. 7. Material must be managed in accordance with ODOT's Environmental Management System (EMS) Policy and Procedures Manual.
Non-residential construction fill. This is limited to the following uses: Commercial Agricultural Industrial Transportation	1. Material must not be used on lots zoned residential. 2. Material must be managed in accordance with an Erosion and Sediment Control Plan and best management practices at all times. 3. Material must be managed to prevent windblown dust, runoff and erosion at all times. 4. The material may not be placed where it will be in contact with or adversely impact groundwater or surface water. 5. Material use must comply with all applicable federal, state, and local regulations.

Beneficial use	Conditions on use
Soil Banking	6. Agricultural uses are limited to non-human food crops and in accordance with Oregon Department of Agriculture requirements. 7. Soil banking is limited to stockpiling on ODOT controlled property using ODOT BMPs established in the Environmental Management System (EMS) Policy and Procedures Manual.
Mine reclamation fill	1. Material use must be in accordance with an approved DOGAMI mining permit and fill/reclamation plan and operating plan. 2. Each site must receive DOGAMI approval prior to placement. 3. The material should not be used in any wetland mitigation required as part of mine reclamation. 4. Material must not be stored or used near water or wetland areas in such a way that would allow discharge to groundwater or surface water. 5. Material must be stored and managed to prevent nuisance conditions or releases to the environment such as dust, runoff, objectionable odors and unsightliness. 6. Material use must comply with all applicable federal, state, and local regulations.

If you have any questions or concerns please contact Heather Kuoppamaki (DEQ project manager) by phone at (503) 229-5125, or email at kuoppamaki.heather@deq.state.or.us. DEQ appreciates your cooperation in protecting Oregon's environment.

Sincerely,

Lydia Emer
Land Quality Division Administrator

Enclosure: Beneficial Use of Solid Waste Determination Evaluation Report (updated July 1, 2019)

Cc: Heather Kuoppamaki, DEQ NWR, kuoppamaki.heather@deq.state.or.us
Audrey O'Brien, DEQ NWR, obrien.audrey@deq.state.or.us
Brian Fuller, DEQ WR, fuller.brian@deq.state.or.us
Ron Doughton, DEQ ER, doughten.ron@deq.state.or.us

Impacts to Maintenance from DEQ's Beneficial use Determination (BUD) of ODOT Highway Shoulder Soils

Shawn Rapp (HazMat Program Lead) has obtained approval from DEQ for the beneficial use of highway shoulder soil as fill provided the material has not been collected from areas in proximity to contaminated sources. For the purposes of the beneficial use determination, **ODOT and DEQ have defined shoulder soil as soil outside of the highway pavement and within the highway right-of-way** (dirt like material collected from edge of pavement to edge of right-of-way)**.** It is primarily a construction document but there is enough flexibility that Maintenance can use it and the testing done to obtain the BUD supersedes prior guidance.

Prior guidance

1. In general waste from road under 30,000 ADT typically have low levels of pollutants.
2. DEQ approval must be obtained prior using potentially contaminated roadwaste on projects.
3. Potentially contaminated roadwaste (e.g. sweepings, Vactor® waste, or ditchings) must be characterized prior to use unless preapproved for beneficial use by DEQ.

Changes to Maintenance's management of roadwaste because of the BUD.

1. **We can no longer use low ADT as a method for justifying material is clean.** Statewide representative sampling completed to obtain the BUD has shown there is no positive correlation between ADT and the level of contamination in highway shoulder shoulders. Roads under 30,000 ADT could have high levels of pollutants and roads with greater than 30,000 ADT could have low level of pollutants. Proximity to contaminant sources (e.g. crashes, wildfires, or adjacent pollutant sources) may increase contamination levels. General use limitations and allowances differ by physiographic provinces. The presence of contaminants can limit or eliminate future use options.
2. **DEQ has pre-approved the use of shoulder soils as fill in many (but not all) cases.** Fill has several different classifications. For Maintenance, fill will fall into four types: clean fill, non-residential fill, mine reclamation fill, and material not suitable for fill. Clean fill is the most stringent. Clean fill can be used in any location including areas with children. Mildly to moderately contaminated material may be used as non-residential fill. Non-residential fill can be used in transportation, commercial, and industrial zones and on non-food crop agriculture. Some of these options vary, depending on physiographic province. Moderately contaminated material (i.e. in the Portland area) may be used in as fill in mine reclamation. Heavily contaminated material is not suitable for fill.

Highway shoulder soils may be used as fill on ODOT right-of-way without testing. *This is called out in the Geo-Environmental Directive and is not directly specified in the BUD but is expected to remain the same.* That being said the level of pollutants in material collected in proximity to contaminant sources particularly material collected from ultra-urban areas has potential to be hazardous waste or potentially unsafe for workers. Using hazardous waste as fill is not allowed under any circumstances.

Because the use of highway shoulder soils as fill has been approved by DEQ we should be able to give excess material to others. A clean fill give-away form was approved by DOJ in 2012. The intent of the form is to limit ODOT's liability when placing surplus material on private property. Liability risks are associated with the placement of material (e.g. in wetlands) and pollutant contamination. Sampling has determined that in many areas the material collected near surface-near edge of pavement does not qualify as clean fill though in most locations the material has been approved as non-residential fill. DOJ has approved the updated form that allows highway shoulder soils to be given away for use in the broader non-residential fill application allowed under the BUD.

3. **Characterization is still required for potentially contaminated materials if the material or the use is not specified in the BUD.** For example, testing is needed if shoulder soils collected from the Owyee Uplands or near contaminant sources (e.g. crashes, wildfires, or adjacent pollutant sources) will not be used on ODOT right-of-way. Additional testing may also be needed if the proposed fill use is more stringent than approved by the BUD (e.g. giving material approved for non-residential fill to a residential owner).

Materials picked up from the road surface (e.g. sweepings and recovered abrasives) and materials collected from catch basins have not been pre-approved by DEQ for use as fill under the BUD. The pollutant levels in these materials cannot be reliably determined by ADT, land use, or particle size. In general, these materials are not structurally suitable for many maintenance activities that require fill. There is a separate BUD for sand picked up from the road surface if it will be reused for road sanding. Reuse as road sand requires removal of litter and the material should meet specs for abrasives. Landfill disposal is currently allowed but is prohibitive in both disposal cost and management cost. Other uses for these materials have not been identified. Representative sampling of stockpiled material could determine if perusing a beneficial use determination for these materials is worthwhile.

The Roadwaste Chart in the EMS Manual and the Blue Book has been updated. Updated versions of the EMS Manual and the Blue Book will be distributed later this year. The guidance is significantly more detailed than previous versions; however there is a handy one-page summary table.

PERMISSION TO PLACE FILL MATERIAL ON PRIVATE PROPERTY

ADDRESS OF FILL LOCATION:

OWNER'S NAME: TELEPHONE NUMBER:

OWNER'S MAILING ADDRESS:

I HEREBY CERTIFY THE FOLLOWING:

1. I am legal owner of record (not a renter or lessee) of the property identified below.
2. I request that the Oregon Department of Transportation (ODOT) place fill material on said property. At that time I will assume possession and responsibility for the fill material.
3. I understand that the fill material I am receiving may have been removed from highway shoulders including ditches, that DEQ has approved a beneficial use of ODOT highway shoulder soils as fill, and that the State offers no warranty regarding the cleanliness of this material.
4. I understand that it shall be my sole responsibility to specify the location where I want fill material placed by the State, and to specify the route the State is to utilize to cross my property to get to the specified location.
5. I understand that Federal and State laws apply to placement of fill material and it can be illegal to place fill material in wetlands, waterways, or on a known archeological site. I certify that I shall not designate any area for fill that violates Federal or State fill placement laws.
6. I agree that I will indemnify and hold harmless the State for any damages or costs or liabilities incurred by myself, my property, or any other entity by the State's performance pursuant to this request.

OWNER'S SIGNATURE: DATE:

RECEIVED AND APPROVED BY SECTION SUPERVISOR : DATE:

Fill to be Placed at: HIGHWAY: MILEPOST:

OTHER DESCRIPTION NECESSARY TO FIND PROPERTY:

TO BE FILLED IN WHEN OPERATIONS ARE COMPLETED:

The fill placement has been completed to my satisfaction:

OWNER"S SIGNATURE: DATE:

RECEIVED BY SECTION SUPERVISOR: DATE:

ESTIMATED NUMBER OF FILL YARDS: SOURCE AND TYPE OF FILL MATERIAL:

Section Divider

Section Divider

Appendix N - Oregon State Fire Marshal

Annual Fire Marshal Report: Online Reporting

For more information on Community Right to Know Reporting visit the Oregon Fire marshal webpage

https://www.oregon.gov/osp/programs/sfm/Pages/Community-Right-To-Know.aspx

Fuel Storage: Aboveground Tank Application and Installation Guidelines

1 When Do We Report to the Fire Marshal's Office?

- Annual reports due by March 1.
  - Report storage for the previous calendar year (January 1-December 31.) See section 4.3 for examples of things we report.
  - If the contact information of your facility is correct you should receive an email from the Fire Marshal's office reminding you to go online and complete the report.
- Substantive changes: Report any substantive change within 30 days of the change.
  - A change of ownership or business name.
  - A change of site address or mailing address.
  - Phone number changes.
  - Change of emergency contact person.
  - Introduction of new substances to the site in reportable quantities not previously reported.
  - An increase in amount of a substance being stored.
  - A substance that moved to another building, another floor level, or 300 feet or more from its originally reported location.

2 Getting Logged in

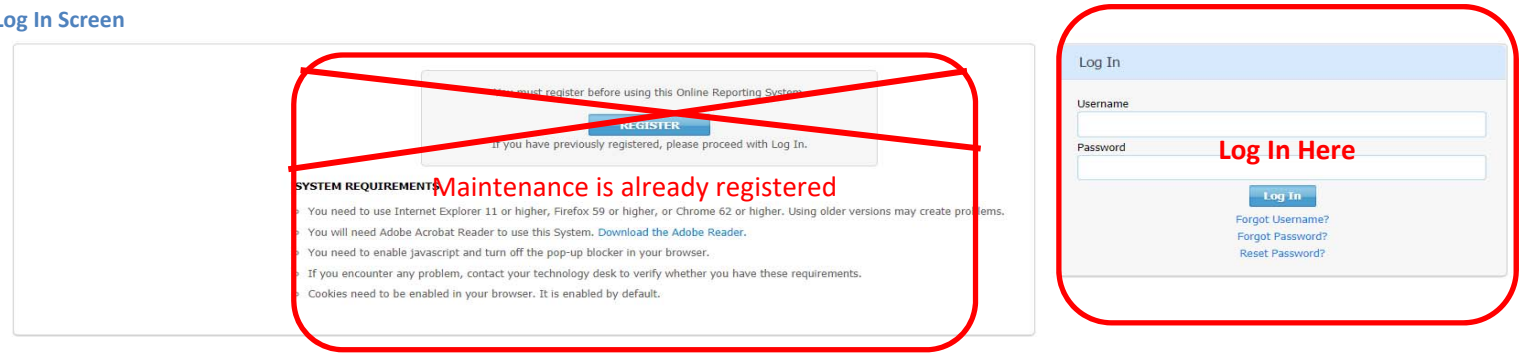
Go to https://oregon.hazconnect.com/Account/Login.aspx

Do not register individually. All the ODOT maintenance facilities are under one user account.

Username: **highways**
Password: **ODOTcr2k**

- The system won't let multiple people sign in at the same time. If it won't let you log in someone else is probably entering data. Please be courteous about logging off when you are finished.
- Do NOT reset the password. If you do it will lock all the other crews out of the system.

Figure 1: Log In Screen



3 Finding your Facility

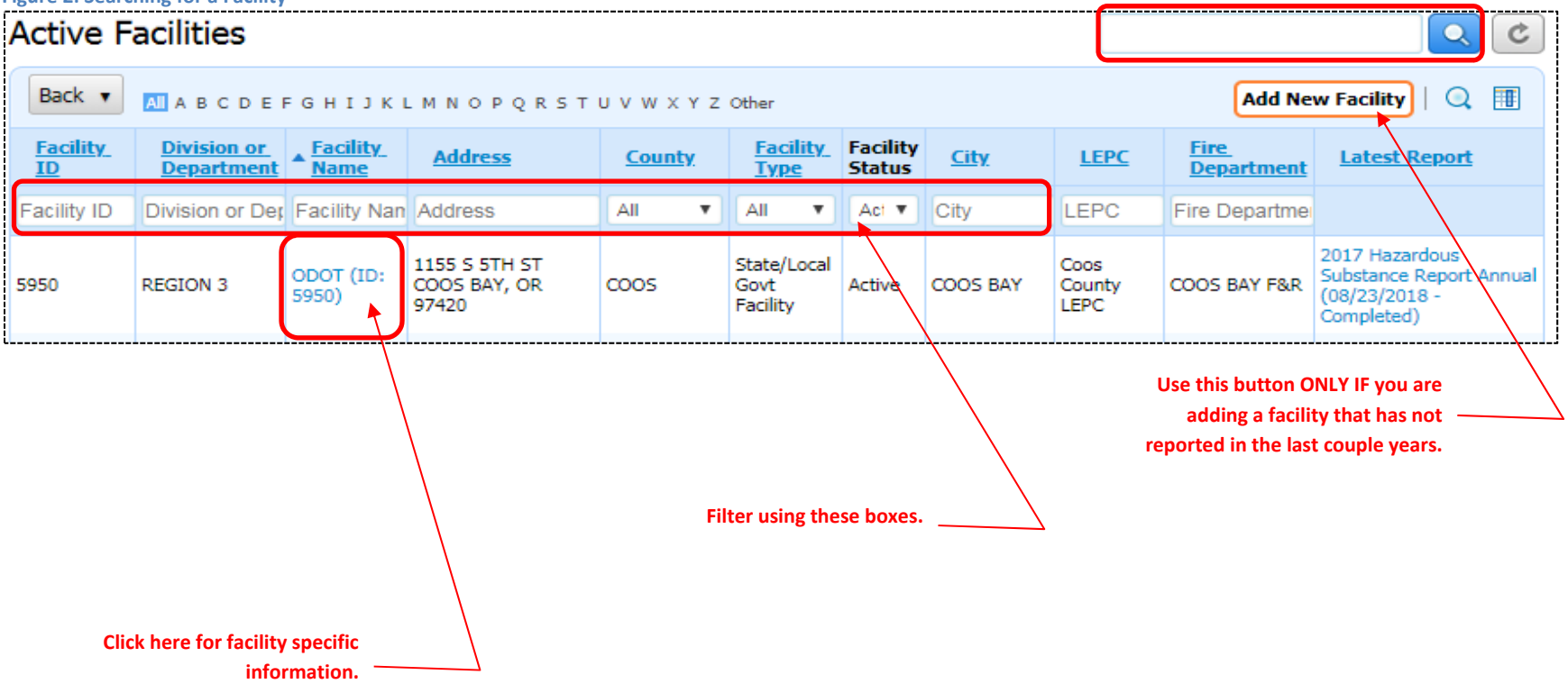
Click Facilities Tab -> List Facilities

You can scroll down the list or filter by any of the columns to shorten the list or search for things like street or zip code.

Click the blue highlighted link to your facility.

- If the system is over-loaded all the facilities vanish from the List Facilities. Give it a half minute and try clicking on List Facilities again.
- There are 121 facilities. If each report takes 15 minutes to complete that is over 30 hours' worth of data entry. **Don't wait until the last minute to do the annual report.**

Figure 2: Searching for a Facility



4 Completing an new Annual Report

If you no longer store materials over the reportable quantity refer the Section on Changing Facility Status.

In January or February of each year submit a report for materials that were stored onsite during the previous year.

The Report are due by March 1st.

There should be a list of the reports that have been submitted for your facility.

Click Add a New Annual Report.

Figure 3: Starting a new annual report

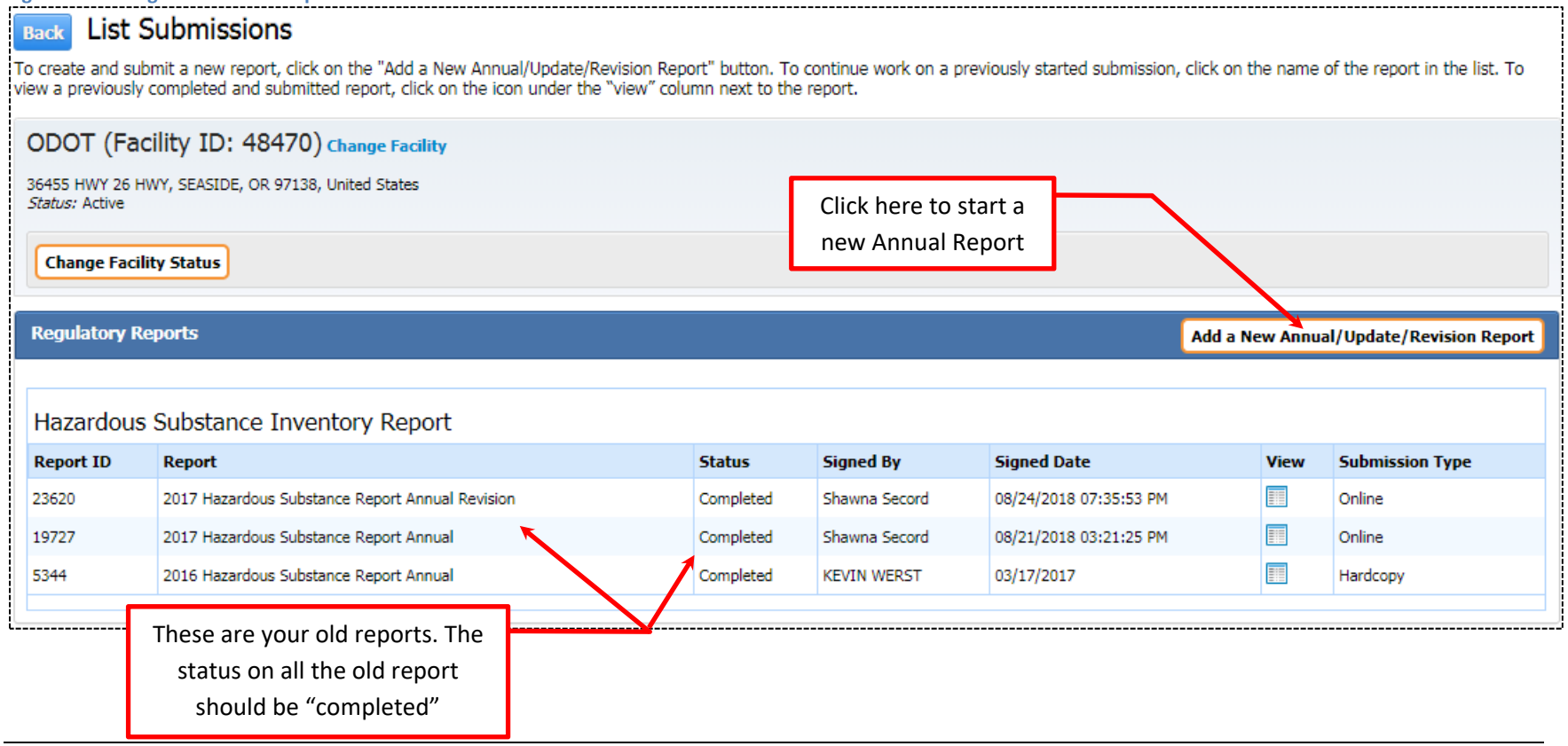
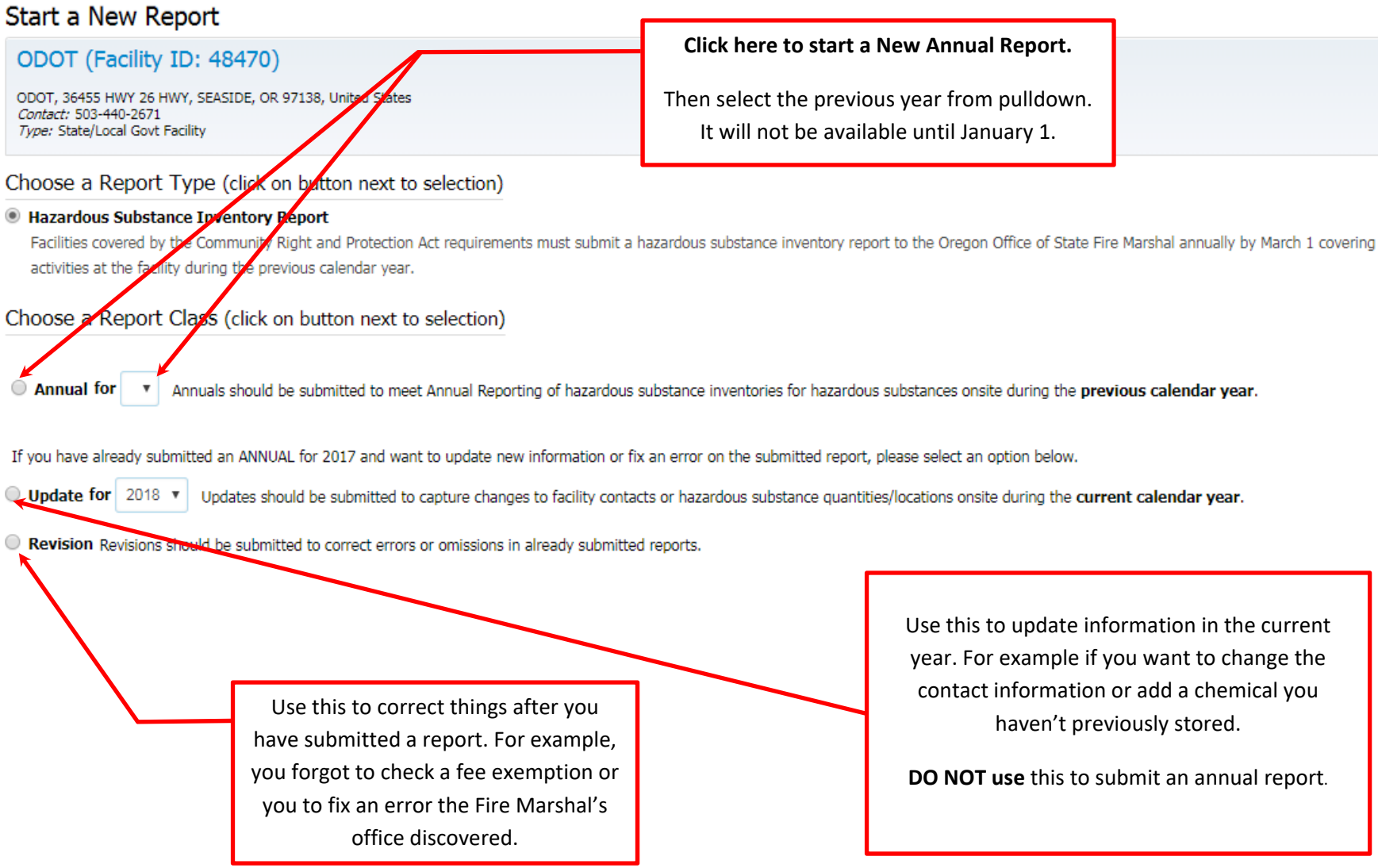
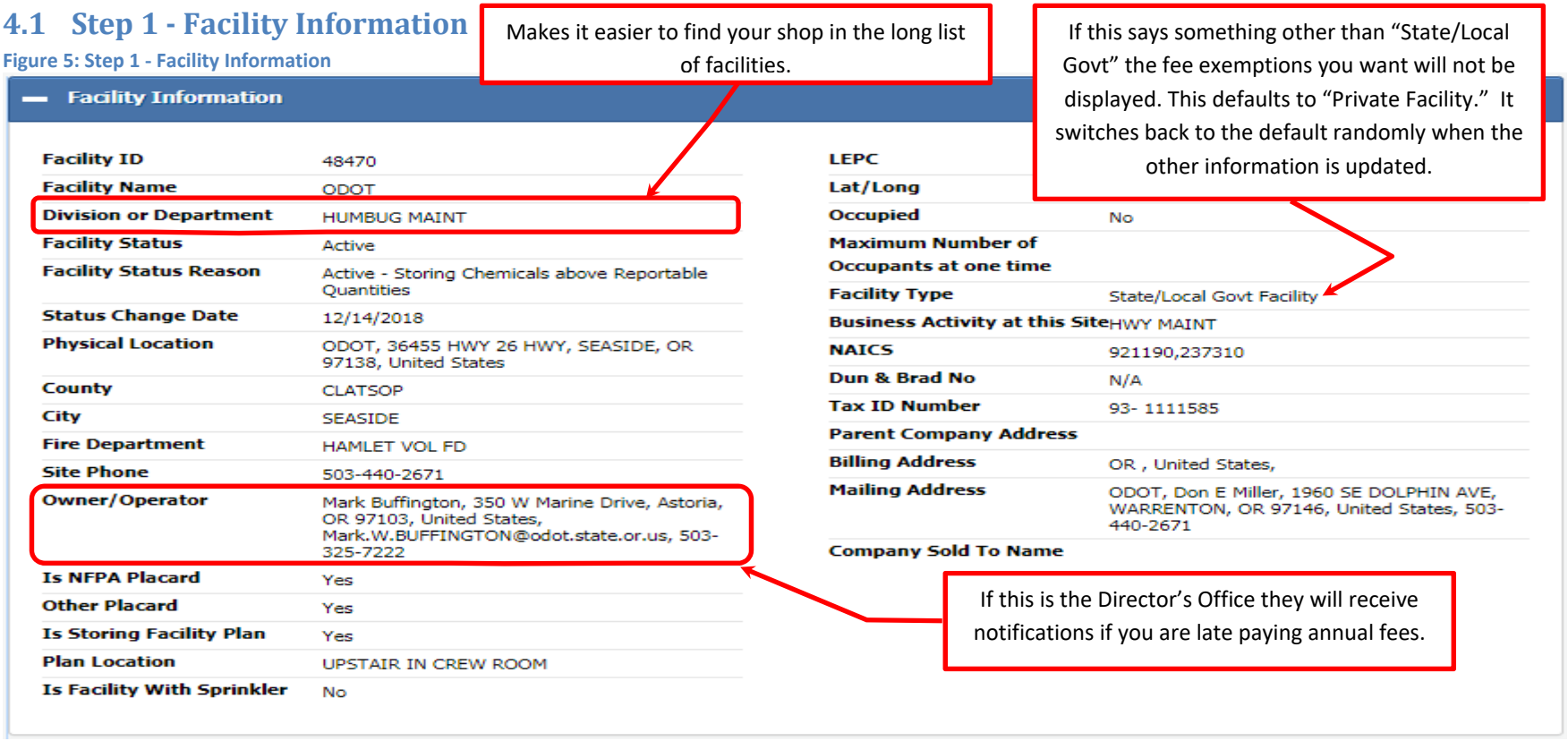


Figure 4: Choosing which report to complete



4.1 Step 1 - Facility Information

Figure 5: Step 1 - Facility Information

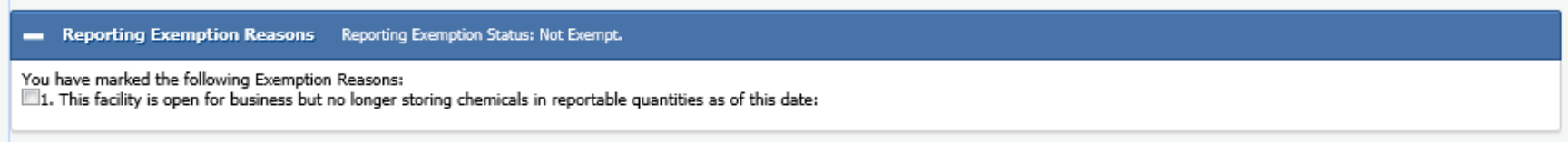


Facility ID: identification number assigned by the Fire Marshal's office
Facility Name: We are all **ODOT**
Division or Department: Who are you within ODOT. Typically this is your section name.
Owner/Operator: This should be the District office. This should NOT be the Director's office.
NFPA placards: Yes if the four colored diamonds are used on anything (like fuel tanks).
Other Placard: Yes if some signage is used instead of or in addition to NFPA diamonds like warning (flammable) or HMIS (square four colored).
Lat/long: TransGIS has this if you don't know.
Facility Type: All should be **State/Local Govt**
Tax ID Number: All should be **93-1111585**
Billing address: Where you want the bills from the Department of Revenue to be sent.
Mailing address: Where you want the notices other than bills to be sent.

4.2 Step 2 – Exempt from Reporting

Check this box if no materials are stored onsite above the threshold amount during the PREVIOUS year. **An annual report must be filed for three year after the inventory is reduced.**

Figure 6: Step 2 - Exempt from Reporting



4.3 Step 3 - Chemical Inventory

4.3.1 Things to Report

Materials stored **onsite for more than 24 hours if the maximum on any day is more than the threshold** (500 gallons, 500 cubic feet, or 500 pounds). This is NOT an average.

- Liquids stored in the quantities greater than 500 gallons.
  - Bulk fuel – using the tank size is fine
  - Propane – **use the 80% volume NOT the tank size**
  - Liquid deicer - using the tank size is fine
  - Striping paint –by type – colors do not need to be reported individually
  - Epoxy – by type
  - Herbicide – per chemical
- Gases stored in the quantities greater than 500 cubic feet.
  - Welding gases – per gas – including inert gasses
- Solids stored in the quantities greater than 500 pounds.
  - Flares / fusees
  - Cold mix
  - Perma-patch
  - Concrete
  - Thermoplastic

4.3.2 Exceptions – Things you DO NOT report

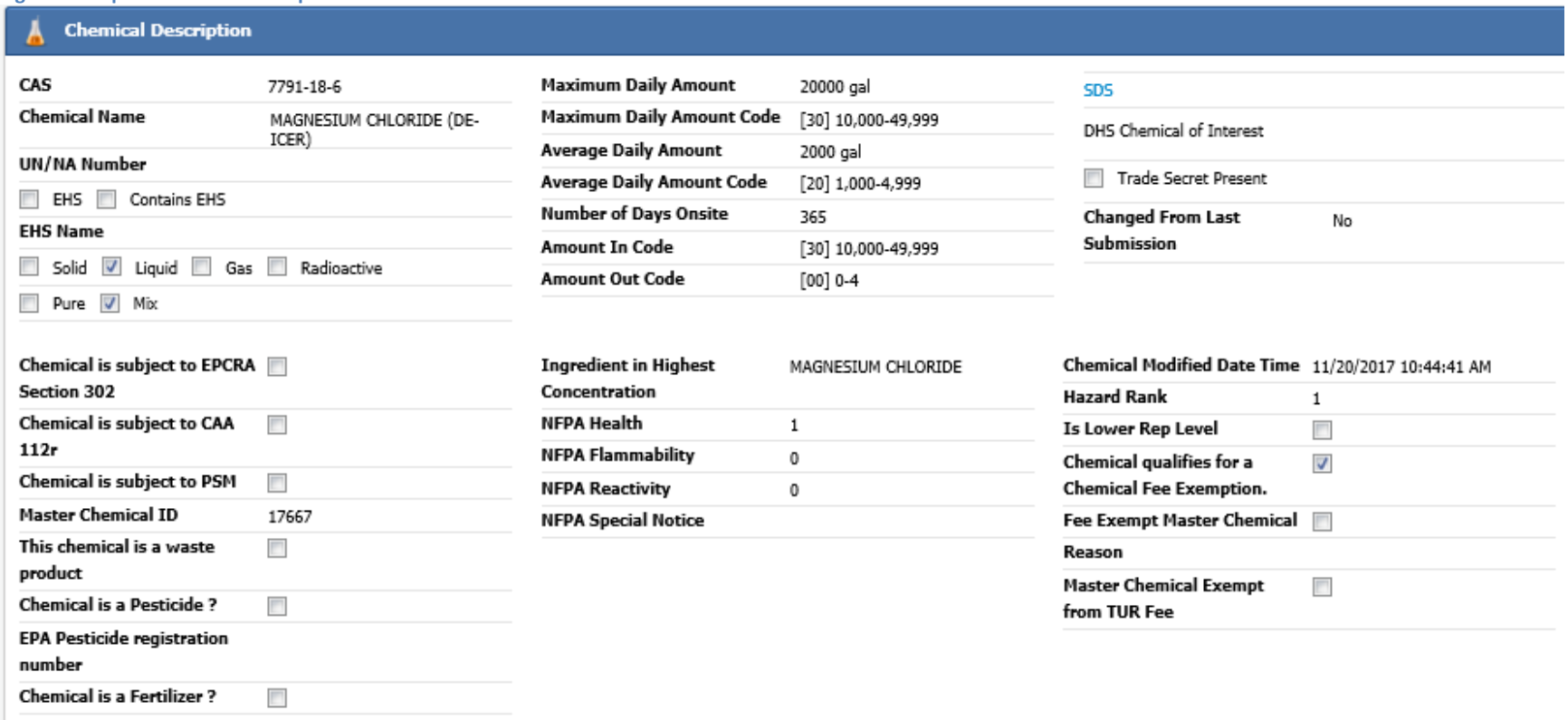
Please do NOT voluntarily report materials stored under the threshold amount or non-reportable substances. Things that are not reportable include:

- Any material stored in road ready containers. Road ready containers have wheels under them. Examples
  - Trailers
  - Deicer tanks mounted in truck beds.
  - Propane on mounted to hot boxes
- Any material where the vendor has voluntarily created a SDS. Manufacturers are required to create an SDS if there is a known physical or health hazard associated with the material. If there is no physical or health hazard the manufacturer may create a SDS voluntarily. **Voluntary SDS will state NO known hazard AND will have zeros in all the rating categories for both NFPA and HMIS.** If any of the hazards are greater than zero the material needs to be reported even if the language says there is no known hazard. Examples of voluntarily created SDSs include:
  - Solid salt – bagged and bulk
  - Aggregate
  - Abrasives
  - Glass beads

4.3.3 Chemical Description – Limited to Chemicals Loaded into the System

- Search by chemical name. Pick the one that matches the chemical stored onsite. This will automatically load hazard and other information.
- If you can't find one that matches you can have the Fire marshal's Office it added to the database but it takes a few days.
- Compressed gases are typically the only material that ODOT uses that is pure. Most materials are mixed.
- SDSs are in a folder on the shared drive.

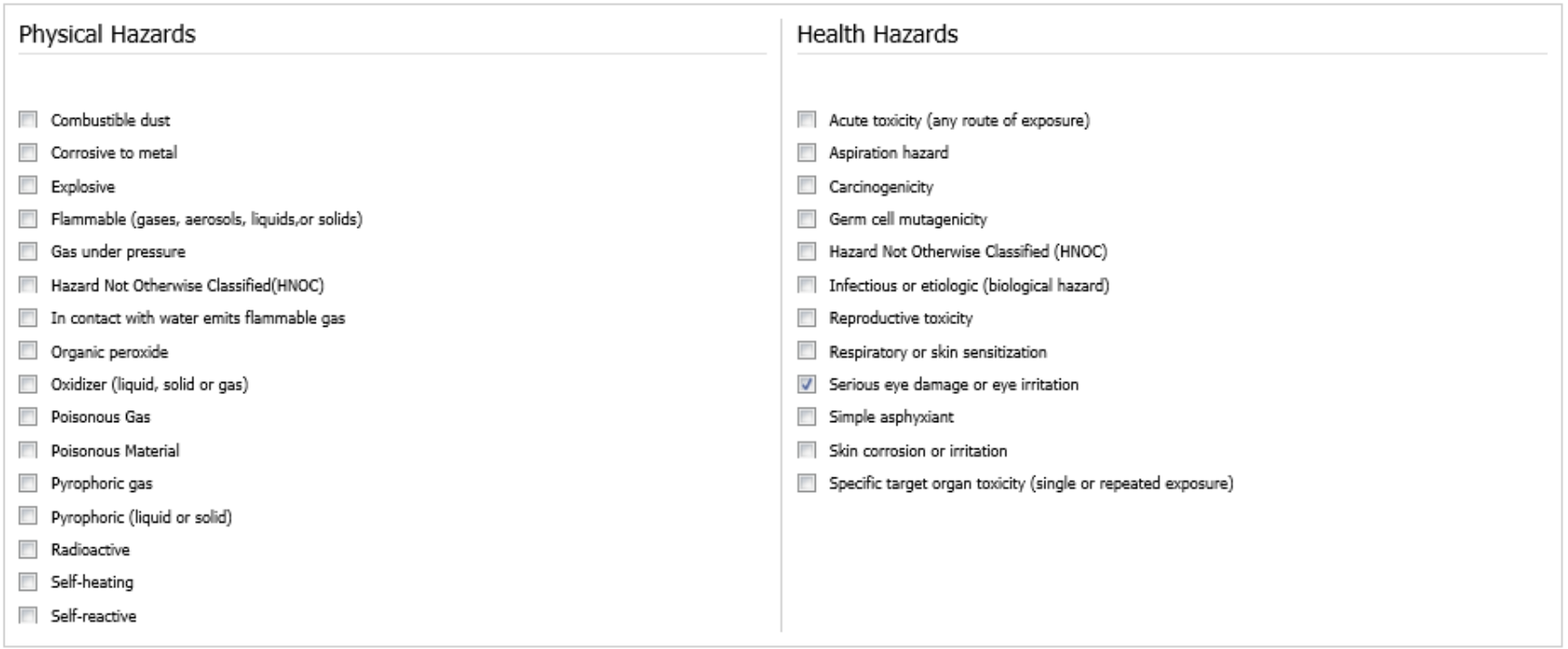
Figure 7: Step 4 - Chemical Description



4.3.4 Hazards

- Make sure the checked physical and health hazards match the SDS. For several materials the program seems to randomly choose hazards. Uncheck the ones that don't apply and check the ones that do.
- Hazards will be specifically stated in the Hazard Identification section of the SDS. **Do not add hazards that aren't listed in the Hazard Identification Section of the SDS**. There are specific criteria/definitions for these hazards. The manufacturer will discuss risks and safeguards in other sections of the SDS.
- The online report uses "ambient" instead of the word "normal" that was in the paper report. Most materials are stored at ambient temperature and pressure meaning they are stored the same as the other things in their immediate area. Materials that need to be kept in heated buildings (like traffic paint) are still considered stored at ambient temperature. The exceptions are propane and compressed gas which are greater than ambient pressure.

Figure 8: Step 4 - Physical and Health Hazards



4.3.5 Federal Hazards

It is rare for an ODOT facility to have answers different than below.

Figure 9: Step 4 - Federal hazards

Community Right to Know and Protection Act (ORS 453.307 to 435.414) (Annual Inventory)?	☑ Yes ☐ No
Subject to Emergency Planning under Section 302 of EPCRA (40 CFR part 355)?	☐ Yes ☑ No
Subject to Section 112r of Clean Air Act (CAA)? RMP Facility ID:	☐ Yes ☑ No
Subject to EPCRA Section 313 (Toxic Release Inventory - TRI)?	☐ Yes ☑ No
Subject to Process Safety Management (PSM) substance requirements of OR-OSHA	☐ Yes ☑ No

4.3.6 Fee Exemptions

Mark all the fee exemptions NO then.

- Change #3 to YES - If the material is a petroleum product - Oil, fuel, kerosene
- Change #4 to YES - If the material is propane – *this reduces but does not eliminated the fee*
- Change #17 and #18 to YES - If the material is required to maintain the highway – striping, paving/potholes, herbicides, deicer, bridge sealants, concrete, flares – *these exceptions will only be available if the facility type is state/local govt.*

ODOT has fee exemptions in the following groups: herbicides, paving, bridge maintenance, traffic line/striping, winter maintenance, and emergency management.

Fuel and other petroleum products have a statewide fee exemption (not limited to ODOT).

ODOT does NOT have fee exemptions for propane, automotive batteries, or other materials that are not directly used on the highway. If these materials are stored above the threshold you will be charged a fee each year. The fee amount is based on what and how much you store.

4.3.7 Inventory and Storage

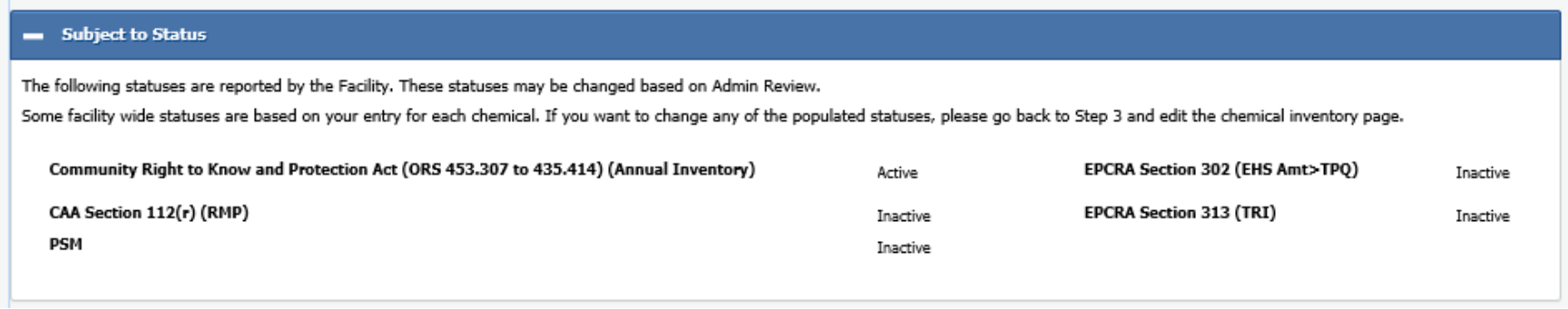
This does not have to be exact. Use best estimate.

- ***Max amount:*** The greatest amount that was onsite at one time during the previous year.
- ***Amount In:*** How much material came to the facility during the last year. Three 7,000 gallon deliveries of deicer to a 10,000 gallon tank = 21,000 gallons in.
- ***Amount out:*** How much of the material was sent offsite in its original form (amount used in maintaining the highway).

4.4 Step 4 - Subject to Status

These will automatically adjust based on the answers provided in the Federal Hazards section of the Chemical Inventory. If it doesn't match the status below something probably needs to be adjusted in the inventory.

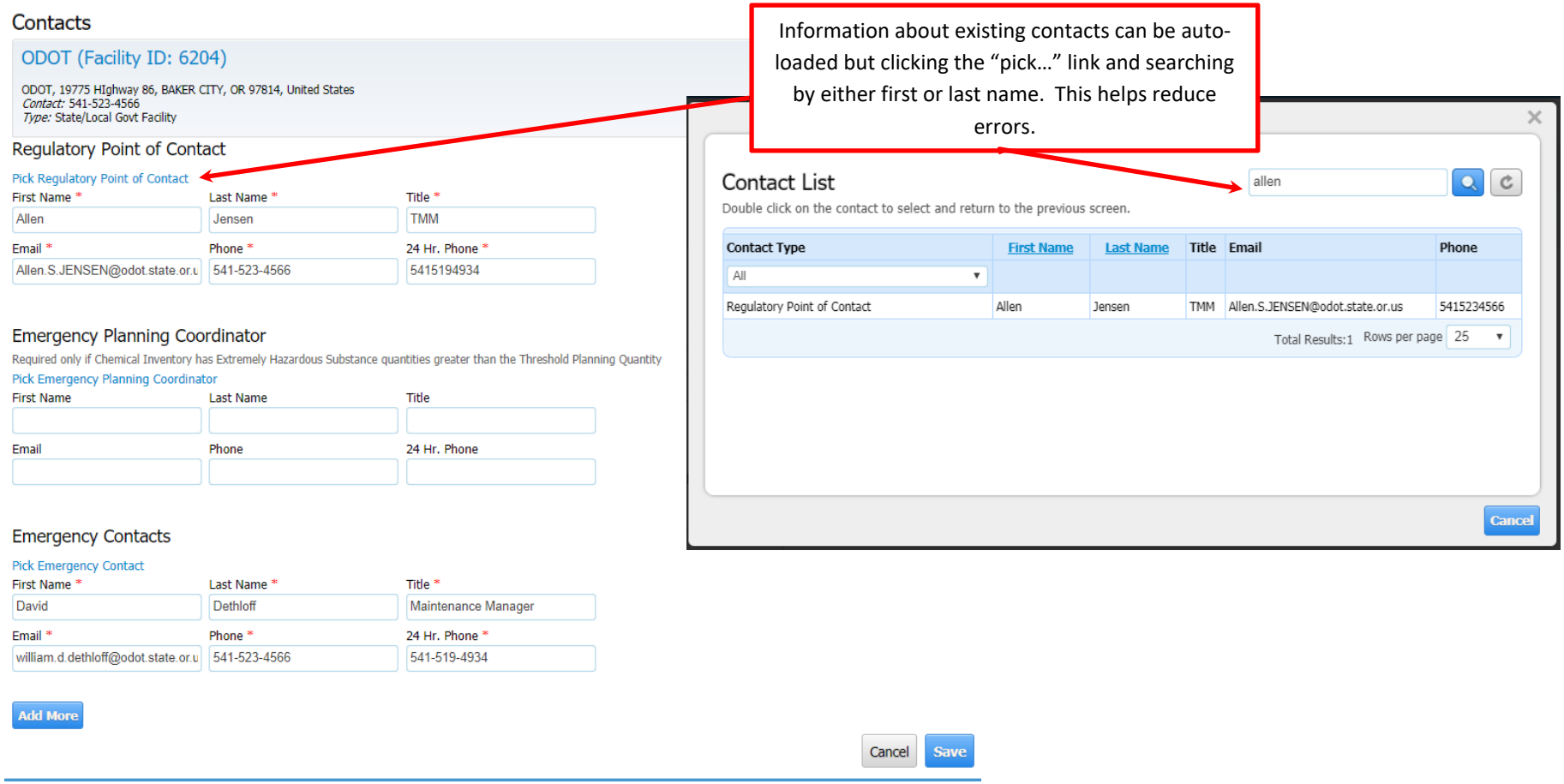
Figure 10: Review of Federal Hazards



4.5 Step 5 – Report Contacts

- The **Direct Contact** is who receives non-urgent calls. Typically the office number.
- The **Emergency Contact** number is who the first responders should call if they are responding to an event at the facility. Multiple contact are allowed.
- The **Regulatory** Contact is the person who receives the emails and reminders from the Fire Marshal's office. **One per facility.**
- The **Mailing Address** is where the bills from the Department of Revenue go.
- Owner is the DM/District or equivalent.
- Parent company is ODOT Headquarters (355 Capitol Street NE, MS 11, Salem, OR 97301) *The online program seems to randomly decide this is required. Leave it blank unless the program won't let you proceed without entering it*.

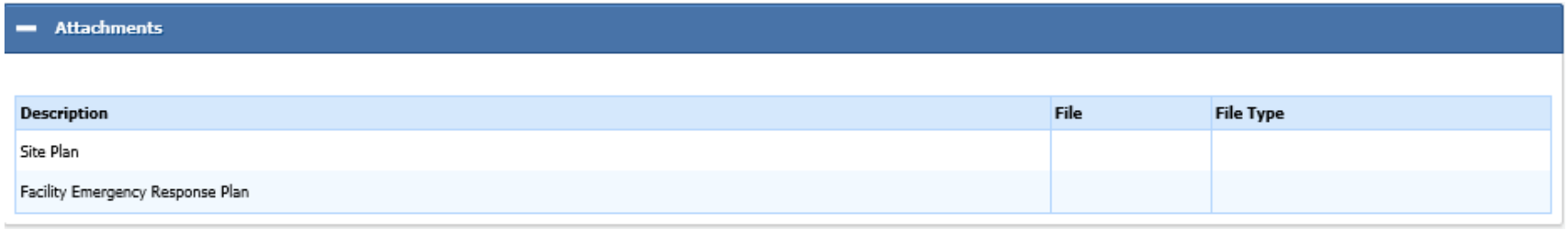
- Once contact information is loaded into the system


Contacts
ODOT (Facility ID: 6204)
ODOT, 19775 HIghway 86, BAKER CITY, OR 97814, United States
Contact: 541-523-4566
Type: State/Local Govt Facility
Regulatory Point of Contact
Pick Regulatory Point of Contact
First Name *
Allen
Last Name *
Jensen
Title *
TMM
Email *
Allen.S.JENSEN@odot.state.or.u
Phone *
541-523-4566
24 Hr. Phone *
5415194934
Emergency Planning Coordinator
Required only if Chemical Inventory has Extremely Hazardous Substance quantities greater than the Threshold Planning Quantity
Pick Emergency Planning Coordinator
First Name
Last Name
Title
Email
Phone
24 Hr. Phone
Emergency Contacts
Pick Emergency Contact
First Name *
David
Last Name *
Dethloff
Title *
Maintenance Manager
Email *
william.d.dethloff@odot.state.or.u
Phone *
541-523-4566
24 Hr. Phone *
541-519-4934
Add More
Cancel
Save
Information about existing contacts can be auto-loaded but clicking the “pick…” link and searching by either first or last name. This helps reduce errors.
Contact List
allen
Double click on the contact to select and return to the previous screen.
Contact Type
First Name
Last Name
Title
Email
Phone
All
Regulatory Point of Contact
Allen
Jensen
TMM
Allen.S.JENSEN@odot.state.or.us
5415234566
Total Results:1
Rows per page
25
Cancel

4.6 Step 6 - Attachments

Attach stuff if you want to assist First Responders in there is an event at the facility but extra information isn't required to submit the report.

Figure 11: Adding Extra Information



4.7 Step 7 - Fee Summary

The program will notify you if there will be a fee before you finalize the report. If all the materials stored onsite are fee exempt this Step 7 will be the Certification.

A fee letter from the Department of Revenue will come in the mail.

If you don't think you should be getting a fee or the fee seems very high. Recheck the fee exemptions in the Chemical Inventory section or call MOB (503.731.8493).

4.8 Step 7 - Certification

Click submit

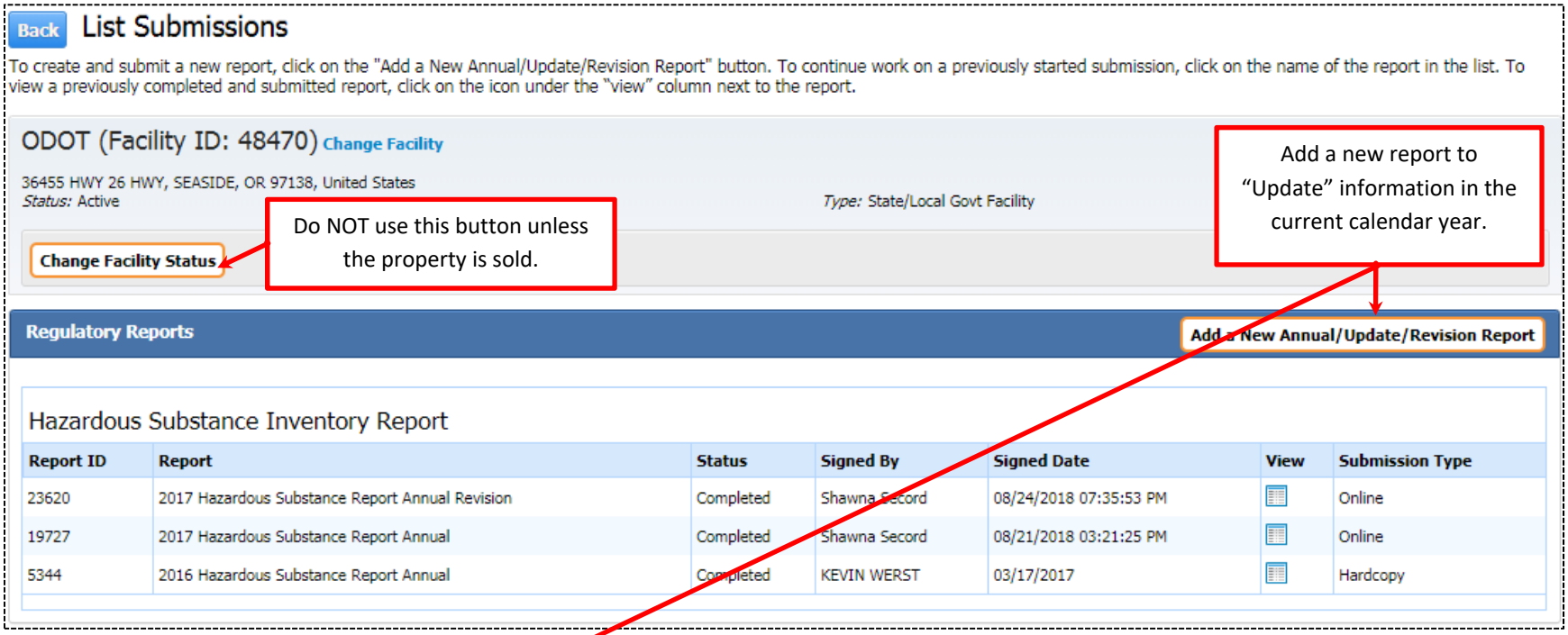
5 Changing Facility Status: Active or Inactive

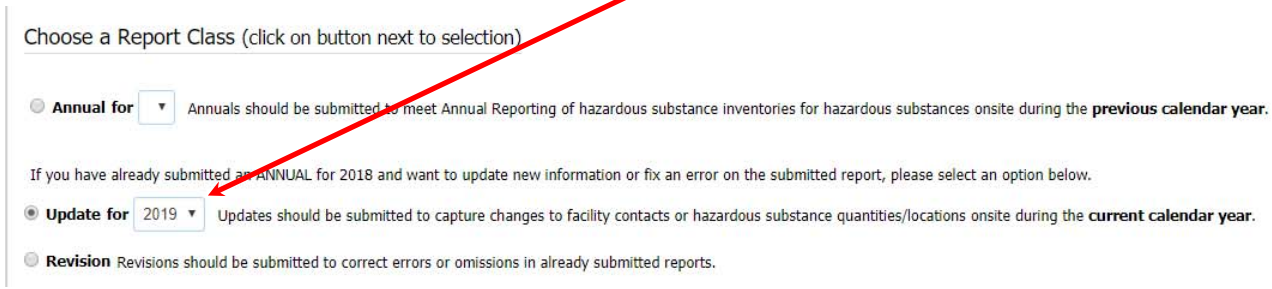
This filing is required each year until you have reported exempt for three consecutive years.

6 Changing Contact Information Mid-Year and Other Substantive Changes

Log into the online system. See Section 2.

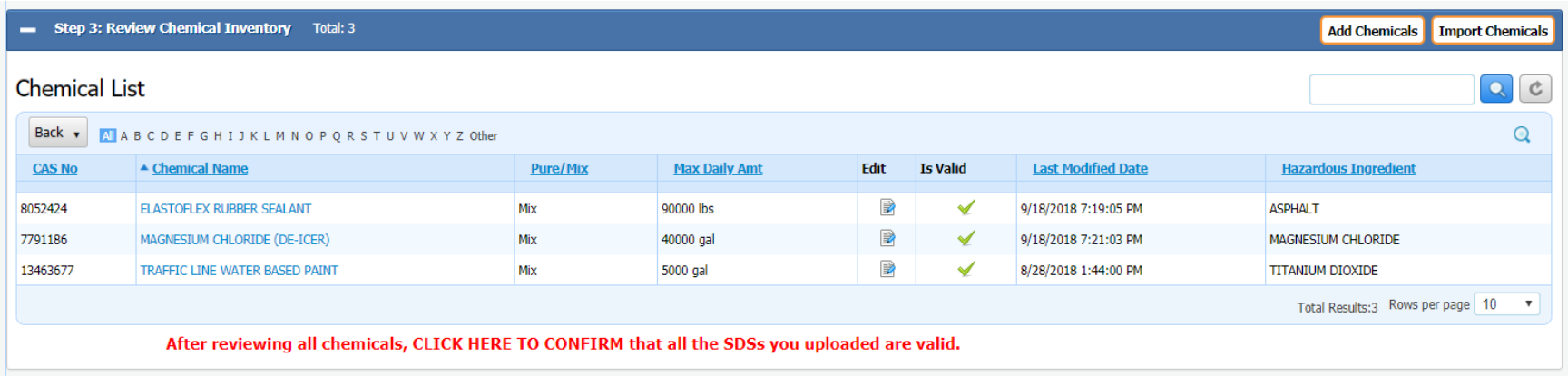
Find your facility. See Section 3.





Contact information is located in Step 1 and Step 4 of the online form. Change in the information in both places.

The SDSs have to be confirmed every time a new report is created. If nothing has changed click to confirm.



FUEL STORAGE

Aboveground Tank Application and Installation Guidelines

formerly titled ***Motor Vehicle Fuel Storage and Dispensing Guidelines***

Introduction

The intent of this document is to provide a user friendly resource of the requirements for the installation of above-ground flammable and combustible liquid storage tanks for **MOTOR VEHICLE FUEL DISPENSING** for fire service, the general public, and industry in the State of Oregon.

We hope that you will find this guideline to be a useful resource to the installation and use of above-ground flammable and combustible liquid tanks for fuel dispensing.

Background – Regulations for storage and dispensing of motor vehicle fuels from above-ground storage tanks (ASTs) within the State of Oregon are found in the *2014 Oregon Fire Code*, which is an amended version of the *2012 International Fire Code*.

Building Department Requirements – Consult with the local planning and building department for additional requirements that may apply.

Plan Review Requirements – Prior to installation and operation when an AST has a capacity of more than 1,000 gallons, single or aggregate, two sets of plans shall be submitted to the Office of State Fire Marshal for review. Plans shall include details for all applicable provisions.

Inspection Requirements – When tank installation is complete, a final inspection is required prior to filling. Contact Office of State Fire Marshal for an appointment.

Questions for farm installations, construction projects, vaults or requests for additional information can be directed to:

Office of State Fire Marshal, Codes and Technical Services Unit, 3565 Trelstad Ave SE, Salem, OR 97317
Ph. (503) 934-8204

TABLE OF CONTENTS

STATE FIRE MARSHAL APPLICATION TO INSTALL ABOVE GROUND TANKS..... **Section 1**

STATE FIRE MARSHAL INSTALLATION GUIDELINES..... **Section 2**

ABOVE GROUND TANK ILLUSTRATIONS…… **Section 3**

Section 1

Application

APPLICATION TO INSTALL Flammable/Combustible Liquid Aboveground Tanks

Flammable/Combustible Liquids - *To install tanks for the storage of flammable or combustible liquids* ***above-ground*** *in* ***excess of 1,000 gallons*** *in either individual or aggregate quantities as specified in Oregon Fire Code Section 5701.6*

Incomplete applications will automatically be rejected

✸ **ALL INFORMATION MUST BE PROVIDED AND ALL NECESSARY SIGNATURES MUST BE OBTAINED** ✸

LOCATED ON PREMISES KNOWN AS: _____

SITE ADDRESS _____
Street

_____ _____ _____
City ZIP County

_____
Nearest Cross Street / Road

Note: Flammable liquids have a flash point *below* 100°F.
Combustible liquids have a flash point *at or above* 100 F.

Flammable Liquids:
Quantity in gal

Combustible Liquids:
Quantity in gal

Select Appropriate Response from Drop down — Type of Business

Required Items to Submit: **TWO (2) SETS** of plans shall accompany this application to include: Necessary specification or cutsheets, documents and drawings showing details of design and construction including support, structures, piping, valves, tank capacities, spill and drainage control, secondary containment, fire protection, physical protection and security.

PLANNING-ZONING

▲ **PRINT** name of Planning/Zoning Official

Mailing Address of Planning/Zoning Official

City, State, Zip Code — Telephone #

Email address

SIGNATURE of Planning/Zoning Official — Date

INSTALLER INFORMATION

▲ **PRINT** name of Company Installing Tank

Mailing Address

City, State, Zip Code — Telephone #

Email address

FIRE DEPARTMENT

▲ **PRINT** Fire Department Name

Mailing Address of Fire Department

City, State, Zip Code — Telephone #

Email address

SIGNATURE of Fire Chief or Fire Marshal — Date

APPLICANT INFORMATION

▲ **PRINT** name of Applicant Applying for Permit

Mailing Address of Applicant

City, State, Zip Code

Telephone Number

Email address

SIGNATURE of Applicant — Date

NOTE: ***It is the responsibility of the applicant to ensure that this installation shall be in full compliance with applicable statutes of the state of Oregon and any local codes and ordinances.***

Submit completed application packet to:

OFFICE of STATE FIRE MARSHAL 3565 Trelstad Avenue SE, Salem, Oregon 97317 OSFM.FLSS@state.or.us Phone: 503-934-8256

Revised 6-2017

Section 2

Installation Guidelines

INSTALLATION GUIDELINES

Tank Design Criteria – Above-ground storage tanks shall be designed, fabricated and constructed in accordance with nationally recognized standards. For the purpose of the *Oregon Fire Code*, the following standards are recognized:

- UL 142 – Non-protected Tanks
- UL 2085 – Protected Tanks

Piping

- All piping is required to be designed and fabricated from suitable materials having adequate strength and durability to withstand the pressure, structural stresses and exposure to which they can be subjected.

- All piping is required to be tested before being placed in service. Hydrostatic testing is required to be 150 % of the maximum anticipated pressure of the system, or pneumatic testing is required to be 110 % of the maximum anticipated pressure of the system when operating, but not less than 3 psi and not more than 5 psi.

- All under ground piping shall be properly designed, installed and maintained, and protected from corrosion by either a cathodic protection system or by being constructed of corrosion-resistant materials.

Quantity Of Fuel To Be Stored

- UL 142 (Non-protected Tanks) – 6,000 gallons individual shell or 18,000 gallon aggregate capacity.

- UL 2085 (Protected Tanks) – 12,000 gallons individual shell or 48,000 gallons aggregate capacity.

> **NOTE:** Tanks containing Class II or III-A liquids may be of greater capacity as approved by the *fire code official*.

Vehicle Impact Protection – Protection shall be provided when tanks are subject to vehicle impact. When guard posts are installed, the posts shall be:

- Constructed of steel, not less than 4 inches in diameter, and concrete filled.
- Spaced not more than 4 feet between posts on center.
- Set not less than 3 feet deep in a concrete footing of not less than a 15 inch diameter.
- Set with the top of the post not less than 3 feet above ground, and
- Located not less than 3 feet from the protected object.

Separation Of LP-Gas Tanks – The minimum horizontal separation between an LP-gas container and a Class I, II or III-A liquid storage tank shall be 20 feet.

Separation Requirements

NON–PROTECTED TANKS – UL 142

Tank Capacity (Gallons)	Property lines or opposite side of a public way (feet)	Near side of public way or important building (feet)	Distance between tanks (feet)
ALL	100	50	3

PROTECTED TANKS – UL 2085

Tank Capacity (Gallons)	Property lines or opposite side of a public way (feet)	Near side of public way or important building (feet)	Distance between tanks (feet)
Less than or equal to 6000	15	5	3
Greater than 6000	25	15	3

Overfill Prevention – Tanks shall not be filled in excess of 95 % of their capacity. An overfill prevention system shall be provided that shall:

- Provide an independent means of notifying the person filling the tank that the fluid has reached 90 percent of tank capacity by providing an audible or visual alarm signal, providing a tank level gauge marked at 90 percent of tank capacity, or other approved means, and

- Automatically shut off the flow of fuel to the tank when the quantity of liquid in the tank reaches 95 percent of tank capacity or other approved method of overfill prevention.

- A permanent sign shall be provided at the fill point for the tank documenting the filling procedure and the tank calibration chart. The filling procedure shall require the person filling the tank to determine the gallonage required to fill it to 95 percent of capacity before commencing the fill operation.

Spill Containment – A spill container having a capacity of not less than 5 gallons shall be provided for each fill connection. For tanks with a top fill connection, spill containers shall be noncombustible and shall be fixed to the tank and equipped with a manual drain valve that drains into the primary tank. For tanks with a remote fill connection, a portable spill container shall be provided.

Venting (normal and emergency)

- Vent pipe outlets for tanks storing Class I, II or III-A liquids shall be located such that the vapors are released at a safe point outside of buildings and not less than 12 feet above the adjacent ground level. Vapors shall be discharged upwards or horizontally away from closely adjacent walls to assist in vapor dispersion. Vent outlets shall be located such that flammable vapors will not be trapped by eaves or other obstructions and shall be at least 5 feet from building openings or property lines of properties that can be built on.

- Stationary above ground tanks shall be provided with additional venting that will release excessive internal pressure caused by exposure to fire. Emergency vents for Class I, II and III-A liquids shall not discharge inside buildings.

Exception: Tanks larger than 12,000 gallons in capacity storing Class III-B liquids which are not within the diked area or the drain age path of Class I or II liquids do not require emergency relief venting.

Warning Signs – Warning signs shall be conspicuously posted within sight of each dispenser in the fuel-dispensing area and shall state the following:

- No smoking
- Shut off motor
- Discharge your static electricity before fueling by touching a metal surface away from the nozzle
- To prevent static charge, do not reenter your vehicle while gasoline is pumping
- If a fire starts, do not remove nozzle – use emergency shut off
- It is unlawful and dangerous to dispense gasoline into unapproved containers
- No filling of portable containers in or on a motor vehicle. Place container on ground before filling.

Markings – Above-ground stationary tanks shall be marked by visible hazard identification signs as specified in NFPA 704 for the specific material contained. Signs shall be placed on above-ground tanks and at the entrances to locations where hazardous materials are stored, dispensed, used or handled in quantities requiring a permit and at specific entrances and locations designated by the *fire code official*.

Dispenser Specifications and Location(s)

- Dispensing devices shall be located as follows:

    1) Ten feet or more from property lines.
    2) Ten feet or more from buildings having combustible exterior wall surfaces or buildings having noncombustible exterior wall surfaces that are not part of a 1-hour fire-resistance-rated assembly or buildings having combustible overhangs.
        Exception: Canopies constructed in accordance with the Building Code providing weather protection for the fuel island.
    3) Such that all portions of the vehicle being fueled will be on the premises of the motor fuel-dispensing facility.
    4) Such that the nozzle, when the hose is fully extended, will not reach within 5 feet of building openings.
    5) Twenty feet or more from fixed sources of ignition.

- Dispensing devices except those installed on top of a protected above ground tank that qualifies as vehicle-impact resistant, shall be protected against physical damage by mounting on a concrete island 6 inches or more in height or by other approved methods.

- Dispensing devices shall be installed and securely fastened to their mounting surface in accordance with the dispenser manufacturer's instructions.

- Dispenser hoses shall be a maximum of 18 feet in length unless approved. Dispenser hoses shall be listed and approved. When not in use, hoses shall be reeled, racked or otherwise protected from damage.

- Dispenser hoses for Class I and II liquids shall be equipped with a listed emergency breakaway device designed to retain liquid on both sides of a breakaway point.

Emergency Disconnect Switches – An approved clearly identified and readily accessible emergency disconnect switch shall be provided at an approved location, to stop the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency. An emergency disconnect switch for exterior fuel dispensers shall be located within 100 feet of but not less than 20 feet from the fuel dispensers. For interior fuel-dispensing operations, the emergency disconnect switch shall be installed at an approved location. Such devices shall be distinctly labeled as: **EMERGENCY FUEL SHUTOFF**. Signs shall be provided in approved locations.

Secondary Containment

- Secondary containment for outdoor storage areas shall be designed to contain a spill from the largest individual vessel. If the area is open to rainfall, secondary containment shall be designed to include the volume of a 24-hour rainfall as determined by a 25-year storm and provisions shall be made to drain accumulations of ground water and rain water.

- An approved monitoring method shall be provided to detect hazardous materials in the secondary containment system. The monitoring method is allowed to be visual inspection of the primary or secondary containment, or other approved means. Where secondary containment is subject to the intrusion of water, a monitoring method for detecting water shall be provided. Where monitoring devices are provided, they shall be connected to approved or audible alarms.

Drainage Control and Diking

- The area surrounding a tank or group of tanks shall be provided with drainage control or shall be diked to prevent accidental discharge of liquid from endangering adjacent tanks, adjoining property or reaching waterways.

  Exceptions:

  1) The fire code official is authorized to alter or waive these requirements based on a technical report which demonstrates that such tank or group of tanks does not constitute a hazard to other tanks, waterways or adjoining property, after consideration of special features such as topographical conditions, nature of occupancy and proximity to buildings on the same or adjoining property, capacity and construction of proposed tanks and character of liquids to be stored, and nature and quantity of private and public fire protection provided.
  2) Drainage control and diking is not required for listed secondary containment tanks.

Fire Extinguishers – Approved portable fire extinguishers with a minimum rating of 2-A:20-B:C shall be provided and located such that an extinguisher is not more than 75 feet from pumps, dispensers or storage tank fill-pipe openings.

Sources of Ignition – Smoking and open flames shall be prohibited within 25 feet of fueling operations. The engine of vehicles being fueled shall be shut off during fueling. Electrical equipment shall be in accordance with NFPA 70.

Unsupervised Dispensing (Cardlock/Fleet)

- A telephone not requiring a coin to operate or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the *fire code official*.

- An approved emergency procedure sign, in addition to other required signs, shall be posted in a conspicuous location and shall read:

IN CASE OF FIRE, SPILL OR RELEASE

1.) USE EMERGENCY PUMP SHUT OFF

2.) REPORT THE ACCIDENT!

FIRE DEPARTMENT TELEPHONE NO. _____

FACILTY ADDRESS _____

- Dispenser operating instructions shall be conspicuously posted in approved locations on every dispenser and shall indicate the location of the emergency controls.

- Dispensing equipment used at unsupervised locations shall comply with one of the following:

    1) Dispensing devices shall be programmed or set to limit uninterrupted fuel delivery to 40 gallons and require a manual action to resume delivery.

        Exception: Class II or III-A liquid may be programmed or set to limit uninterrupted fuel delivery of up to 250 gallons.

    2) The amount of fuel being dispensed shall be limited in quantity by a preprogrammed card as approved.

- Contact the Office of State Fire Marshal for additional rules regarding cardlock operations.

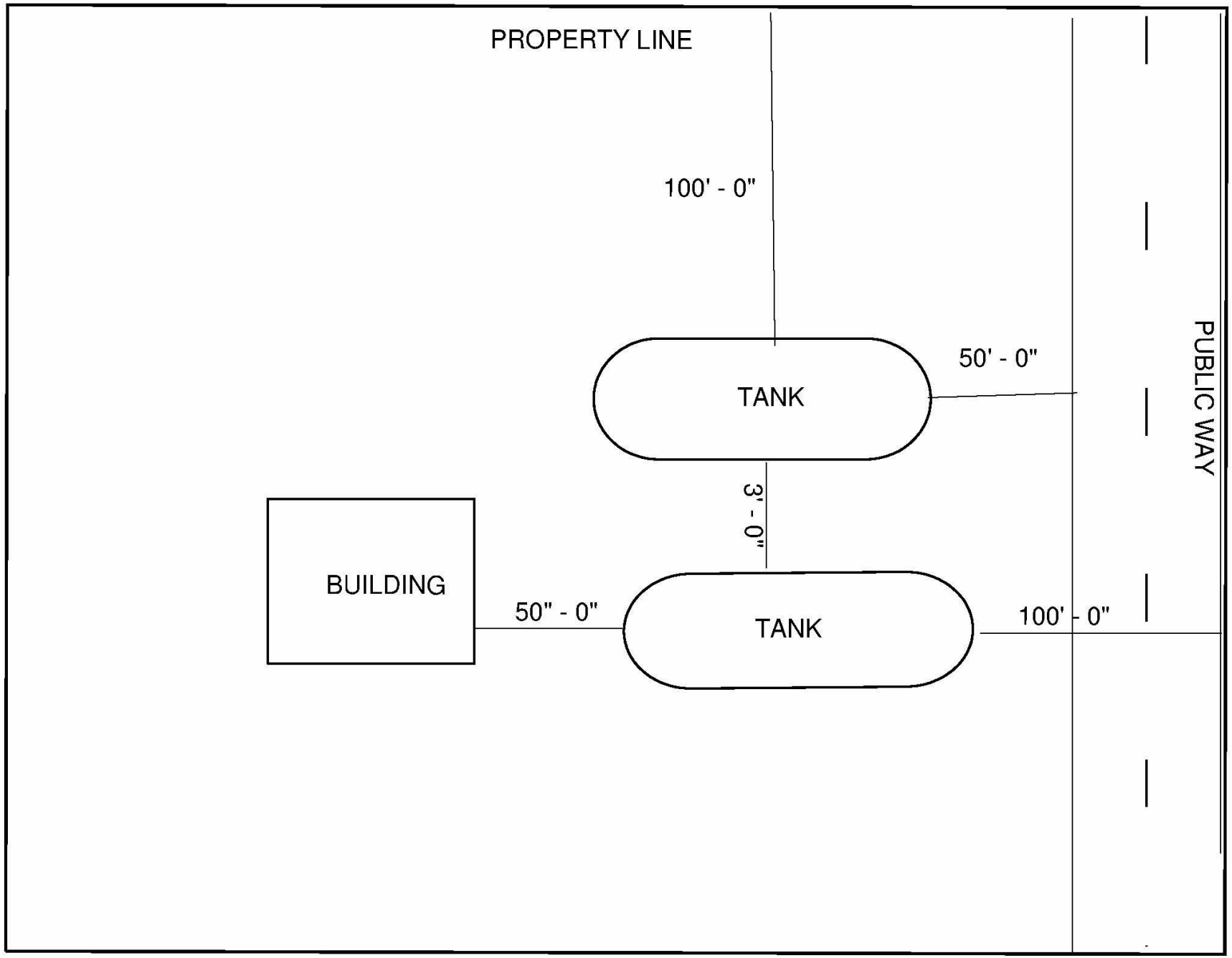
NOTE: Compliance with the *Oregon Fire Code* does not automatically constitute compliance with EPA or other federally mandated rules, and further research may be necessary. It is the responsibility of the applicant to ensure that all installations are in full compliance with applicable statutes of the State of Oregon and any local codes and ordinances.

Information in this guideline may not include every above ground storage tank and fuel dispensing requirement as per the *Oregon Fire Code*. If a discrepancy is discovered the *Oregon Fire Code* shall be the governing document.

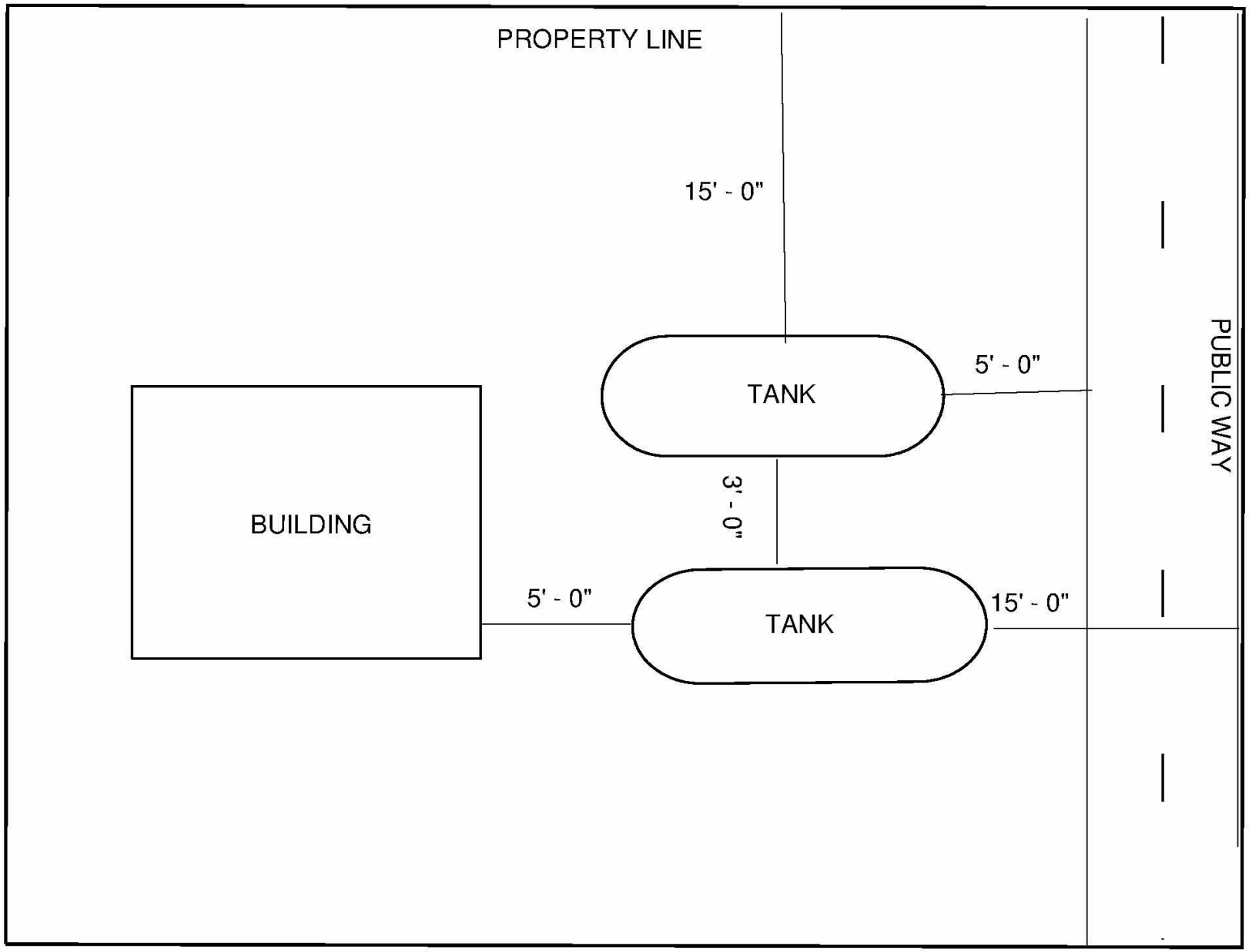
Section 3

Illustrations

NON-PROTECTED ABOVE-GROUND STORAGE TANKS (UL 142)

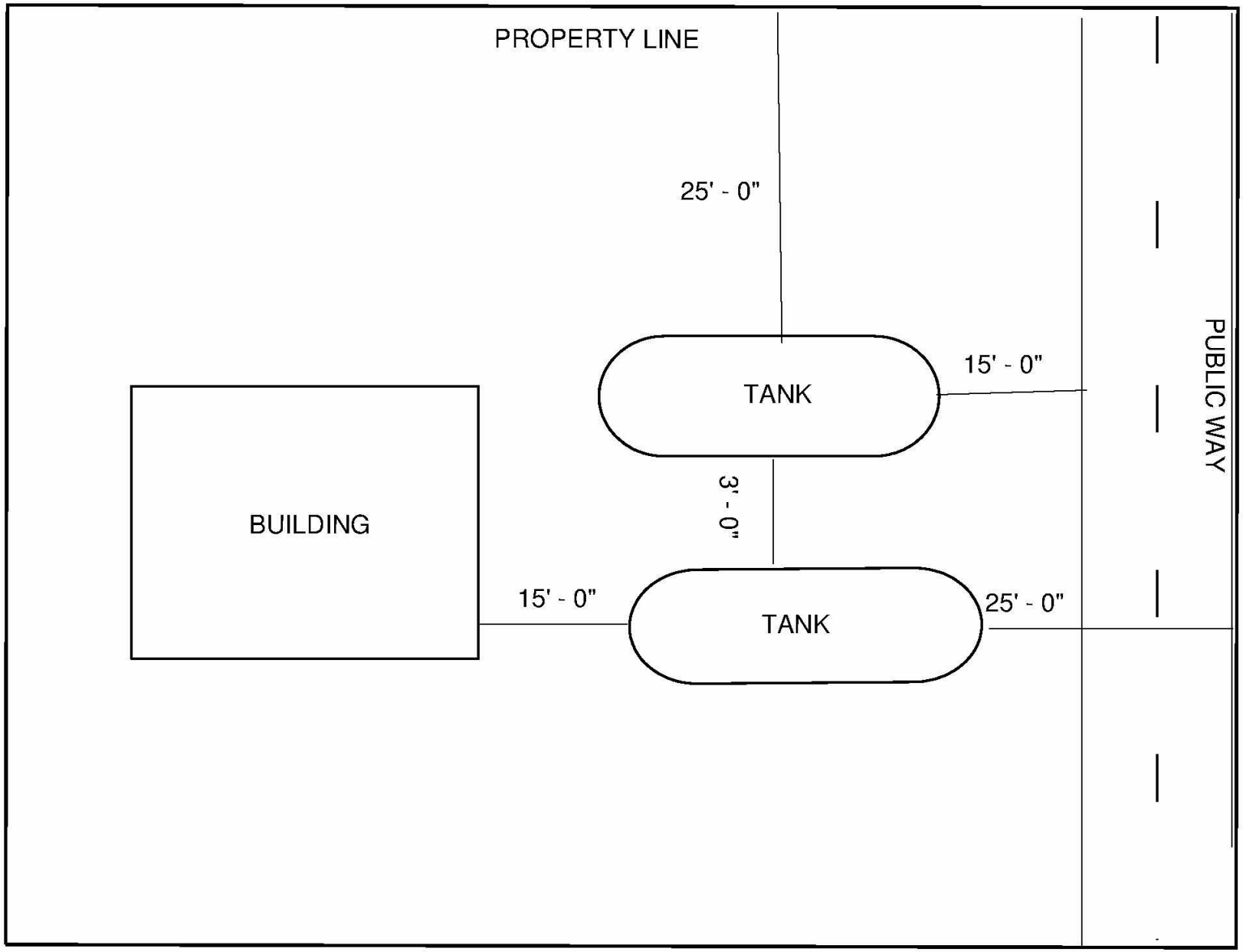


PROTECTED ABOVE-GROUND STORAGE TANK <6000 GAL. (UL2085)



NOTE: If dispensing devices are mounted on tank or an island, they shall be a minimum of 10' from lot lines and buildings

PROTECTED ABOVE-GROUND STORAGE TANK >6000 GAL. (UL2085)



NOTE: If dispensing devices are mounted on tank or an island, they shall be a minimum of 10' from lot lines and buildings

Section Divider

Section Divider

Appendix O - Brake and Clutch Work

Current Best Practices for Preventing Asbestos Exposure Among Brake and Clutch Repair Workers (EPA pamphlet)

Asbestos – Automotive Brake and Clutch Repair Work (OSHA bulletin)

DEQ's list of Oregon landfills accepting asbestos waste

If you work in a commercial automotive shop that performs work on no more than five brake or clutch jobs per week, OSHA regulations allow the following method instead:

Wet Wipe Method This method involves using a spray bottle or other device capable of delivering a fine mist of water, or amended water (water with a detergent), at **low pressure** to wet all brake and clutch parts. The brakes can then be wiped clean with a cloth.

As a home mechanic, what can I do to protect myself from asbestos exposure?

If you are not able to determine whether your brakes or clutch contain asbestos, you may want to consider having your brakes or clutch serviced at a commercial automotive shop. OSHA requires special work practices for professional automotive technicians. If, however, this is not possible and you do not have access to the equipment professional automotive shops use to comply with the OSHA work practices, you may want to consider using the wet wipe method described in this brochure (www.osha.gov/SLTC/asbestos/standards.html). This method has been deemed acceptable by OSHA for shops that service no more than five brake or clutch jobs per week.

Work Practice Don'ts for Home Mechanics:

It is recommended that you:

- **Do not use compressed air for cleaning.** Compressed air blows dust into the air.
- **Do not clean brakes or clutches with a dry rag, brush (wet or dry), or garden hose.**
- **Do not use an ordinary wet/dry vac without a high-efficiency particulate air (HEPA) filter to vacuum dust.** Invisible particles of brake or clutch dust can stay in the air and on your clothes long after a job is complete.
- **Avoid taking work clothing inside the home or tracking dust through the house after performing brake and clutch work to prevent exposing your family to dust particles that may contain asbestos.**

Work Practice Do's for Home Mechanics:

It is recommended that you:

- **Use pre-ground, ready-to-install parts.**
- **If a brake or clutch lining must be drilled, grooved, cut, bevelled, or lathe-turned, use low speeds to keep down the amount of dust created.**
- **Use machinery with a local exhaust dust collection system equipped with HEPA filtration to prevent dust exposures and work area contamination.**
- **Change into clean clothes before going inside the home and wash soiled clothes separately.**
- **Minimize exposure to others by keeping bystanders, as well as food and drinks, away from the work area.**

How do I dispose of waste that contains asbestos?

Employers of professional automotive technicians must ensure that they or their waste haulers dispose of waste that contains brake or clutch dust, including wet rags used to wipe this dust, in accordance with Federal and local regulations, including the OSHA asbestos waste disposal regulations. OSHA regulations (29 CFR 1910.1001(k)(6) and 29 CFR 1910.1001(j)(4)) require that, before waste containers with brake and clutch dust and other asbestos waste in them are collected, they must be sealed. The containers also must be impermeable and must be appropriately labeled. These regulations do not apply to home mechanics. For home mechanics, EPA recommends that asbestos waste be double-bagged and disposed of following appropriate local regulations to minimize exposure. You may contact your state asbestos representative for more disposal and other information.
http://www.epa.gov/asbestos/pubs/statecontact.pdf

Where can I get additional information?

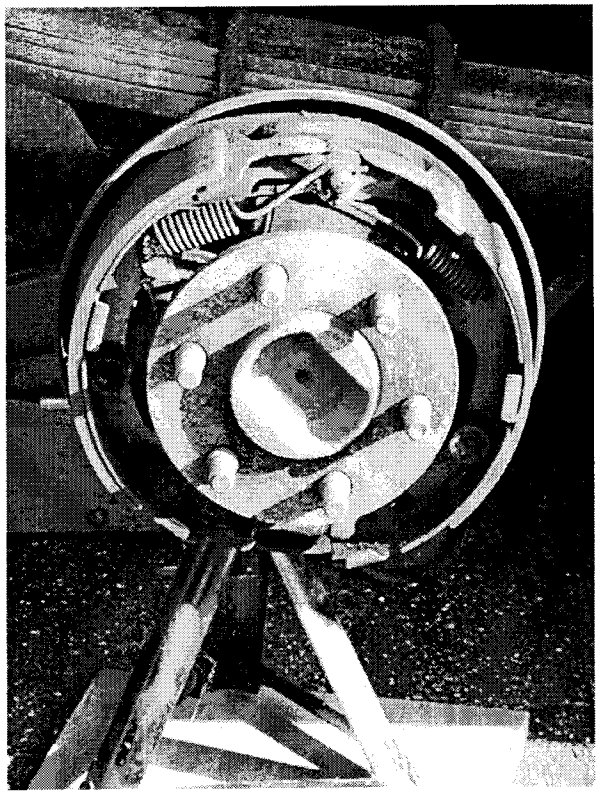
OSHA has issued a Safety and Health Information Bulletin on brake and clutch repair that is available at **http://www.osha.gov/dts/shib/shib072606.html.** EPA's Asbestos Worker Protection Rule regulations apply to certain state and local government employees (40 CFR Part 763, Subpart G). For more information on EPA 's Asbestos Program visit:

http://www.epa.gov/asbestos/
or call 202-554-1404.

EPA
United States
Environmental Protection
Agency

Current Best Practices For

Preventing Asbestos Exposure Among Brake and Clutch Repair Workers



March 2007 EPA-747-F-04-004

Who can this information help?

This information can help professional automotive technicians and home mechanics who repair and replace brakes and clutches. By law, most professional automotive shops must follow the Occupational Safety and Health Administration's (OSHA) regulations at 29 CFR 1910.1001, specifically paragraph (f)(3) and Appendix F. These are mandatory measures that employers must implement for automotive brake and clutch inspection, disassembly, repair, and assembly operations. State and local governments with employees who perform brake and clutch work in states without OSHA-approved state plans must follow the identical regulations found under the EPA Asbestos Worker Protection Rule (Subpart G of 40 CFR 763).

While home mechanics are not required to follow the OSHA work practices (or the identical requirements under the EPA Asbestos Worker Protection Rule), by using these practices home mechanics can minimize potential exposure to asbestos if it is present and thereby reduce their potential risk of developing any asbestos-related diseases.

What is asbestos and how can it cause health problems?

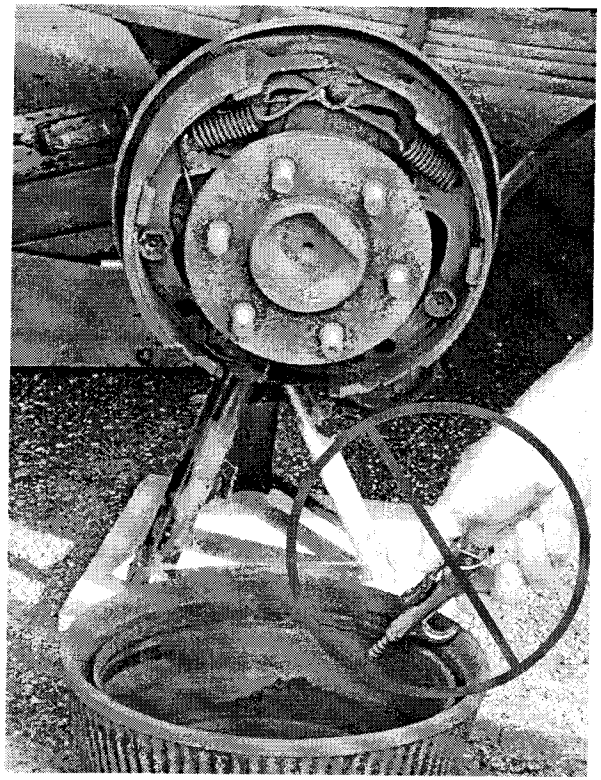
Asbestos, a naturally occurring mineral fiber that is highly heat resistant, can cause serious health problems when inhaled into the lungs. If products containing asbestos are disturbed, thin, lightweight asbestos fibers can be released into the air. Persons breathing the air may then inhale asbestos fibers. Continued exposure can increase the amount of fibers deposited in the lung. Fibers embedded in the lung tissue over time may result in lung diseases such as asbestosis, lung cancer, or mesothelioma. It can take from 10 to 40 years or more for symptoms of an asbestos-related condition to appear. Smoking increases the risk of developing illness from asbestos exposure.

For more information on the health effects of asbestos exposure, visit the Agency for Toxic Substances and Disease Registry (ATSDR) at http://www.atsdr.cdc.gov/asbestos/index.html.

Why should mechanics be concerned about asbestos exposure?

Because some, but not all, automotive brakes and clutches available or in use today may contain asbestos, professional automotive technicians and home mechanics who repair and replace brakes and clutches may be exposed to asbestos dust. Brake and clutch dust can be seen when a brake disk, drum, clutch cover, or the wheel is removed from a car, truck, or other equipment. There are also many small dust particles that cannot be seen with the eye. If the brakes contain asbestos, the dust may contain asbestos fibers, which could be inhaled.

Do not blow dust from brakes and clutches!



Using compressed air, a brush (wet or dry), or a dry rag to clean brake assemblages has the potential to expose you to asbestos fibers.

How do I know if I have asbestos brake or clutch components?

You cannot tell whether brake or clutch components contain asbestos simply by looking at them. For newer vehicles and parts, auto manufacturers, auto parts retailers and packaging information, such as labels or Material Safety Data Sheets, may be able to tell you whether or not your brake or clutch components contain asbestos. For older vehicles, or vehicles that have had brakes replaced, you may not be able to easily find out if the brake or clutch components contain asbestos.

As a best practice, OSHA states that mechanics should assume that all brakes have asbestos-type shoes. Worn non-asbestos-type brake shoes cannot be readily distinguished from asbestos-type shoes. If a mechanic assumes incorrectly that a shoe is a non-asbestos type and fails to utilize brake dust control procedures, increased asbestos exposure may result.

As a professional automotive technician, what work practices must I follow to reduce potential exposures to asbestos?

If you work in a commercial automotive shop that performs work on more than five brake or clutch jobs per week, OSHA regulations require the use of one of the following work practices or an equivalent method such as the spray can/solvent system.

Negative-Pressure Enclosure/HEPA Vacuum System Method This type of enclosure and vacuum system has a special box with clear plastic walls or windows, which fits tightly around a brake or clutch assembly to prevent asbestos exposure.

Low Pressure/Wet Cleaning Method This specially designed low-pressure spray equipment wets down the brake assembly and catches the runoff in a special basin to prevent airborne brake dust from spreading in the work area. (over)

U.S. Department of Labor
Occupational Safety and Health Admistration
Directorate of Science, Technology & Medicine
Office of Science Technology Assessment

Asbestos-Automotive Brake and Clutch Repair Work

Safety and Health Information Bulletin

SHIB 07-26-06

Purpose

OSHA is issuing this Safety and Health Information Bulletin to inform employees and employers in the automotive brake repair industry of the precautions that must be taken when working with automotive brakes and clutches containing asbestos. In the case of do-it-yourselfers*, OSHA does not have jurisdiction, and OSHA does not require theses practices to be followed. To reduce the potential exposure to asbestos, EPA strongly recommends that all automotive brake and clutch repair work be done by professional auto mechanics. Although the use of asbestos in friction products is declining annually, it remains a substantial source of potential exposure. In addition, there is still potential exposure to asbestos contained in automotive brakes and clutches on older vehicles in need of service. Exposure to asbestos, if not properly controlled can cause mesothelioma, lung cancer, and asbestosis. Symptoms may not appear for years, even decades, after contact with asbestos fibers.[1]

Background

Many brakes and clutches used in new and recent model automobiles do not contain asbestos. However, it has not been totally eliminated. Some reports have indicated that many mechanics and employees in the automotive repair shops as well as do-it-yourselfers are unaware that asbestos may be present in both old and replacement brakes and clutches.

This Safety and Health Information Bulletin is **not** a standard or regulation, and it creates no new legal obligations. The Bulletin is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. Pursuant to the *Occupational Safety and Health Act*, employers must comply with hazard-specific safety and health standards promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any recommendations in this Safety and Health Information Bulletin is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.

OSHA's asbestos standard requires the use of controls and safe work practices when employees work with brake shoes and clutches that contain asbestos. These requirements are detailed in 29 CFR 1910.1001 and specifically 1910.1001(f)(3) and Appendix F of the standard - *Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair and Assembly* (http://www.osha.gov/sltc/asbestos/index.html.). The requirements also are discussed in the Federal Register at 59 FR 40964, 40985-87 (August 10, 1994) and 60 FR 33983 (June 29,

[1] Asbestos in Brakes Exposure and Risk of Disease, *Richard A.* Lemen, PhD, MSPH, *American Journal of Industrial Medicine 45: 229-237 (2004)*

* Non-employees outside the automotive repair industry who typically repair or replace their own brakes at home. These individuals are not subject to the OSHA requirements in this Safety and Health Information Bulletin.

For more information about EPA's asbestos program, do-it-yourselfers may visit EPA's website at www.epa.gov/asbestos or you may call the asbestos ombudsman's hotline/clearing house at 1-800-368-5888.

1995), as well as in OSHA Directive CPL 2-2.63 (revised).

OSHA Work Practices and Engineering Controls / OSHA Methods

All automotive brake and clutch repair facilities in the United States must comply with the OSHA asbestos standard. The proper use of engineering controls and work practices by properly trained employees working on automotive brakes and clutches will reduce their asbestos exposure below the permissible exposure level of 0.1 fiber per cubic centimeter of air, expressed as an 8-hour time-weighted average. Respiratory protection is not required during brake and clutch jobs where the control methods described below are used.

The two preferred OSHA methods to control asbestos dust during brake and clutch repair and service are: (1) a negative pressure enclosure/ HEPA (high-efficiency particulate air) vacuum system, and (2) the low pressure/wet cleaning method. The employer may use other methods (in conjunction with written procedures), to reduce exposure to levels equivalent to the negative pressure enclosure/HEPA vacuum system. For facilities that inspect, disassemble, reassemble and/ or repair five or fewer brake or clutch jobs per week, the wet method (described in paragraph D of Appendix F) can be used. The spray can/ solvent system method can be used as an alternative preferred method since it meets the equivalency criterion of the negative pressure enclosure/HEPA vacuum system method. Proper training is essential to ensure that employees use the methods in an effective manner.

Negative pressure enclosure/HEPA vacuum system method

The **negative pressure enclosure/HEPA vacuum system method** includes the following steps:

1. Enclose the brake or clutch assembly to prevent release of asbestos fibers into the employee's breathing zone during brake or clutch inspection, disassembly, repair, and reassembly operations. Use a transparent enclosure with impermeable sleeves.

2. Seal the enclosure tightly and thoroughly, inspect for leaks before beginning work.

3. The enclosure must be transparent so that the employee can clearly see the operation during brake or clutch inspection, disassembly, repair, and reassembly. The enclosure must also have impermeable sleeves to allow the employee to handle the brake and clutch assembly without penetrating the enclosure. The integrity of the sleeves and ports must be inspected before work begins.

4. Use a HEPA-filtered vacuum to keep the enclosure under negative pressure throughout the operation. Compressed air may be used to remove asbestos fibers or particles from the enclosure.

5. Use the HEPA-filtered vacuum first to loosen asbestos residue from the brake and clutch parts, then evacuate the loosened material from the enclosure into a vacuum filter.

6. When the vacuum filter is full, spray it with a fine mist of water before removing it. Immediately place it in a labeled, impermeable container and dispose of it as asbestos waste in accordance with federal, state, and local regulations and in compliance with 1910.1001(k)(6). The label must include the following information: "DANGER, CONTAINS ASBESTOS FIBERS, AVOID CREATING DUST, CANCER AND LUNG DISEASE HAZARD."

7. Immediately clean spills or releases of asbestos containing waste material from inside the enclosure or vacuum hose or filter. Properly dispose of waste as asbestos waste.

Vacuum enclosure units should be large enough to fully enclose and remove the brake drum with enough room for hammering if the drums are difficult to remove because of wear, rust, or other reasons. Enclosure systems should have good interior lighting to illuminate the work area. The enclosure should completely enclose the brake drum, and form a tight seal behind the backing plate. Air guns should never be aimed towards the seal as this may reduce or eliminate its protective ability.

After cleaning with compressed air, the inside surfaces of the enclosure should be HEPA vacuumed to keep the inside clean and maintain visibility. Each brake component should be vacuumed as it is removed and the backing plate should be vacuumed after all the components have been removed. Rags used to wipe or clean used brake parts, should not be used to wipe hands. Mechanics should wear an appropriate NIOSH-approved respirator for asbestos when changing vacuum unit filters.

Low pressure/wet cleaning method

The **low pressure/wet cleaning method** involves the following steps:

1. Position a catch basin under the brake assembly to avoid splashes and spills.

2. Gently flood the brake assembly with water containing an organic solvent or wetting agent to prevent asbestos-containing brake dust from becoming airborne.

3. For drum brakes, ensure that the water solution flows between the brake drum and the brake support before removing the brake drum.

4. After removing the brake drum, thoroughly wet the wheel hub and back of the brake assembly with the water solution to suppress dust.

5. Thoroughly wash the brake support plate, brake shoes, and other parts before removing the old brake shoes.

6. If your system uses a filter, wet the filter when it becomes full and before removal, with a fine mist of water, and place immediately in an impermeable container. Label the container and dispose of it as asbestos waste.

7. Immediately clean spills of asbestos-containing liquid or asbestos-containing waste material using a HEPA-filtered vacuum and/or wet methods. Properly dispose of waste as asbestos waste.

8. Dry brushing is prohibited.

9. The brake washer solution should be changed regularly for maximum efficiency of the unit.

Wet method

For shops that perform infrequent brake work and clutch repair work, OSHA allows the use of a **wet method** as a "preferred" method. Therefore, in facilities in which five (5) or fewer brake "jobs" (five brake "jobs" are equivalent to five vehicles) or 5 clutches, or some combination totaling 5, are inspected, disassembled, reassembled and/or repaired per week, the mechanic/technician may control potential asbestos exposure through the use of a spray bottle, hose nozzle, or any implement capable of delivering a fine mist of water or amended water at low pressure to wet down the drum or clutch housing before removing it and to control asbestos fiber release during subsequent activities. However, any wastewater generated must be captured and properly disposed of without allowing it to dry on any surfaces. OSHA anticipates that using a spray bottle will adequately control dust without generating a large volume of wastewater.

The wet method requires the following steps:

1. Brake and clutch parts must be wetted with water or amended water before taking any other action.

2. Wipe the brake and clutch parts clean with a cloth.

3. Place contaminated cloth into an impermeable, properly labeled container, and then dispose of it as asbestos waste. Alternatively, the cloth can be laundered to prevent the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air, expressed as an 8-hour time-weighted average.

4. Any spilled water or amended water or asbestos-containing waste material must be cleaned immediately with a cloth or HEPA-filtered vacuum and not allowed to dry.

5. Do not dry brush.

The simplicity of the wet control does not eliminate the need for correct work practices. For example, holding the spray nozzle too close to the brake surface may cause asbestos fibers to become airborne. Brake components should be sprayed to saturate the parts as they are removed from the assembly.

Equivalent methods

Like the preferred methods, an equivalent method must include a detailed description of the practices that must be followed when the method is used. An employer who uses such a method must have a written description of the method that contains sufficient detail that the method can be reproduced. The employer must provide information demonstrating that the exposures resulting from an equivalent method are equal to or less than exposures from the negative pressure enclosure/HEPA vacuum system method. For purposes of equivalency, employee exposures must not exceed 0.016 f/cc, as measured by the OSHA reference method and averaged over at least 18 personal samples.

The following method, **spray can/solvent system**, may be used as an "equivalent" method. The spray can/solvent system may be used when proper work practices are followed. At a minimum, the spray can/solvent system method must follow detailed written procedures including the following:

1. Wet the brake and clutch parts with the spray can/solvent before taking any other action.

2. Wipe the brake and clutch parts clean with a cloth.

3. Place contaminated cloth into an impermeable, properly labeled container, and then dispose of it as asbestos waste. Alternatively, the cloth can be laundered to prevent the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air, expressed as an 8-hour time-weighted average.

4. Immediately clean any spilled solvent or dispersed asbestos with a cloth or HEPA vacuum.

5. Dry brushing during spray can/solvent system operations is prohibited.

The solvents typically used in brake and clutch work are hazardous chemicals, which requires the employer to comply with the Hazard Communication standard. If the solvents are flammable, appropriate precautions against fire and explosion must be taken.

Best Practices

Mechanics should assume that all brakes have asbestos-type shoes. Worn nonasbestos-type brake shoes cannot be readily distinguished from asbestos-type shoes. If a mechanic assumes incorrectly that a shoe is a nonasbestos-type and fails to utilize brake dust control procedures, increased asbestos exposure may result.

Mechanics must be trained in the correct and most effective way to use the control system selected by

the facility manager or owner. The danger of increased exposure to asbestos as the result of improper work practices should be explained. Examples of improper work practice include: directing an air nozzle at an enclosure seal, placing the nozzle of a spray mist too close to the work surface, not placing the vacuum nozzle close enough to the contaminated surface, turning on the vacuum pumps before positioning the vacuum enclosure over the wheel and leaving them on when removing the enclosure, and splashing or spilling contaminated solutions on the floor. A control system must always be used and consistent work procedures are essential.

Use pre-ground, ready-to-install parts when possible. If asbestos-containing friction materials must be drilled, grooved, cut, beveled, or lathe-turned, low speeds should always be used to keep down the amount of dust created. All machinery should have an adequate, HEPA equipped local exhaust dust collection system to prevent asbestos exposures and shop contamination. Immediately clean spills of brake dust or contaminated solutions by HEPA vacuuming or wet mopping.

A regular maintenance program for the system used to control brake dust is essential. Maintenance should include checking and replacing seals, nozzles, other hardware, contaminated filters and solutions. Any deficiencies such as ineffective seals, or air nozzles should be repaired. Disposal of asbestos contaminated material, whether it is filters or solutions, must be in accordance with federal and state regulations and in compliance with 1910.1001(k)(6). Periodic cleaning will help reduce the possibility of asbestos contamination of workbenches, floors, etc. Mechanics should perform brake and clutch work in an area isolated from other work areas. Signs should be posted informing employees not to eat, drink, or smoke in the brake and clutch work area. Asbestos and other potentially toxic materials can be ingested or inhaled during these activities.

Personal hygiene, such as frequent hand washing with soap or detergent, should be stressed. Changing from soiled work clothes into clean clothes before leaving work provides additional protection against bringing asbestos into the home environment. A laundry service with facilities for cleaning asbestos contaminated clothing must be provided for any asbestos-contaminated work clothes.

Conclusion

Engineering controls and good work practices must be implemented throughout the process of performing brake and clutch inspection, disassembly, repair, and assembly. The four types of control systems or methods described here can effectively reduce employees' asbestos exposure below the OSHA permissible exposure level.

Information about job hazards must be disseminated through a training program that describes how to do properly perform a task, how each work practice reduces potential exposure, and how employees can benefit from these practices. No matter, which control system, is used, employees must be trained in how to properly use it. Employees (and do-it-yourselfers who choose not to have brake and clutch work conducted by professional mechanics) who can recognize and control hazards are better equipped to protect themselves from asbestos exposure. Training and work practices should be frequently reinforced.

Business owners who are concerned about the cost of professional help can contact the OSHA Consultation Project Office in their state for free consultation service. Priority is given to businesses with fewer than 250 employees at a worksite, with further consideration given to the severity of the worksite problem. The Consultation Program can help the employer evaluate and prevent hazardous conditions in the workplace that can cause injuries and illness.

State of Oregon Department of Environmental Quality

Oregon Landfills and Transfer Stations Accepting Asbestos Waste

The following landfills and transfer stations are permitted by the Oregon Department of Environmental Quality to accept asbestos waste. Oregon Administrative Rule 340-248-0280(6) requires that you notify the landfill prior to disposal. DEQ suggests you contact the landfill at least 24 hours prior to disposal.

Landfills Accepting Asbestos Waste		
Landfill Name	**County**	**Address/Phone**
Northwest Region		
Hillsboro Landfill	Washington	3205 SE Minter Bridge Road Hillsboro, OR 97123 503-640-9427
Tillamook Transfer Station	Tillamook	1315 Ekloff Rd. Tillamook, OR 97141 503-842-2431
Western Region		
Brookings Transfer Station	Curry	17498 Carpenterville Rd Brookings, OR 97415 541-469-2425
Brown's Island Demolition Landfill	Marion	2895 Faragate Street South Salem, OR 97306 503-588-5169
Coffin Butte Landfill	Benton	28972 Coffin Butte Road Corvallis, OR 97330 541-745-2018
Dry Creek Landfill	Jackson	5500 Highway 140 White City, OR 97503 541-440-4271
Roseburg Landfill	Douglas	384 McClain West Avenue Roseburg, OR 97471 541-4404268
Short Mountain Landfill	Lane	84777 Dillard Access Road Eugene, OR 97405 541-726-3047

Updated: March 2019 by Denise Miller

Eastern Region		
Ant Flat Landfill	Wallowa	Ant Flat Rd. Enterprise, OR 97828 541-426-3332
Baker Sanitary Landfill	Baker	39144 West Sutton Creek Rd Baker City, OR 97814 541-523-2626
Burns-Hines Disposal Site	Harney	1550 W Monroe Burns, OR 97720 541-573-6441
Chemical Waste Management of the Northwest Landfill	Gilliam	17629 Cedar Springs Lane Arlington, OR 97812 541-454-2030
Columbia Ridge Landfill	Gilliam	18177 Cedar Springs Lane Arlington, OR 97812 541-454-2030
Crook County Landfill	Crook	5601 SW Houston Lake Rd Prineville, OR 97754 541-447-2398
Finley Buttes Landfill	Morrow	73221 Bombing Range Rd Boardman, OR 97818 541-481-2233
Humbert Refuse Landfill	Umatilla	79378 Gerking Flat Rd Athena, OR 97813 541-938-4188
Klamath Falls Landfill	Klamath	801 Old Fort Rd Klamath Falls, OR 97601 541-883-5121 (Option 7)
Knott Landfill	Deschutes	61050 SE 27th Street Bend, OR 97702 541-317-3163
Thomas Creek Road Landfill aka Lake County Landfill	Lake	Thomas Creek Rd. Lake View, OR 97630 541-947-6043
Wasco County Land fill	Wasco	2550 Steele Road The Dalles, OR 97058 541-296-4082

Alternative formats: DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

Section Divider

Section Divider

Appendix P - Fueling

List of Signs Required at Fuel Stations

Fire Safety Training – Safe Fueling Guidelines

Fuel Station Signs

The following signs must be posted at ODOT Maintenance fuel stations.

Signs should be visible and readable from a distance of 10 feet from the dispensing pump.

- "Driver Must Remain At Vehicle While Fueling."
- "No Smoking" or other sign prohibiting smoking.
- "Stop Your Engine" or other sign requiring vehicle engines to be stopped during fueling.
- Sign prohibiting dispensing into unapproved containers.
- Sign marking the location of the emergency shutoff.
- Sign marking the location of the fire extinguisher.

If the fuel station is used by personnel from non-State agencies (e.g. City or County agencies) a sign that states the following message must be posted in a conspicuous location.

IN CASE OF FIRE, SPILL, OR RELEASE

1. USE EMERGENCY PUMP SHUTOFF
2. REPORT THE ACCIDENT!

FIRE DEPARTMENT TELEPHONE NO._____

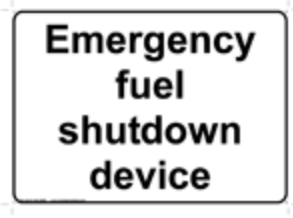
FACILITY ADDRESS _____

- "Discharge Static Electricity Before Fueling

  Do Not Reenter Your Vehicle While Fueling

  If A Fire Starts, Remove the Nozzle; Use the Emergency Shutoff"
- "Portable containers must be removed from the vehicle and placed on the ground before filling"
- "It is a violation of law, subject to penalty, to dispense flammable liquids without first receiving the training required by the rules."
- "It is a violation of law, subject to penalty, to dispense flammable liquids for personal use or into vehicles or containers not owned or used by a business, government, non-profit or charitable organization."
- The phone number of the owner or operator.
- Instructions for operating the dispenser.

Examples of signs are shown below. Actual signs may vary.



FIRE SAFETY TRAINING - SAFE FUELING GUIDELINES

Information for fueling at an ODOT fuel station

NO SMOKING

Smoking is not permitted while fueling. Smoking is prohibited within 25 feet of the fuel pump or fuel tank.

IDENTIFY EMERGENCY EQUIPMENT

Signs are posted to help identify emergency equipment installed at the facility. BEFORE FUELING, please note the location of the following emergency equipment.

At all ODOT fueling facilities

- FIRE EXTINGUISHERS are conspicuously located usually on a pole at the dispenser island or on the outside wall of the building.
- An EMERGENCY SHUT-OFF SWITCH is clearly identified with a sign. The shut-off switch allows the entire system to be shut down from a location other than the fueling island. Use the emergency shut-off switch if a fire starts.
- A SPILL KIT is clearly visible in the fueling area. Spill kits are bright yellow and hold absorbents for spill response.

At some ODOT fueling facilities

- A FUEL SPILL SHUT-OFF VALVE may be present in or adjoining the fueling area. If present, the shut-off valve is clearly signed. The valve will retain fuel spills within the fuel containment area by closing drainage systems.
- A TELEPHONE may be present near the fuel station. An emergency call may be placed without a coin.
- An audible or visual overfill ALARM is clearly identified. The alarm will indicate if the tank has been overfilled. Overfill prevention equipment is installed on all fuel tanks.

IN CASE OF EMERGENCY

(FIRE, SPILL, OVERFILL, OR RELEASE)

FOLLOW ALL WARNING SIGNS AND INSTRUCTIONS posted in fueling areas. Respond to all alarms and spills.

1. If possible, STOP THE FLOW OF FUEL by using the
   - pump shut-off (rotate or depress the pump lever) or
   - emergency shut-off switch.
2. BE AWARE OF POTENTIAL FIRE HAZARDS
3. USE THE FUEL SPILL SHUT-OFF VALVE, if present.
4. CONTROL or CONTAIN the spill if possible and within your training.
5. ODOT personnel follow ODOT reporting procedures. Non-ODOT personnel, CALL THE NEAREST ODOT DISPATCH CENTER or 911.

ODOT DISPATCH CENTERS

Station 1: Region 1 – 503-731-4652
Station 2: Region 2 – 503-362-0457
Station 3: Region 3 and District 11 – 541-858-3103
Station 4: Districts 9, 10 and Region 5 – 541-383-0121
When reporting an incident include the following information:

- Location of fueling station
- Pump number or fuel type
- Date and Time of incident

DRIVING AWAY WITH DISPENSER NOZZLE

If you drive off with the nozzle in the vehicle (even if a release did not occur), follow the procedures below:

1. STOP VEHICLE.
2. TURN the PUMP OFF.
3. PUT HOSE BACK ON PUMP, if possible.
4. REPORT INCIDENT TO ONSITE PERSONNEL OR THE ODOT DISPATCH CENTER.

If other assistance is needed, contact facility personnel or ODOT dispatch center.

TO BEGINNING FUELING

At fueling stations with HID ID card readers (ODOT employees)

- Enter the pump number. Press ENTER
- Enter 6-digit equipment number. Press ENTER.
- Enter odometer reading. Press ENTER
- Place ODOT ID (Lenel) card in front of HID reader
- Lift the nozzle from the pump and insert the nozzle deeply into the fuel tank.
- Activate the pump by lifting or rotating the lever on the side of the pump.
- Pull the trigger on the nozzle to dispense fuel.

(non-ODOT users of fuel stations)

- Enter the pump number. Press ENTER.
- Place ODOT issued HID card in front of HID reader.
- Enter odometer number. Press ENTER.
- Lift the nozzle from the pump and insert the nozzle deeply into the fuel tank.
- Activate the pump by lifting or rotating the lever on the side of the pump.
- Pull the trigger on the nozzle to dispense fuel.

The optimum nozzle setting is between ½ and ¾ open. Faster delivery may result in a spill.

If the nozzle is activated too quickly, a leak detector will automatically slow the pump to a trickle. Release the trigger on the nozzle and wait 10 seconds. Pull the trigger back and pumping should be normal.

Nozzles are equipped with an automatic shut-off that stops the flow of fuel when the vehicle's tank is full.

FUELING COMPLETED

- The nozzle should click off when the tank is full.
- DO NOT 'TOP OFF' the fuel tank.
- Shut the pump off.
- Place the nozzle on the cradle.
- Record the amount of fuel used (at fuel stations without a card reader).

OTHER FUELING PRECAUTIONS

- STOP THE ENGINE and put vehicle in PARK or set the emergency brake. The engine MUST BE TURNED OFF before fueling.
- Discharge static electricity before touching the nozzle.
- Remain outside the vehicle, in full view of the nozzle, while fueling.
- The DRIVER MUST REMAIN AT THE VEHICLE while fueling.

FIRE EXTINGUISHER USE

To use a fire extinguisher:

1. Hold the extinguisher upright and pull the ring pin
2. Stand back 8 feet from the fire
3. Aim the nozzle at base of fire and squeeze the lever
4. Sweep retardant from side to side

PORTABLE CONTAINERS

Only approved portable containers may be filled. Approved portable containers meet one of the following requirements.

- A metal or plastic safety can that holds 5 gallons or less (Approved plastic safety cans must meet ASTM F852 or F976, ANSI/UL 1313, or 49 CFR standards.)
- A metal container that holds 60 gallons or less and meets DOT specifications.

Approved containers must be:

1. CLEARLY LABELED with the fuel type (e.g. diesel).
2. Equipped with a tight fitting lid, cap, or cover.
3. Fitted with a spout or be designed so that the contents can be poured without spilling.

Procedures for fueling portable containers:

1. Portable containers (smaller than 12 gallons) must be placed on the ground before filling.
2. Do not use the latch open device on the fuel nozzle when filling portable containers.

!CAUTION! HAZARDOUS MATERIALS

ALL FUELS ARE HAZARDOUS.
Read the following warning statements.

DANGERS OF GASOLINE

- Gasoline is extremely flammable.
- Harmful or fatal if *swallowed*.
- May be harmful if *inhaled or absorbed through the skin*.
- May cause *irritation*.
- Long-term exposure to *vapors* has caused *cancer* in laboratory animals.
- Keep away from heat, sparks, and flame.
- Avoid breathing *vapor*.
- Use only in *well-ventilated* locations.
- Avoid contact with *eyes* and prolonged contact with *skin*. Wash thoroughly after handling.
- Keep container closed.
- FOR USE AS MOTOR FUEL ONLY.

DANGERS OF DIESEL

- Diesel is *combustible.*
- May cause irritation to *eyes*.
- Avoid contact with *eyes*.
- Middle distillates (including diesel) have caused *skin cancer* and *kidney damage* in laboratory animals.
- Keep away from *heat and flame*.
- Use only in *well-ventilated* locations.
- Avoid prolonged or repeated contact with *skin*. Wash thoroughly after handling.
- Keep head away from container when opening or dispensing.

FIRST AID PROCEDURES

Follow emergency and first aid procedures if contact with gasoline and diesel fuel.

EYES: Flush with water for 15 minutes.

SKIN: Wash exposed areas with soap and water.

INGESTION:

- DO NOT induce vomiting.
- May cause chemical pneumonitis.
- Call doctor.

INHALATION:

- Should symptoms noted under physiological effects occur, remove to fresh air.
- If not breathing, apply artificial respiration.

OTHER INSTRUCTIONS: Remove gasoline or diesel soaked clothing.

PHYSIOLOGICAL EFFECTS

ACUTE EFFECTS - Severe With Short Duration

Gasoline AND Diesel:

- Causes slight to moderate *eye* irritation.
- Moderately irritating to the *skin*; causes redness, edema, or drying of the skin.

Gasoline:

- May cause dizziness; irritation of eyes, nose and throat; vomiting; and bluish color of the skin.
- To the *central nervous system*, may cause contracted pupils, loss of reflexes, convulsions, seizures, sudden loss of consciousness, coma, and sudden death.
- Other symptoms are: Headaches, mental confusion and depression, flushing of the face, loss of appetite, nausea, slurred speech, and difficulty in swallowing.

Diesel: Inhaling high concentrations of diesel vapors may cause drowsiness or unconsciousness (narcosis).

CHRONIC EFFECTS - Severe With Long Duration

Studies with laboratory animals have shown that diesel and gasoline vapors cause kidney cancer in mice.

Section Divider

Section Divider

Appendix Q - Used Oil Transfers

Overview of used oil transfers

Used Oil Transport log

Used Oil Transfers

Oregon's used oil management regulations require facilities that accept used oil for burning keep track of each shipment over 55 gallons. Moving one barrel of used oil at a time is typically not cost effective so ODOT is registered with DEQ as a used oil transporter. This allows ODOT to move larger quantities of used oil from one ODOT yard to another ODOT yard.

The EMS Waste Generation and Disposal Logs are not designed to document all the information required for accepting used oil for burning.

Additional documentation must be kept by the yard receiving the used oil (the yard with the burner). The yard generating the used oil documents the used oil generation and disposal on the EMS Waste Generation and Disposal Logs (just like when used oil goes to any other recycling company).

The ODOT employee transporting the used oil is responsible for completing the Used Oil Transfer Log. The employee transporting the used oil may be stationed at either the receiving yard or the generating yard (or any other ODOT yard). An ODOT vehicle must be used for transporting the oil (cannot be hauled in a personal rig).

The Yard Generating the Used Oil

- Write the amount of used oil created each month on the Waste Generation Log
- Store the used oil onsite in labeled containers (barrels or a tank).
- When the used oil is moved offsite (pickup or delivery) fill out the Waste Disposal Log including:
    - How much oil was moved (e.g. 150 gallons)
    - Where the oil went (e.g. Warm Springs Junction)
    - What will happen to the oil (e.g. burned for fuel)
    - List ODOT's used oil transporter number (ORQ000021683) in the "manifest" column

The Yard Receiving the Used Oil

- Write the amount of used oil **created onsite** each month on the Waste Generation Log; do not include oil brought to from other yards on the Waste Generation Log.
- Store the used oil onsite in labeled containers (barrels or a tank).
- Once a year include a line on the Waste Disposal Log that says used oil is burned onsite for fuel
- Use the Used Oil Transfer Log to keep track of each shipment of used oil received from another yard.

Used Oil Transport Log

DEQ / EPA ID number: ORQ000021683

Receiving Yard _____

Use this form whenever more than 55 gallons of used oil (per trip) is moved from ODOT location to another ODOT location.

- **RECEIVING YARD** (THE YARD WITH THE USED OIL BURNER) keeps this form regardless of who transports the oil.
- **GENERATING YARD** (THE YARD TAKING THE OIL OUT OF EQUIPMENT) uses their Waste Disposal Log to document where the oil was taken.

Date	Generating Yard	Quantity Transported	Employee Transporting Oil
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
			(Print) (Sign)
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Section Divider

Appendix R - Pesticide Containers

Regulatory summary of pesticide container labeling requirements and cleaning instructions

US Environmental Protection Agency
Office of Pesticide Programs

Table 1: Overview of the Pesticide Container and Containment Structure Regulations

October 2010

Table 1: Overview of the Pesticide Container and Containment Structure Regulations

Category	Nonrefillable Containers	Refillable Containers	Repackaging Pesticide Products	Container Labeling	Containment Structures
Who must comply	• Registrants	• Registrants • Refillers (retailers, distributors)	• Registrants • Refillers (retailers, distributors)	• Registrants • Pesticide users (must follow new directions)	• Ag retailers • Ag commercial applicators • Ag custom blenders
Major Require-ments	• DOT container design, construction and marking standards • Container dispensing capability • Standard closures • Residue removal • Recordkeeping	• DOT container design, construction and marking standards • Serial number marking • One-way valves or tamper-evident devices • Stationary container requirements	• DOT container design, construction and marking standards • Serial number marking • One-way valves or tamper-evident devices • Stationary container requirements	• Identify container as nonrefillable or refillable (*all*) • Statements to prohibit reuse and offer for recycling; batch code (*all nonrefillables*) • Cleaning instructions (some *nonrefillables*) • Cleaning instructions before final disposal (*all refillables*)	• Secondary containment structures (dikes) around stationary tanks • Containment pads for pesticide dispensing areas • Good operating procedures • Monthly inspections of tanks and structures • Recordkeeping • Provisions for States with existing programs
Compliance Date	August 17, 2009	August 17, 2011	August 17, 2011	August 16, 2011 (based on the October 8, 2010 final rule)	August 17, 2009

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Table 2: Products Subject to the Nonrefillable Container, Refillable Container and Repackaging Regulations

October 2008

Table 2: Products Subject to the Nonrefillable Container, Refillable Container and Repackaging Regulations

Category	Nonrefillable Containers (40 CFR Part 165 Subpart B)	Refillable Containers (40 CFR Part 165 Subpart C)	Repackaging Pesticide Products (40 CFR Part 165 Subpart D)
Products that **are not subject** to the regulations.	(1) Manufacturing use products, (2) Plant-incorporated protectants, and (3) Antimicrobial pesticide products that satisfy all four of these criteria: • The product is an antimicrobial pesticide (as defined in FIFRA section 2(mm)) or it has antimicrobial properties (as defined in FIFRA section 2(mm)(1)(A)) and is subject to a tolerance or a food additive regulation. • Its label includes directions for use on a site in at least one of the 10 antimicrobial product use categories identified as "household, industrial or institutional." • It is not a hazardous waste when it is intended to be disposed, as defined in 40 CFR Part 261. • EPA has not specifically found that the product must be subject to these provisions to prevent an unreasonable adverse effect on the environment.	(1) Manufacturing use products, (2) Plant-incorporated protectants, and (3) Antimicrobial pesticide products that satisfy all four of the criteria listed in the nonrefillable container column.	(1) Manufacturing use products, (2) Plant-incorporated protectants, and (3) Antimicrobial pesticide products that satisfy all four of the criteria listed in the nonrefillable container column.
Products that **are subject** to the regulations	A product ***is subject to*** **ALL nonrefillable container** requirements if it satisfies at least one of the following criteria: • It meets the criteria of Toxicity Category I in 40 CFR § 156.62. • It meets the criteria of Toxicity Category II in 40 CFR § 156.62. • It is a restricted use product. If a product does not meet any of these criteria, the product ***is subject to*** only the basic Department of Transportation requirements in the **nonrefillable container** regulations.	All products not listed above.	All products not listed above.

US Environmental Protection Agency
Office of Pesticide Programs

Table 3: Nonrefillable Container Requirements (40 CFR Part 165 Subpart B)

October 2008

Table 3: Nonrefillable Container Requirements (40 CFR Part 165 Subpart B)

Short Description	Reg Cite	Requirement
SCOPE AND APPLICABILITY		
Who must comply?	165.20(b)	Registrants who distribute or sell a pesticide product in nonrefillable containers
Which pesticides must comply?	165.23	Manufacturing use products, plant-incorporated protectants and certain antimicrobial products (see Table 2) are exempt. All other products are subject to the nonrefillable container requirements as follows: • Products in Toxicity Category I or II are subject to all of the nonrefillable container requirements listed below. • Restricted use products are subject to all of the nonrefillable container requirements listed below. • Other products (those in Toxicity Category III or IV and that are not restricted use products) must comply only with the basic DOT packaging requirements in 49 CFR 173.24.
COMPLIANCE DATE		
When is compliance required?	165.20(c)	Any pesticide product packaged in a nonrefillable container and released for shipment after August 16, 2009 must be in compliance with these requirements.
CONTAINER DESIGN STANDARDS		
DOT regulations[1]	165.25(a)&(b)	• A pesticide product that **is not** a DOT hazardous material must be packaged in a container that, if portable, is designed, constructed and marked to comply with the requirements of 49 CFR 173.4, 173.5, 173.6, 173.24, 173.24a, 173.24b, 173.28, 173.155, 173.203, 173.213, 173.240(c) & (d), 173.241(c) & (d), Part 178 and Part 180 that are applicable to a Packing Group III material, or, if subject to a special permit, according to the applicable requirements of 49 CFR part 107 subpart B. These requirements apply to the pesticide product as it is packaged for transportation in commerce. • A pesticide product that **is** a DOT hazardous material must be packaged in a container that, if portable, complies with the requirements of 49 CFR Parts 171-180, or, if subject to a special permit, according to the applicable requirements of 49 CFR part 107 subpart B. These requirements apply to the pesticide product as it is packaged for transportation in commerce.
Standard closures	165.25(d)	• The container must have one of four specified closures[2], which include two bungs and two screw caps. • Applies to liquid agricultural pesticides in containers that are rigid and have capacities equal to or larger than 3 liters (0.79 gallons). • Does not apply to aerosol containers or pressurized containers.

Container dispensing capability	165.25(e)	• The container must allow the contents: (1) to pour in a continuous, coherent stream (without "glugging"); (2) to be poured with a minimum amount of dripping down the outside of the container. • Applies to liquid pesticides in containers that have capacities of less than or equal to 5 gallons (18.9 liters). • Does not apply to aerosol containers, pressurized containers or spray bottles.
Residue removal standard	165.25(f)	• Each container/formulation combination must be capable of attaining at least 99.99 percent removal[3] using the prescribed testing procedure. • Applies to dilutable pesticides (liquid and dry) in containers that are rigid and have capacities less than or equal to 5 gallons (18.9 liters) for liquids or 50 pounds (22.7 kilograms) for solid formulations. • Testing is only required for suspension concentrate formulations or if EPA requests it on a case by case basis.
ADMINISTRATIVE STANDARDS		
Waivers or modifications	165.25(g)&(h)	• Registrants may request a waiver from or a modification to any of the nonrefillable container design requirements. • The regulations describe the conditions that must be met (as determined by EPA) before EPA will waive or modify any requirement. • The rule describes the process and required information for written requests for a waiver or modification.
Recordkeeping	165.27(b)	• Registrants must keep records to show compliance with the standard closure and container dispensing requirements. • If the product is a suspension concentrate or if EPA specifically requests the records on a case by case basis, registrants must keep records to show compliance with the residue removal standard. • A copy of EPA's approval of a waiver or modification is an acceptable record for any of the requirements.
Reporting incidents	165.27(a)	No reporting is required by these regulations. Refer to the regulations in 40 CFR Part 159 to determine if information on container failures or other incidents must be reported to EPA under FIFRA section 6(a)(2).

Notes

1. If DOT proposes to change any of the regulations that are incorporated into §165.125(a) & (b), EPA will provide notice of the proposed changes and the opportunity to comment in the Federal Register before taking final action regarding whether or not to revise its rules.
2. The four closures identified in the regulations are:
   - Bung, 2 inch pipe size (2.375 inches in diameter), external threading, 11.5 threads per inch, National Pipe Straight (NPS) standard;
   - Bung, 2 inch pipe size (2.375 inches in diameter), external threading, 5 threads per inch, buttress threads.
   - Screw cap, 63 millimeters, at least one thread revolution at 6 threads per inch; and
   - Screw cap, 38 millimeters, at least one thread revolution at 6 threads per inch.
3. Percent removal represents the percent of the original concentration of the active ingredient in the pesticide product when compared to the concentration of that active ingredient in the fourth rinse.

US Environmental Protection Agency
Office of Pesticide Programs

Table 4: Refillable Container Requirements (40 CFR Part 165 Subpart C)

October 2008

Table 4: Refillable Container Requirements (40 CFR Part 165 Subpart C)

Short Description	Reg Cite	Requirement
SCOPE AND APPLICABILITY		
Who must comply?	165.40(b)	• Registrants who distribute or sell a pesticide product in refillable containers must comply with all of the requirements. • Refillers (that are not registrants) must comply with the standards for stationary pesticide containers. • Refillers (including independent refillers) may be exempted from some of the DOT requirements. See the container design standards/DOT requirements for more details.
Which pesticides must comply?	165.43	Manufacturing use products, plant-incorporated protectants and certain antimicrobial products (see Table 2) are exempt. All other products are subject to the refillable container requirements, although antimicrobial products used in swimming pools and closely related sites are subject to a reduced set of the requirements.
Are there any other exceptions?	165.43(h)	The refillable container regulations do not apply to: (1) transport vehicles that hold pesticides in tanks that are integral parts of the vehicle or (2) refillable containers for gaseous pesticides.
COMPLIANCE DATE		
When is compliance required?	165.40(c)	Any pesticide product packaged in a refillable container and released for shipment after August 16, 2011 must be in compliance with these requirements.
CONTAINER DESIGN STANDARDS		
DOT regulations[1]	165.45(a)&(b)	• A pesticide product that **is not** a DOT hazardous material must be packaged in a container that, if portable, is designed, constructed and marked to comply with the requirements of 49 CFR 173.4, 173.5, 173.6, 173.24, 173.24a, 173.24b, 173.28, 173.155, 173.203, 173.213, 173.240(c) & (d), 173.241(c) & (d), Part 178 and Part 180 that are applicable to a Packing Group III material, or, if subject to a special permit, according to the applicable requirements of 49 CFR part 107 subpart B. These requirements apply to the pesticide product as it is packaged for transportation in commerce. • A pesticide product that **is** a DOT hazardous material must be packaged in a container that, if portable, complies with the requirements of 49 CFR Parts 171-180 as required by DOT, or, if subject to a special permit, according to the applicable requirements of 49 CFR part 107 subpart B. These requirements apply to the pesticide product as it is packaged for transportation in commerce. • A refiller is not required to comply with 49 CFR 173.28(b)(2) [leakproofness testing] if the refillable container complies with these regulations and the repackaging is in compliance with Subpart D.

Permanent marking	165.45(d)	• All refillable containers must be durably marked[2] with a serial number or other identifying code. • Antimicrobial products used in swimming pools and closely related sites are not required to comply with this marking requirement.
One-way valves or tamper-evident devices (for liquid portable containers)	165.45(e)	• Each opening (other than a vent) of a portable pesticide container designed to hold liquids must have a one-way valve, a tamper-evident device, or both. • Antimicrobial products used in swimming pools and closely related sites are not required to comply with the one-way valve/tamper-evident device requirement.
Container integrity (for large stationary containers)[3]	165.45(f)(1)	• Applies to stationary containers at refilling establishments. • Applies to stationary containers with capacities equal to or greater than 500 gallons (1,890 liters) for liquids or 4,000 pounds (1,818 kilograms) for dry pesticides. • Stationary containers must be resistant to extreme changes in temperature and be constructed of materials that are adequately thick and that are resistant to corrosion, puncture and cracking. • Stationary containers must be capable of withstanding all foreseeable operating stresses.
Vent, gauge, and shutoff valve standards (for large stationary containers of liquid pesticides)[3]	165.45(f)(2)	• Applies to stationary containers of liquid pesticides at refilling establishments. • Applies to stationary containers with capacities equal to or greater than 500 gallons (1,890 liters). • Each stationary container of liquid pesticides must have a vent and a shutoff valve, which is capable of being locked. • External site gauges are prohibited.
ADMINISTRATIVE STANDARDS		
Waivers or modifications	165.45(g)&(h)	• Registrants may request a waiver from or a modification to the incorporated DOT regulations for refillable containers. • The regulations describe the conditions that must be met (as determined by EPA) before EPA will waive or modify any requirement. • The rule describes the process and required information for written requests for a waiver or modification.
Recordkeeping	Not applicable	There is no recordkeeping associated with the refillable container requirements.
Reporting incidents	165.47	No reporting is required by these regulations. Refer to the regulations in 40 CFR Part 159 to determine if information on container failures or other incidents must be reported to EPA under FIFRA section 6(a)(2).

Notes

1. If DOT proposes to change any of the regulations that are incorporated into §165.145(a) & (b), EPA will provide notice of the proposed changes and the opportunity to comment in the Federal Register before taking final action regarding whether or not to revise its rules.
2. Durable marking includes, but is not limited to, etching, embossing, ink jetting, stamping, heat stamping, mechanically attaching a plate, molding, and marking with durable ink.
3. Stationary pesticide container is defined as a refillable container that is fixed at a single facility or establishment or, if not fixed, remains at the facility or establishment for at least 30 consecutive days, and that holds pesticide the entire time.

US Environmental Protection Agency
Office of Pesticide Programs

Table 6: Container Labeling
(40 CFR Part 156 Subpart H)

October 2010

Table 6: Container Labeling (40 CFR Part 156 Subpart H)

Short Description	Reg Cite	Requirement
SCOPE AND APPLICABILITY		
Who must comply?	40 CFR Part 156	• Registrants must ensure that their labels comply with the standards. • Pesticide users must follow the new label directions.
Which pesticides must comply?	40 CFR Part 156	In general, all pesticides must comply with the label instructions in 40 CFR Part 156. However, see the applicability description in each section of the table for more details.
Compliance date		
When is compliance required?	156.159	Any pesticide product released for shipment after August 16, 2011, must have labels that comply with these requirements. This date was established by a October 8, 2010 final rule.
IDENTIFICATION OF CONTAINER TYPE AND REUSE STATEMENT FOR NONREFILLABLE CONTAINERS		
Which pesticides must comply?	156.140 (introductory paragraph), 156.140(d), 156.140(e) 156.140(a)(5)	All pesticide products in nonrefillable containers, other than the following, must identify the container as a nonrefillable container per §156.140(a)(1) and include a statement about reuse per §156.140(a)(2): Plant-incorporated protectants, pesticidal articles that are not exempted from FIFRA regulation by §152.25(a) and transport vehicles are exempt from these two requirements. In addition, pesticide products packaged in the following types of containers are exempt from these two requirements: • aerosol cans; • devices as defined in § 152.500; • one-time use caulking tubes and squeezable containers; • foil packets for water-soluble packaging, repellent wipes, and other one-time use products; • one-time use portion control packages, such as polyethylene sleeve packages, or rodenticide placepacks; • one-time use bait stations; • one-time use cages for repellent or trapping strips; • pet collars or animal ear tags, such as cattle ear tags; • one-time use semiochemical dispersion devices; • any container that is destroyed by the use of the product contained; and • any container that would be destroyed if reuse of the container were attempted.
Location of the information	156.140 (introductory paragraph)	These statements must be on the label or the container. If placed on container, they must be durably marked on the container anywhere other than the closure. If placed on the label, the required text must be under the heading “Storage and Disposal.”
Nonrefillable containers - Identification	156.140(a)(1)	The phrase “Nonrefillable container” is required.

Nonrefillable containers – Reuse statement	156.140(a)(2)	One of the following statements is required. Products with labels that allow household/residential use must use (1) or (3): (1) "Do not reuse or refill this container." (2) "Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state." (3) The following statement may be used if a product is "ready-to-use" and its directions for use allow a different product (that is a similar, but concentrated formulation) to be poured into the container and diluted by the end user: "Do not reuse or refill this container unless the directions for use allow a different (concentrated) product to be diluted in the container."
RECYCLING OR RECONDITIONING STATEMENT AND BATCH CODE FOR NONREFILLABLE CONTAINERS		
Which pesticides must comply?	156.140 (introductory paragraph), 156.140(d), 156.140(e)	All pesticide products in nonrefillable containers, other than the following, must include a statement about recycling or reconditioning per §156.140(a)(3) and a lot number or other code to identify the batch per §156.140(a)(4): Plant-incorporated protectants, pesticidal articles that are not exempted from FIFRA regulation by §152.25(a) and transport vehicles are exempt from these two requirements.
Location of the information	156.140 (introductory paragraph)	These statements must be on the label or the container. If placed on container, they must be durably marked on the container anywhere other than the closure. If placed on the label, the required text, other than the batch code, must be under the heading "Storage and Disposal."
Nonrefillable containers – Recycling or reconditioning statement	156.140(a)(3)	One of the following statements is required: • "Offer for recycling if available." • "Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact [a pesticide container recycling organization] at [phone number] or [web site]." For example, this statement could be "Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact the Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org." • A recycling statement approved by EPA and published in an EPA document, such as a Pesticide Registration Notice. • An alternative recycling statement that has been reviewed and approved by EPA. • "Offer for reconditioning if appropriate."
Nonrefillable containers – Batch code	156.140(a)(4)	A lot number or other code used by the registrant or producer to identify the batch of the pesticide product which is distributed or sold is required.

IDENTIFICATION OF CONTAINER TYPE FOR REFILLABLE CONTAINERS		
Which pesticides must comply?	156.140 (introductory paragraph), 156.140(d), 156.140(e)	All pesticide products in refillable containers, other than the following, must include a statement that identifies the container as a refillable container and provides some handling restrictions per §156.140(b): Plant-incorporated protectants, pesticidal articles that are not exempted from FIFRA regulation by §152.25(a) and transport vehicles are exempt from this requirement.
Location of the information	156.140 (introductory paragraph)	This statement must be on the label or the container. If placed on container, it must be durably marked on the container anywhere other than the closure. If placed on the label, the required text must be under the heading "Storage and Disposal."
Refillable containers	156.140(b)	One of the following statements is required: • "Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose." • "Refillable container. Refill this container with *[common chemical name]* only. Do not reuse this container for any other purpose."
CLEANING INSTRUCTIONS FOR NONREFILLABLE CONTAINERS		
Which pesticides must comply?	156.144(a), (c), (e), (f) and (g) 156.146 (introductory paragraph)	Residential/household use pesticides, gases, pesticidal articles that are not exempted from FIFRA regulation by §152.25(a), and transport vehicles are exempt from the requirements for cleaning instructions. For all other pesticides, dilutable pesticides (liquid or dry) in rigid nonrefillable containers must comply with these standards (cleaning instructions for nonrefillable containers).
Location of the information	156.144(b)	All cleaning instructions must be placed under the heading "Storage and Disposal."
Timing of the rinsing procedure	156.146(a)	One of the following statements is required immediately before the rinsing instructions: • "Clean container promptly after emptying." • "Triple rinse or pressure rinse container (or equivalent) promptly after emptying." • "Triple rinse container (or equivalent) promptly after emptying."
Which rinsing procedure?	156.146(b)&(c)	The label ***must*** include triple rinsing instructions and ***may*** include pressure rinsing instructions.

Triple rinsing instructions	156.146(b)	• For liquid dilutable pesticides in containers small enough to shake: "Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times." • The statement for solid dilutable pesticides in containers small enough to shake is similar. • For containers that are too large to shake: "Triple rinse as follows: Empty remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times."
Pressure rinsing instructions	156.146(c)	• For liquid dilutable pesticides: "Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip." • The statement for solid dilutable pesticides is similar.
Non-water diluent	156.146(d)	If a registrant wants to include instructions to rinse a container with a diluent other than water, the registrant must submit a request, meeting certain criteria, and receive approval from EPA before including such cleaning instructions on the label.
CLEANING INSTRUCTIONS FOR REFILLABLE CONTAINERS		
Which pesticides must comply?	156.144(a), (c), (e), (f) and (g) 156.156	Residential/household use pesticides, gases, pesticidal articles that are not exempted from FIFRA regulation by §152.25(a), and transport vehicles are exempt from the requirements for cleaning instructions. All other pesticides distributed or sold in refillable containers must comply with these standards (cleaning instructions for refillable containers).
Location of the information	156.144(b)	All cleaning instructions must be placed under the heading "Storage and Disposal."

Timing	156.156(a)	One of the following statements is required immediately before the cleaning instructions: • "Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller." • "Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller."
Cleaning procedure – general standard	156.156(b)(1)	The label must include instructions for cleaning each refillable container before disposal. The instructions must be appropriate for the characteristics of the pesticide and be adequate to protect human health and the environment.
Cleaning instructions	156.156(b)(2)	The instructions for cleaning refillable containers could include any of the following: • The refilling residue removal procedure developed by the registrant; • Standard industry practices for cleaning refillable containers; • For pesticides that require dilution prior to application, the following statement: "To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this procedure two more times." • Any other statement the registrant considers appropriate.
WAIVERS OR MODIFICATIONS TO THE "CONTAINER TYPE" AND RESIDUE REMOVAL STATEMENTS		
Waivers or modifications	156.140(c)	EPA may, on its own initiative or based on data or information submitted by any person, modify or waive the "container type" requirements of §156.140 or permit or allow alternative labeling statements. This applies to all of the requirements of §156.140 including: • "Nonrefillable container." for nonrefillable containers; • A reuse statement for nonrefillable containers; • A recycling/reconditioning statement for nonrefillable containers; • A batch code for nonrefillable containers; • The refillable container identification and handling statement for refillable containers.
	156.144(d)	EPA may, on its own initiative or based on data or information submitted by any person, modify or waive the requirements for residue removal statements or permit or allow alternative labeling statements. This applies to the requirements in §156.144 - §156.156 including: • The residue removal statements for nonrefillable containers (specifically for dilutable products in rigid containers); • The residue removal statements for all refillable containers.

MODIFICATIONS TO OTHER SECTIONS IN 40 CFR PART 156		
Definitions	156.3	Added a new section to define “dilutable” and “transport vehicle”.
Which pesticides must comply?	40 CFR Part 156	In general, all pesticides must comply with the label instructions in 40 CFR Part 156.
Location of the information	40 CFR Part 156	There are no changes to the location of the net contents, EPA establishment number and storage and disposal instructions as specified in 40 CFR 156.10.
Net contents	156.10(d)(7)	Add a paragraph that allows registrants to leave a blank area on labels of pesticides packaged in refillable containers, which would allow refillers to mark in the net contents.
EPA establishment number	156.10(f)	Modify the paragraph to allow registrants to leave a blank area on labels of pesticides packaged in refillable containers, which would allow refillers to mark in the EPA establishment number.
Storage and disposal instructions	156.10(i)(2)(ix)	Modify the paragraph to refer to the new Subpart H (Container Labeling) and other changes made by the container and containment regulations.

US Environmental Protection Agency
Office of Pesticide Programs

Table 7: Standards for Containment Structures (40 CFR Part 165 Subpart E)

October 2008

Table 7: Standards for Containment Structures (40 CFR Part 165 Subpart E)

Short Description	Reg Cite	Requirement
SCOPE AND APPLICABILITY		
Who must comply	165.80(b)	• Refilling establishments whose principal business is retail sale • Custom blenders • Commercial applicators
Pesticides that must comply	165.80(b)	Agricultural pesticides
Stationary containers that are subject	165.81(a) & (b)	Stationary pesticide containers[1] in affected facilities must have secondary containment except for: • Empty containers; • Containers holding only rinsate or wash water and so labeled; • Containers holding pesticides which are gaseous at atmospheric temperature and pressure; and • Containers dedicated to non-pesticide use and so labeled.
Pesticide dispensing areas that are subject	165.82(a)	Dispensing areas in affected facilities must have containment pads if: • Refillable containers of agricultural pesticide are emptied, cleaned or rinsed; • Agricultural pesticides are dispensed from a stationary container designed to hold undivided quantities of agricultural pesticides equal to or greater than 500 gallons liquid or 4,000 pounds dry for any purpose; • Agricultural pesticides are dispensed from a transport vehicle for purposes of refilling a refillable container; or • Agricultural pesticides are dispensed from any other container for the purpose of refilling a refillable container for sale or distribution.
Define existing structure	165.83(b)	An existing containment structure is a structure for which installation began on or before November 16, 2006.
Define new structure	165.83(a)	A new containment structure is a structure for which installation began after November 16, 2006 if certain conditions regarding permits, construction and contracts are met.
COMPLIANCE DATE		
Compliance date	165.80(c)	As of August 17, 2009 all containment structures must comply with the specific standards applicable to them.

GENERAL STANDARDS FOR NEW STRUCTURES		
Material	165.85(a)	• Containment structures must be constructed of steel, reinforced concrete or other rigid material capable of withstanding the full hydrostatic head and load of any substances, equipment and appurtenances placed on the structure and must be compatible with the pesticides stored. • The structure must be liquid-tight with cracks, seams and joints sealed. • Natural earthen material, unfired clay and asphalt are prohibited.
Protect appurtenances	165.85(b)(1)	Appurtenances[2] and containers must be protected against damage from personnel and moving equipment.
Configuration of drains	165.85(b)(2)	• Appurtenances, discharge outlets or drains must not be configured through the base or wall except for direct connections between containment structures. • Appurtenances must be configured so leaks are easy to see.
Stormwater control	165.85(b)(3)	All containment structures must be constructed with sufficient freeboard to contain precipitation and prevent water and other liquids from seeping into or flowing onto them from adjacent land or structures.
CAPACITY STANDARDS FOR NEW STRUCTURES		
Capacity: liquids	165.85(c)(1) & (2)	New secondary containment units must have a capacity of 110% (for outdoor) or 100% (for indoor) of the largest stationary container plus the displaced volume of other tanks and appurtenances.
Capacity: pads	165.85(c)(3) & (4)	All containment pads must have a capacity of: (1) 750 gallons; or (2) 100% of the capacity of the largest container or equipment used on the pad (if no container or equipment on the pad exceeds 750 gallons).
SPECIFIC STANDARDS FOR NEW SECONDARY CONTAINMENT FOR LIQUID PESTICIDES		
Flotation prevention	165.85(d)	Stationary containers of liquid pesticides must be anchored or elevated to prevent flotation.
SPECIFIC STANDARDS FOR NEW PADS		
Pad design	165.85(e)	New containment pads must: • be designed to intercept leaks and spills; • have enough surface area to extend under containers on it; • must accommodate at least the portion of the vehicle where the hose or device couples to it, for transport vehicles delivering pesticide; • allow for removal/recovery of spilled, leaked or discharged material and rainfall; • have no automatic pumps without overflow cutoffs; • have a surface sloped to a watertight sump or depression.

SPECIFIC STANDARDS FOR NEW SECONDARY CONTAINMENT FOR DRY PESTICIDES		
Protection from precipitation	165.85(f)	• Stationary containers of dry pesticides must: • be protected from wind and precipitation; • be on pallets or raised concrete platforms; • have a floor that extends completely beneath the pallets or raised concrete platforms; • be enclosed by a curb a minimum of 6 inches high that extends at least 2 feet beyond the perimeter of the container.
GENERAL STANDARDS FOR EXISTING STRUCTURES[3]		
Material	165.87(a)	• Containment structures must be constructed of steel, reinforced concrete or other rigid material capable of withstanding the full hydrostatic head and load of any substances, equipment and appurtenances placed on the structure and must be compatible with the pesticides stored. • The structure must be liquid-tight with cracks, seams and joints sealed. • Natural earthen material, unfired clay and asphalt are prohibited.
Protect appurtenances	165.87(b)(1)	Appurtenances and containers must be protected against damage from personnel and moving equipment.
Configuration of drains	165.87(b)(2)	Appurtenances, discharge outlets or drains through the base or wall must be sealed, except direct connections between containment structures.
Stormwater control	165.87(b)(3)	All containment structures must be constructed with sufficient freeboard to contain precipitation and prevent water and other liquids from seeping into or flowing onto them from adjacent land or structures.
CAPACITY STANDARDS FOR EXISTING STRUCTURES[3]		
Capacity: liquids	165.87(c)(1)	Existing secondary containment units must have a capacity of 100% (for indoor or outdoor) of the largest stationary container plus the displaced volume of other tanks and appurtenances.
Capacity: pads	165.87(c)(2) & (3)	All containment pads must have a capacity of 750 gallons; or (2) 100% of the capacity of the largest container or equipment used on the pad (if no container or equipment on the pad exceeds 750 gallons).
SPECIFIC STANDARDS FOR EXISTING SECONDARY CONTAINMENT FOR LIQUID PESTICIDES		
Flotation prevention	165.87(d)	Stationary containers of liquid pesticides must be anchored or elevated to prevent flotation.

SPECIFIC STANDARDS FOR EXISTING PADS[3]		
Pad design	165.87(e)	Existing containment pads must: • be designed to intercept leaks; • have enough surface area to extend under containers on it; • must accommodate at least the portion of the vehicle where the hose or device couples to it, for transport vehicles delivering pesticide; • allow for removal/recovery of spilled, leaked or discharged material and rainfall; • have no automatic pumps without overflow cutoffs.
SPECIFIC STANDARDS FOR EXISTING SECONDARY CONTAINMENT FOR DRY PESTICIDES		
Protection from precipitation	165.85(f)	Stationary containers of dry pesticides must: • be protected from wind and precipitation; • be on pallets or raised concrete; • have a floor that extends completely beneath the pallets or raised concrete platforms; • be enclosed by a curb a minimum of 6 inches high that extends at least 2 feet beyond the perimeter of the container.
STANDARDS FOR ALL STRUCTURES		
Operational	165.90(a)	The owner/operator must: • Prevent pesticides from escaping the structure; • Clean up spills no later than the end of the day of occurrence except in circumstances where a reasonable delay would significantly reduce the likelihood or severity of adverse effects to human health or the environment; • Manage spilled and leaked materials according to the label and all regulations; • Ensure that transfers of pesticides are attended. • Lock valves (if required) on stationary pesticide containers or lock the facility, whenever the facility is unattended.
Inspection	165.90(b)(1)	The owner/operator must inspect each container and its appurtenances and each containment structure monthly during periods when pesticides are being stored or dispensed on the containment structure.
Maintenance	165.90(b)(2) & (3)	The owner/operator must initiate repair to any areas showing damage and must seal cracks and gaps no later than the end of the day on which damage is noticed and complete repairs within a reasonable time frame, taking into account factors such as the weather, and the availability of cleanup materials, trained staff and equipment. Additional pesticides cannot be stored until repairs have been made.
Integrated systems	165.92	Containment pads and secondary containment units may be combined as integrated systems if the requirements for each are satisfied.

Recordkeeping	165.95	The owner/operator must maintain the following records for 3 years: • Name of person conducting inspection or maintenance and date; • Conditions noted and specific maintenance performed; • Records of how long non-stationary tanks (with the specified capacities) remain at the facility; • Record of the construction date of the structure (for as long as the structure is in use and for 3 years afterwards).
STATES WITH EXISTING CONTAINMENT PROGRAMS		
Option to continue implementing State containment regulations	165.97	• States that have already published containment regulations and that have primary enforcement responsibility and/or certification programs have the option of continuing to implement their own programs in lieu of these federal containment regulations. • States may request authority to continue implementing containment regulations by submitting a letter and supporting documentation showing that the State's program is at least as environmentally protective as these federal regulations. • EPA will determine whether the State's program is adequate to provide at least equivalent environmental protection and will inform the State of that determination.

Notes

1. A stationary pesticide container is defined as a refillable container that is fixed at a single facility or establishment or, if not fixed, remains at the facility or establishment for at least 30 consecutive days, and that holds pesticide during the entire time. Stationary pesticide containers are subject to the regulations if they are designed to hold undivided quantities of pesticides equal to or greater than 500 gallons (1,890 liters) for liquids or 4,000 pounds (1,818 kilograms) for dry pesticides.

2. Appurtenance is defined as any equipment or device which is used for the purpose of transferring a pesticide from a stationary pesticide container or to any refillable container, including but not limited to, hoses, fittings, plumbing, valves, gauges, pumps and metering devices.

3. Several of the requirements for existing standards are slightly different from the requirements for new standards. These are requirements which would entail minimal cost when incorporated into construction of new structures, but which would be expensive to retrofit into existing structures and which would not have measurable environmental benefit.