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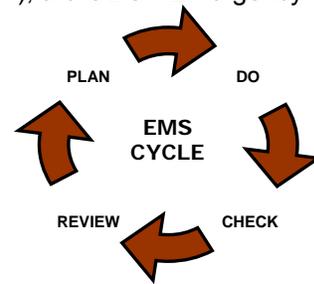
## INTRODUCTION

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 is one of several statewide environmental programs, overseen by the Maintenance and Operations Branch (MOB) (formerly the Office of Maintenance and Operations) that provide consistent guidance and direction to ODOT Maintenance employees. As such, 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 EMS program is based on the four (4) basic 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.

The EMS program for [maintenance yards](#) was developed by a technical team comprised of representatives from ODOT Fleet, Facilities, Safety, HazMat, and Maintenance plus a representative from the Oregon Department of Environmental Quality (DEQ) and the Governor’s liaison.

The EMS program consists of three components contained in two distinct documents. 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 [maintenance yards](#). The Manual is also available online at <http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml>. The second document, the Employee Handbook, is intended to provide a quick reference of common practices and is intended for field level staff.

## PROGRAM COMPONENTS

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 consideration 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 (manned or unmanned identified by a facility number) where materials are typically stored. 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 apply to appropriate situations regardless of location.

- Emergency situations are outside the scope of this program. Employees should review the ODOT Emergency Operations Plan for guidance and direction.

The EMS Program is comprised of three parts: Policy, Procedures Manual, and the Handbook.

## 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 BMPs for material management, outlines the documentation requirements of the program, and contains supplemental information (e.g. technical references, legal citations, and fact sheets).

Developing BMPs that cover every situation and product is an impossible task. 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. 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 materials that may not be easily identified 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. General 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 three key words (must, should, and recommend) 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 recommends implementing where practical are presented with the word 'should.'
  - **Recommend-** Suggestions and good ideas are represented by the word 'recommend.'
- **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 twenty-one 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 (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 (i.e. “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 security, drainage, tanks, storage areas, and [secondary containment](#) (if any) with the intent of identifying things that need to be corrected. Items discovered during the Monthly Field Audit are recorded on the Corrective Action sheet. cursory observations, routine maintenance, 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 be critical of the procedures, 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 including representatives from other ODOT departments (e.g. Safety, Facilities Management, or GeoEnvironmental) may be invited to any site visit at the discretion of the District Manager. The seven *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 twenty-one of the 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, meets biannually. The team is comprised of representatives from Maintenance including Fleet, Bridge, Traffic Line plus representatives from ODOT HazMat, ODOT GeoEnvironmental, ODOT 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 third 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.

Maintenance facility descriptions and onsite audit expectations

| Type                    | Description  | Monthly Audit                                       | Regional Audit   |            |  |
|-------------------------|--|---|--|------------|--|
|                         |  |   | Forms  | Site Visit | Who  |
| Maintenance yard        | <p>Any facility with a year-round maintenance or specialty crew.</p> <p>Any facility where bulk fuel is stored onsite.</p> <p>Any seasonally staffed or unstaffed facility with at least one building intended for crew occupancy <b>IF</b> bulk deicers are stored onsite.</p>  | Yes   | <p>Regional Audit</p> <p>7 priority procedures plus a selection of other procedure audits</p>    | yes        | <p>Team</p> <p>DM or ADM plus local and technical assistance</p> |
| Winter maintenance site | <p>A remote location for bulk deicer storage.</p> <p>The facility could have one or more structures that are not intended for crew occupancy.</p>  | <p>No</p> <p>Informal audit during routine work</p> | <p>Modified Audit</p> <p>Selection of procedures audits that may include priority procedures</p> | yes        | DM or ADM  |
| Dry storage facility    | <p>An unstaffed location with at least one structure (with a facility number) that is primarily used for dry storage (e.g. sand or timbers). Small quantities of oil, fuel, or other liquid products may be stored indoors onsite.</p> <p>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.</p> | <p>No</p> <p>Informal audit during routine work</p> | <p>Discussion</p> <p>One page form to document observed site conditions</p>                      | yes        | Local  |

## SUSTAINABILITY

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.

Sustainability was added to ODOT's Value Statements in 2010. The current Sustainability Value reads: We balance economic, environmental and community well-being in a manner that protects the needs of current and future generations.

Volume 2 of the ODOT Sustainability Plan sets goals, strategies, and performance measures for internal operations. Two performance measures are associated with the EMS Program:

1. Percent measure of *maintenance yards* following the seven priority procedures of EMS.
2. Amount of hazardous waste generated at each *maintenance yard* and truck shop each year

Seven procedures were selected as indicators of EMS program implementation: drainage and water quality; aerosol cans; fuel; lighting; oil; pesticide; and winter maintenance. 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 seven priority procedures are evaluated at each *maintenance yard* during the yard's scheduled Regional Audit. Some of the priority procedures may be audited at *winter maintenance sites*.

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 to ODOT's Sustainability department on Maintenance's progress in both 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 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 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.

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 implemented at the facility. 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 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 (if applicable) 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.

Collecting stormwater samples for each *maintenance yard* is impractical both fiscally and physically. Stormwater runoff from representative ODOT *Maintenance yards* was collected and analyzed from 2002 to 2004. Representative sampling 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 MOB will coordinate the collection of additional representative stormwater samples, if necessary.

## 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 by regulating agencies 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.

# 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.

## 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. Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Flammable and 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 and Combustible Materials. Consult the *SDS* to determine the group. **A *liquid storage room* may be used to store flammable and combustible materials exceeding the quantities listed in Table 1.**

*Secondary containment* may be required for flammable and 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 and Combustible Materials |   | MAXIMUM STORAGE ALLOWED  |   |  |
|--|---|--|---|--|
|  |   | Per indoor area if NOT stored in a <i>flammables cabinet</i>               | Per indoor area if stored in a <i>flammables cabinet</i> <sup>1</sup> | Outdoors   |
| Group 1  | 1. Aerosols (all types)   | 10 gallons<br>(liquids used for the maintenance or operation of equipment) | 60 gallons  | No limit<br>1,100 gallons adjacent to a building |
|  | 2. Liquids with <i>flashpoint</i> below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>   |  |   |  |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | 10 gallons<br>(liquids used for the maintenance or operation of equipment) | 240 gallons   | No Limit<br>1,100 gallons adjacent to a building |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |  |   |  |
| Group 3  | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>  | 120 gallons  | 660 gallons   | No Limit<br>1,100 gallons adjacent to a building |

<sup>1</sup> 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 containers* is recommended where effective for product handling. Additional information on *compatible containers* is located in the Definition of Terms.
- **Products should be stored in an orderly manner** (e.g. designated storage areas and appropriate aisle width.) Containers should be stacked and stored so that damage to the container or the product is avoided. Storing products on pallets, shelves, or equivalent structures is encouraged. Storage areas should be kept neat and clean. Floors should be kept clean, dry, and in good repair.
- **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.** When containers are stored outdoors, efforts should be made to prevent rainwater from entering the container. Covering is recommended for products stored outdoors. Refer to the EMS Procedures for product specific BMPs.
- **Dry products (e.g. powder or granular) should be stored away from liquids.**
- ***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 and combustible materials when required.** A *flammables cabinets*, spill pallets, or other appropriate measures may be used to provide secondary containment. See Table 2 (below: Secondary Containment Chart) for Flammable and Combustible Materials.

Refer to Section 1.6 for additional information on secondary containment.

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

- **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 Section 4.4 – Water Treatment or 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

- **Policies and procedures in the ODOT Safety & Health Manual and the ODOT Emergency Operation Plan must be followed.**
- **Safety data sheets (SDS) must be located in areas that are accessible to all crewmembers.** Refer to the ODOT Safety & Health Manual for additional information on SDS requirements.
- **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.
- **Products should be used on a ‘first in, first used’ basis** to help minimize outdated, spoiled, or unusable products. The entire contents of a container should be used before opening a new one.
- **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 so long as the container is actively being used.
- **Equipment should be properly maintained according to manufacturer specifications and/or the Fleet guidance.** The right equipment for the job should be used.
- **Equipment and containers should be frequently inspected for leaks and drips.** Inspection frequency will vary according to site-specific needs and plans. Fleet and roadway equipment should be checked for leaks before each use.

### 1.3 WASTES

- **Where practical, products should be used until the container is empty.**
- **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, outdated products, and unwanted products must be properly managed.** Refer to the EMS Procedures for product specific BMPs.
- **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](#).
- **Brush, woody debris, and grass clippings should be recycled where available.** Waste may be chipped onsite or taken to a recycling facility. Where recycling is not available or practical wastes may be managed as *solid waste* (i.e. trash).
- **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.

## 1.4 EMPTY CONTAINERS

- **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.



- 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 returned to the vendor for reconditioning**, where available.
- **Where available, recycling is recommended for empty containers that are not reused or returned to the vendor** (e.g. recycling unwanted metal drums and cans as scrap metal),. Contact local recyclers for availability and requirements.
- **Empty containers that are not recycled, reused, or returned to the vendor should be managed as solid waste (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in [Appendix J](#). Plastic drums should be cut into two separate pieces prior to disposal. 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 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 cleanup hazardous products or *hazardous waste* (e.g. grease sweep with chlorinated solvent) 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.** OERS and NRC must be notified of all *reportable spills*. 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 spills that are reported to OERS.

## 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 dikes, curbing, and double-walled tanks.

The intent of secondary containment is temporary restraining a spill until appropriate response actions are 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: EPA examples of secondary containment (excerpt from the SPCC Guidance for Regional Inspectors, Version 1.0, 11/28/2005, Chapter 4)

| Method   | Description   |
|--|---|
| Dikes, berms, or retaining walls (sufficiently impervious) | Types of permanent engineered barriers, such as raised earth embankments or concrete containment walls. 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 <a href="#">active containment measure</a> .  |
| 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 used to direct spills toward drains or catchment areas. Temporary curbing may be constructed after a discharge is discovered as an <a href="#">active containment measure</a> .                                    |
| Culverts, 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. Generally used in combination with skimmers to remove oil from the surface of water.  |
| Booms  | Typically used for the containment, exclusion, or deflection of oil floating on water, and is usually associated with a contingency or 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.   |
| Barriers   | Spill mats, storm drain covers, and dams used to block or prevent the spill flow. Temporary barriers may be put in place prior to a discharge or after a discharge is discovered. These are both considered effective <a href="#">active containment measures</a> as long as the barrier can be implemented in time to prevent the spill movement.  |
| Spill diversion ponds and retention ponds                  | Designed for long-term or permanent containment of storm water. Capable of capturing a spill and preventing runoff from entering surface water bodies. Temporary spill diversion ponds and retention ponds may be constructed after a discharge is discovered as an <a href="#">active containment measure</a> as long as the pond can be constructed in time to prevent spill movement. There are very limited applications for use of temporary spill diversion and retention ponds.  |
| 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 <a href="#">active containment measure</a> to contain and collect small-volume spills. |

Table 1-3: EPA examples of secondary containment (excerpt from the SPCC Guidance for Regional Inspectors, Version 1.0, 11/28/2005, Chapter 4)

| Method                       | Description  |
|------------------------------|--|
| 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), uncoupling of hoses during bulk transfer operations, and for pumps, valves, and fittings. |
| Sumps and collection systems | A permanent pit or reservoir used to collect a spill.  |

*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 for a particular product refer to the Procedures section of this document (e.g. to find out if oil barrels require secondary containment look in Section 5.13 – Oil).

- **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) plans*. *Secondary containment* without design standards should follow the BMPs in this section.
- ***Secondary containment* must be capable of holding a spill until the product can be ‘promptly removed.’**
- **Secondary containment structures must be managed so that the capacity is maintained** (e.g. remove accumulated product, sediment, or water)
- **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).
- **Stormwater should be visually 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.
- **Valves that control the release of rainwater from containment structures, if present, must be manually operated.** Valves should be closed while the structure is providing containment.
- ***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.

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

- **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 taken in response to issues discovered during the Monthly 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](#).
- ***Secondary containment* structures should be cleaned as needed to comply with manufacturer recommendations and maintain sufficient containment capacity.** Accumulation of product, sediment, water, and debris inside *secondary containment* structures reduces the available capacity. Refer to the EMS Procedures for BMPs on managing waste removed from containment systems.
- **Required maintenance outlined in Operations and Maintenance (O&M) Manual should be completed.** 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 O&M Manual should be checked annually to ensure the system is watertight.
- **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.
- **An engineer must be contacted prior to making modifications to engineer-designed containment systems.** Maintenance and repairs may be conducted without consultation.

## 2 LABELS and SIGNS

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

Labeling **secondary containers** 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.



### 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 newly adopted (federal) Hazard Communication Standard requires changes to container labels (shipping labels). By June 1, 2015, all shipping labels will be required to have pictograms and a signal word in addition to previously required information.

The image shows a shipping label for Acetone. It features two hazard pictograms: a flame in a red diamond (Flammable liquid) and an exclamation mark in a red diamond (Irritant). The text reads: 'Acetone', 'Danger! Highly flammable liquid and vapor', and 'Causes severe eye irritation'. Below this, detailed safety instructions are provided: 'Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact. Flush eyes with water for at least 15 minutes while holding eyelids open.' At the bottom, the supplier information is listed: 'All-Chem Supply Company, 353 Water Street, Maplewood, NJ 01234, Tel: 973-555-4321'.

**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.

The newly adopted **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.

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

**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 diamonds* 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 diamonds* 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.

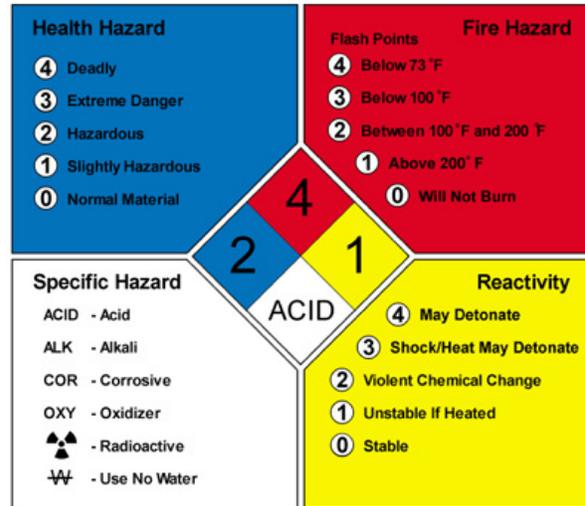
0 = no unusual hazard,

1 = minor hazard,

2 = moderate hazard,

3 = severe hazard, and

4 = extreme hazard.

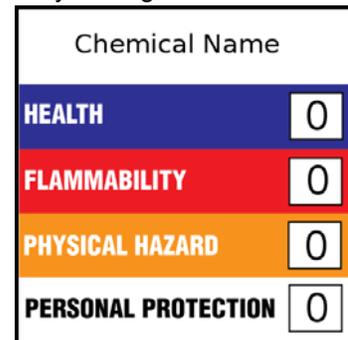


The hazard ratings (or numbers) are located typically on the *SDS*. In areas or containers where several different materials are stored, the hazard rating on the label or sign must identify the highest hazard.

*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.

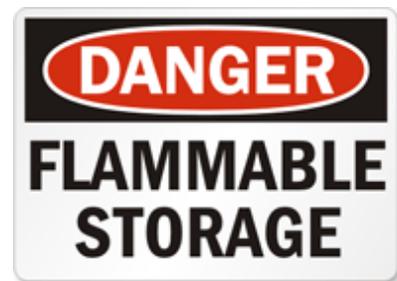
The hazard ranking in *GHS* and *NFPA* are reversed. In *GHS*, 1 is the highest hazard and 4 is the lowest hazard.



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 BUILDINGS, ROOMS, OR CARGO CONTAINERS

- Areas where *flammable liquids* 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 diamonds* or other hazard warning signs.
- If a *NFPA 704 diamond* is used, the sign must state the fire and health ratings for the most hazardous material stored with the area.



- 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 or combustible materials are stored, dispensed, or used must have a sign that states "No Smoking."
- 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 fuel station is used by personnel from non-state agencies (e.g. city agencies or county agencies) the following additional 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 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.
- **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.

- **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.**
- **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.

- **Cabinets used to store [flammable](#) or [combustible liquids](#) must be conspicuously labeled in red letters with a contrasting background with the following statement:**

Flammable – Keep Fire Away

## 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 or 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 are excluded from this requirement.
- In some fire districts winter maintenance chemical tanks require a *NFPA 704 diamond*. The local Fire Marshal office should be contacted.
- 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.

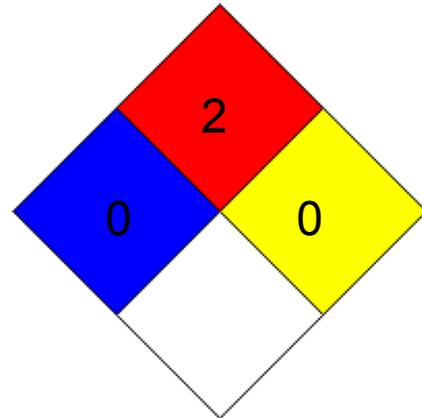


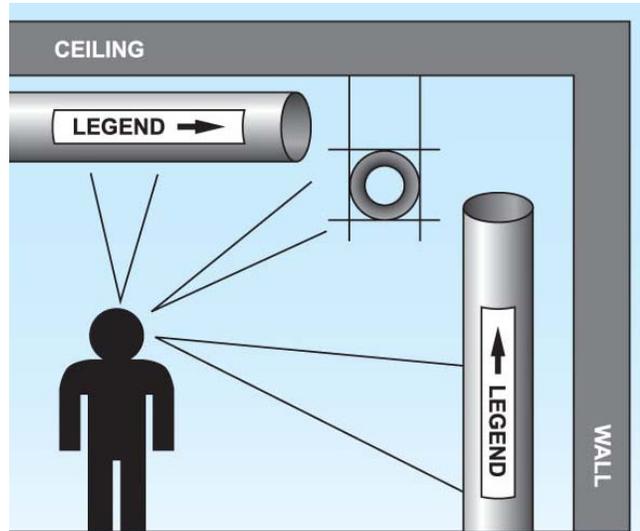
Figure 2-2: Example of NFPA 704 signing for a diesel tank.

## 2.5.3 Labels on Piping

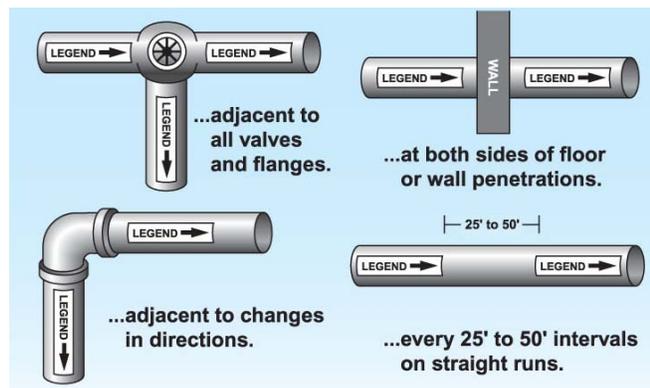
- Pipes that contain hazardous products **must** be labeled with contents (e.g. propane) and the direction of flow. A hazard warning (e.g. hot or high pressure) should be included where appropriate. The standard color combinations listed below should be used as a secondary method of identification.

| 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 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. 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).
- **Labels that stated the waste is recycled are recommended where appropriate.**

## 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**.
- 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.

**HAZARDOUS WASTE**

ACCUMULATION START DATE: 2/13/2013

CONTENTS: Waste solvent

ACCUMULATION END DATE: \_\_\_\_\_

**HANDLE WITH CARE!**  
CONTAINS HAZARDOUS OR TOXIC WASTES

Figure 2-3: Example of hazardous waste label.

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

**UNIVERSAL WASTE**

CONTENTS Used mercury lamps

ACCUMULATION START DATE 2/13/2013

SHIPPER ODOT - The Dalles

ADDRESS 3315 NE Bret Clodfelter

CITY, STATE, ZIP The Dalles, OR 97037

Figure 2-4: Example of universal waste label.

## 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. Information about fuel management (e.g. fuel storage, fuel dispensing, and fuel disposal) is located in Section 5.11 - Fuel.

##### 3.1.1.1 PURCHASING

- **The decision to purchase 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.
  - **New fuel tanks must comply with current Oregon Fire Code design, fabrication, and construction standards.** Contact Facilities Management for current standards.
  - **Fuel tanks must be double-walled construction.** Some 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 overfill prevention system must meet one 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
- OR**
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

- **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.** Pipes, valves, and fittings must also be protected. Protection must be at least 3 feet from the tank, unless a waiver is given by the local Fire Marshal.
  - Concrete guard posts (bollards). Posts must be at least 15 inches in diameter 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 barrier that is at least 3 feet high and is capability of resisting at least 12,000 pounds of force.
  - Other physical barrier approved by the local Fire Marshal.

### 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 (aggregate) 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. A list of SPCC yards is located in [Appendix K](#).
- **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.
- **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.

### 3.1.1.4 ROUTINE MAINTENANCE

#### 3.1.1.4.1 Area Upkeep

- **Vehicle impact protection must be maintained for fuel tanks.** 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 indicates 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 (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 periodically.** The emergency shutoff should be tested in accordance with the manufacturer's specifications. If manufacturer recommendations are not available, annual testing is recommended.
- **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 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 periodically for leaks.** Refer to the tank manual for the inspection method and frequency.



3-1 – Example of an emergency fuel shutoff



3-1 - Example of an overfill alarm

### 3.1.1.4.4 Tank Maintenance

ODOT Supply Operations manages a contract for periodic maintenance of bulk fuel tanks. Periodic interior cleaning is necessary to ensure the fuel is free of contaminants. The following BMPs are in addition to the contracted cleaning services.

- **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 routine inspections should be completed as soon as possible.** 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. HazMat and the MOB should be notified of problems that are reported to DEQ or other agencies.
- **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.
- **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.

### 3.1.1.5 REMOVAL FROM SERVICE AND DISPOSAL

- **Fuel tanks that 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 Supply Operations Manager.
- **If a bulk fuel tank is voluntarily taken out-of-service (i.e. tank will not be used but is not leaking) 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.** 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
- **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.
- **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 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.
- **Damaged tanks (i.e. leaking or failed an integrity test) that cannot be repaired (or repairs are not cost effective) should be replaced or 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.** 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.

### 3.1.2 Stationary Metal Tanks

#### 3.1.2.1 PURCHASING

- ***Secondary containment* must be provided for permanent tanks (greater than 55 gallons) that are intended to hold flammable or **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.
- **The tank should have a stamp 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 tanks used to store flammable or combustible products or wastes.** The overfill prevention system must meet one 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

**OR**

  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 (that meets one of the requirements listed above) should be provided** and maintained on all metal tanks; not just tanks used to store flammable and combustible products. A top-mounted visual indicator or gauge that displays the level of product in the tank is recommended.

### 3.1.2.2 SITING AND INSTALLATION

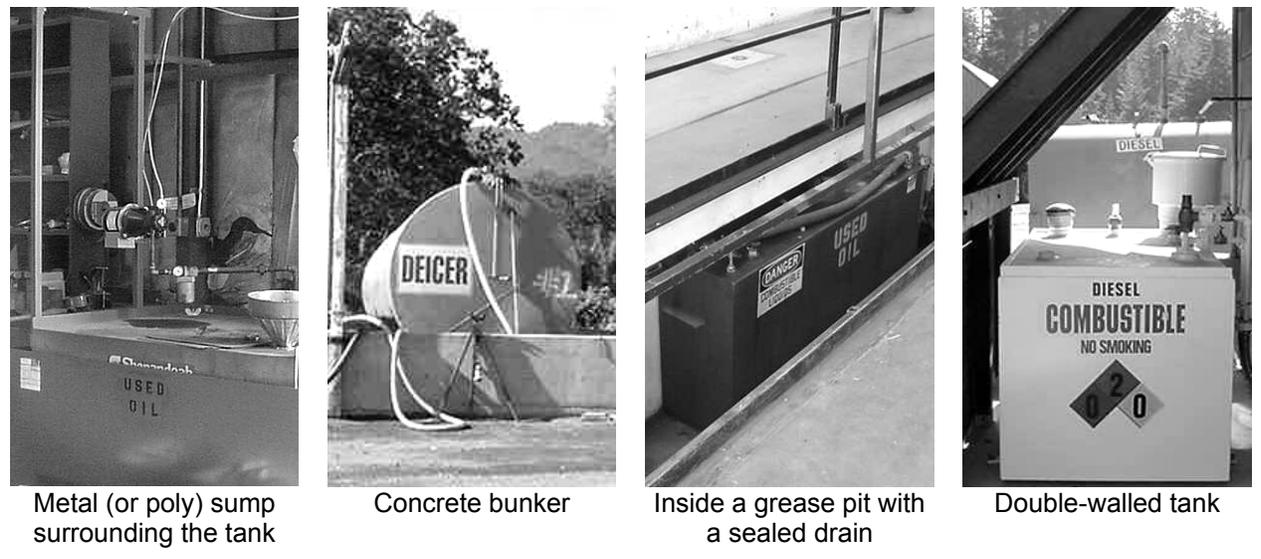
- **Metal tanks should be installed in a manner that prevents direct contact of the tank shell with the ground** (e.g. mounted on skids, installed on a concrete pad, or placed indoors). Contact with the ground increases potential corrosion and decreases the potential to observe leaks.
- **Metal tanks 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 or 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.
  - Concrete guard posts (bollards). Posts must be at least 15 inches in diameter 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 barrier that is at least 3 feet high and is capability of resisting at least 12,000 pounds of force.
  - 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 must be provided where appropriate for the product stored in the tank.** Tanks should have *secondary containment* where appropriate for risk management. See product specific guidance in the storage section of the 'brown tab' for the product.

Figure 3-3: Examples of **secondary containment** for stationary aboveground metal tanks. Secondary containment **must** be able to hold at least the entire capacity of the largest tank within the containment boundary plus sufficient freeboard to contain precipitation (if applicable).



- **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.

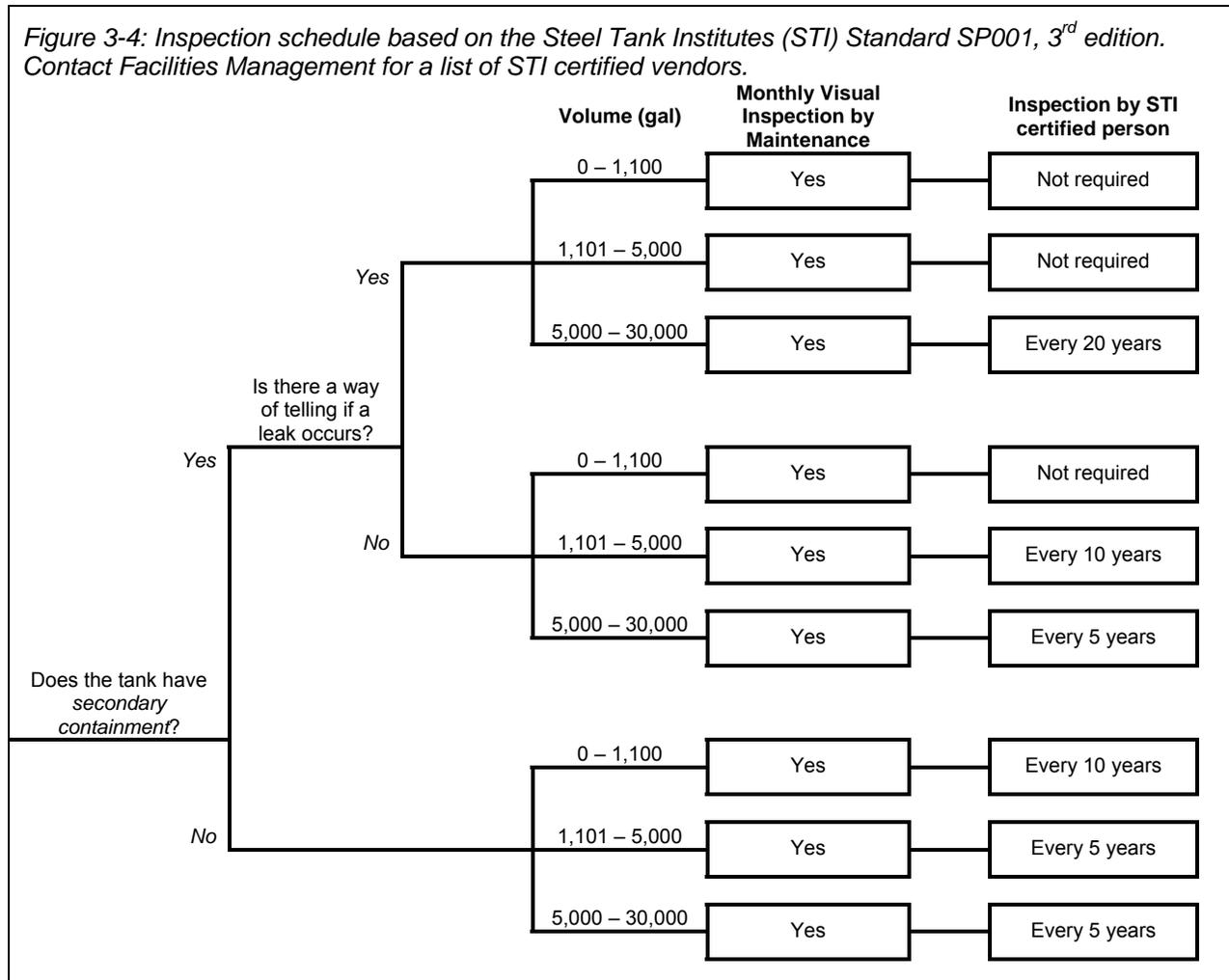
A double-walled tank provides secondary containment. Additional capacity for precipitation is not required.

### 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 or 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 or 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 or 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 to a testing schedule listed in Figure 3-4. Contact Facilities Management for a list of vendors that perform structural integrity testing. 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, 3<sup>rd</sup> edition. Contact Facilities Management for a list of STI certified vendors.



### 3.1.2.5 REMOVAL FROM SERVICE AND DISPOSAL

- **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 or combustible products or wastes is voluntarily taken out-of-service for 90 days or longer, the following safeguards must be implemented.** Tanks that are connected to heating units that are used seasonally are excluded from these requirements.
  - Flammable or combustible products 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
- **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.
- **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 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.
- **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 or combustible products 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.

### 3.1.3 Underground Fuel Storage Tanks (USTs)

This section provides information on underground bulk fuel tanks and tank management. Information about fuel management (e.g. fuel storage, fuel dispensing, and fuel disposal) is located in Section 5.11 - Fuel.

Only six 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.

#### 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: <http://www.deq.state.or.us/lq/pubs/docs/tanks/OperatingCertificates.pdf>
- **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 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.
- **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 (<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.
- **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.
- **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. Copies of the inspection results should be kept onsite.
- **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.** 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

- **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.
- **Decommissioning must be conducted in accordance DEQ's *UST* decommissioning regulations.** Decommissioning must be performed by a licensed *UST* service provider. In-place closures must be pre-approved by DEQ.
- **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. Information about 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.
- **Protection against tampering is recommended if the propane tank is installed in an area routinely occupied by the public.** The primary concern is damage to the service line that may result in leaks at connections along the line.
- **Containers and first stage regulating equipment must be located outside the building.**

#### 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).
- **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 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 the nameplate is missing, the stationary propane tank must be removed from service.
- If a licensed propane company determines the stationary propane tank is unsafe or leaking the tank must be removed from service.
- ODOT owned stationary propane tank 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 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 Section 4.2 – Septic Systems.

#### 3.1.6 Stationary Poly Tanks

Stationary poly tanks are primarily used for the storage of winter maintenance chemicals. 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 Chemical.

A publication from the Purdue University Cooperative Extension Service titled "Poly Tanks for Farms and Businesses. . .preventing catastrophic failures" is located in [Appendix L – Poly Tanks](#). The publication provides general information on tank construction, purchasing, installation, and inspection.

##### 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 or pesticide, the tank must be manufactured to hold products that are denser than water.** Tanks should have a *specific gravity* rating of at least 1.5. Tanks with a *specific gravity* of 1.7 or 1.9 are recommended, if available. The following conditions increase the need for a tank with a higher *specific gravity* rating:
  - 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
- **An inventory of poly tanks should be maintained.** An inventory sheet is located in [Appendix L](#). The purchase date and the *specific gravity* should be written on the tank or the tank order form.
- **Used tanks should be inspected for physical damage and stress cracks before acquiring.** 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](#).

- **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 should be sized for the amount of product used.** Larger tanks should be used to reduce the stress caused from frequent loading and unloading.
- **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 Chemicals 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.
- **If spilled product could flow into a municipal sanitary system, the municipality should be notified of the potential for products entering the system.** A letter to from the municipality should be kept onsite, at the *Maintenance yard* responsible for the site, or at the District office.
- **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 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.
- **The surface under the tank should be free of sharp rocks and other objects.**

- **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, where necessary, 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.

### 3.1.6.4 ROUTINE MAINTENANCE AND INSPECTION

- **An inventory of poly tanks should be maintained.** An inventory sheet is located in [Appendix L](#).
- **Tanks should be thoroughly cleaned before changing products.** Avoid mixing winter maintenance chemical with residues of other chemicals.
- **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 detailed inspection must be conducted at least annually on stationary tanks.** Detailed tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. A blank copy of the Stationary Poly Tank Inspection Form is located in [Appendix B](#). Additional information on poly tank inspection is located in [Appendix L](#).

- **Efforts should be made to reduce spills and drips that occur while loading.** Efforts may include using a bucket to collect product from hoses, using a valve, placing hoses in a trench, or using drip-less nozzles.
- **Fittings and pipes must be checked at least annually.** A blank copy of the Stationary Poly Tank Inspection Form is located in [Appendix B](#). Additional information on poly tank inspection is located in [Appendix L](#).
- **Pumps and other equipment should be repaired as necessary** (e.g. leaking, fouling, corroding, or worn). Equipment should be adequate for the workload.
- **Valves, gaskets, or fittings should be repaired or replaced as needed** (e.g. misaligned, loose, or deteriorated) to prevent seepage, gapping, or brittleness. Loose fittings should be tightened. Supports should be replaced or realigned as needed.
- **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 minor stress cracks should be replaced as soon as practical.** If a poly tank with minor stress cracks cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor the status of the stress cracks.
- **Tanks with minor or moderate damage (e.g. short or shallow cracks; some brittleness but still flexible; or shallow cuts) should be replaced as soon as practical.** If a poly tank with minor or moderate cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor damage.
- **Poly tanks that are no longer needed, but are still in good condition, should be transferred to Surplus Property or to another ODOT crew.** 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* (i.e. trash).

## 3.2 MOBILE TANKS

### 3.2.1 Poly Transport Tanks

A publication from the Purdue University Cooperative Extension Service titled "Poly Tanks for Farms and Businesses. . .preventing catastrophic failures" is located in [Appendix L – Poly Tanks](#). The publication provides general information on tank construction, purchasing, installation, and inspection.

### 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 Guidelines Manual for additional information.
- **An inventory of poly tanks should specific gravity be maintained.** An inventory sheet is located in [Appendix L](#). The purchase date and the *specific gravity* should be written on the tank or the tank order form.
- **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). The entire tank should be within the body of the vehicle.
- **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.
- **Used 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.
- **The poly transport tank should be attached to the skid assembly using metal bands or metal straps.** Bands should be snug but should not deform the tank. Transport tanks that are designed without legs should be mounted within a cradle that supports the entire length of the tank.
- **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

- **An inventory of poly tanks should be maintained.** An inventory sheet is located in [Appendix L](#).
- **Tanks should be thoroughly cleaned before changing products.** Avoid mixing winter maintenance chemical with residues of other chemicals.
- **Pre-trip inspections on horizontal tanks should be completed by the operator prior to leaving the property.** Look for
  - Missing, broken, and bent bolts on the bands
  - Leaks around valves, lids, or plumbing
  - Cracks or splits in the hoses
  - Improperly secured hoses or covers
  - Obstructed vent tubes
- **Hoses should be kept within the truck when not in use.**
- **Blocks should be placed under ball valves and hoses to reduce stress on the tank and fitting.**
- **The lid should be securely closed before moving the vehicle.**
- **Bands should be checked for gapping on a regular basis.** Bands should be re-tightened if gaps are evident.
- **Full or partially full tanks should be secured from theft and vandalism.** Appropriate security measures vary by location. Examples of methods of providing security are listed below.
  - Keep tank valves closed and locked when not in use.
  - Keep tank lids closed when the tank is unattended.
  - Store tanks indoors.
  - Store tanks in locations that are not visible from road or highway.
  - Store tanks in lighted storage areas.
  - Store tanks in locations that are equipped with fences or gates.
  - Regularly inspect the tank and equipment for tampering.
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of the exterior of transport tanks for obvious defects.** Deep cracks, irregular deformations, and texture variations (e.g. soft or brittle) should be checked frequently for changes.
- **A detailed inspection must be conducted at least annually on 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. The Poly Transport Tank Inspection Form located in [Appendix B](#) of this document provides additional information on tank inspections.
- **Tanks must be multiple rinsed before changing pesticide products or changing to different products after being used with pesticides.** Tanks should be thoroughly cleaned before changing products. Avoid mixing winter maintenance chemical with residues of other chemicals.
- **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

- **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 minor stress cracks should be replaced as soon as practical.** If a poly tank with minor stress cracks cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor the status of the stress cracks.
- **Tanks with minor or moderate damage (e.g. short or shallow cracks; some brittleness but still flexible; or shallow cuts) should be replaced as soon as practical.** If a poly tank with minor or moderate damage cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor damage.
- **Poly tanks that are no longer needed, but are still in good condition, should be transferred to Surplus Property or to another ODOT crew.** 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* (i.e. trash).

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

- **The purchase, replacement, and inspection of tanks, with equipment numbers, must be coordinated with Fleet Services.** Refer to the Fleet Guidelines 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.
- **The exterior of the tank must be visually inspected for leaks or obvious defects during the Monthly Maintenance EMS Field Audit.**
- **Asphalt kettles must be equipped with a tight-fitting cover.**
- **Tanks should be repaired or replaced as needed.** Portable tanks are unlikely to fail unless damaged in a collision.
- **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 in a collision, 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 and 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.

## 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 yards](#) (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 yards](#).

Information on removing potential pollutants from stormwater and wastewater is located in Section 4.4 – Water Treatment. 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. 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.
- Provide containment for areas where spills are likely to occur.
- Divert stormwater away from outdoor storage areas.
- Treat wastewater to remove potential pollutants.
- Site storage areas, equipment repair areas, and washing activities away from stormwater inlets and drains.

Site-specific [Yard Handbooks](#) will include information about onsite practices. Contact the MOB for additional information on [Yard Handbooks](#).

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



- **Facilities Management and the MOB must be notified when existing drainage systems are modified.** Changes to engineered drainage systems must be coordinated with Facilities Management.
- **The location of [stormwater conveyances](#) should be noted on site drawings.** Site drawings should be updated whenever drainage is modified or if additional stormwater components are discovered. The MOB should be notified of modifications to the stormwater system.
- **If stormwater flows offsite, employees should be aware of where the water goes.** Local understanding and knowledge of onsite stormwater systems is important to aid the containment and cleanup of potential spills.
- **Periodic inspection of [stormwater conveyances](#) during a significant rainfall or snowmelt event is recommended.** Significant precipitation events may clog catch basins or overload pollutant minimization efforts.
- **Spill containment (e.g. curbing) and/or water treatment (e.g. routing stormwater through vegetation) are recommended in areas where pollutants are likely to flow into waterbodies or sensitive sites (e.g. wetlands).** See Section 4.4 for information on water treatment.
- **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 taken in response to issues discovered during the Monthly 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 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 1/3 full of sediment is recommended (measured from the bottom of the sump to the lowest overflow).
- **A log of maintenance actions performed on onsite catch basins (including wash racks) should be kept.**
- **The location of catch basins and other inlets should be noted on site drawings.** The outlet for each catch basin should be identified. Site drawings should be updated whenever drainage is modified or if additional stormwater components are discovered. The MOB should be notified of modifications to the stormwater system.

#### 4.1.2 Ditches

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

- **The location of ditches that receive stormwater runoff from *Maintenance yards* should be noted on site drawings.** Receiving waterbodies should be identified if possible. Site drawings should be updated whenever drainage is modified or if additional stormwater components are discovered. The MOB should be notified of modifications to the stormwater system.

#### 4.1.3 Stormwater Outlets

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

- **The location of stormwater outlets should be noted on site drawings.** Associated inlets should also be identified. Site drawings should be updated whenever drainage is modified or if additional stormwater components are discovered. The MOB should be notified of modifications to the stormwater system.
- **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.

- **The location of water quality features should be noted on site drawings.** If design drawings are available, a copy should be kept onsite. Site drawings should be updated if the feature is modified or if additional information is discovered. The MOB should be notified of modifications to the feature.
- **Limitations and special maintenance procedures described in site-specific Operation and Maintenance (O&M) Manuals should be implemented in addition to the BMPs in the Maintenance Guide.** Each ODOT stormwater facility should have an O&M Manual (completed on or after December 2010) that provides a detailed description of the facility and includes special maintenance requirements and limitations on equipment access. Completed O&M manuals are available online. Contact the Senior Hydraulic Engineer in the Geo-Environmental Section with questions about maintaining stormwater facilities that do not have manuals.

#### 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 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 is currently working with DEQ to develop a statewide stormwater UIC management strategy. Site-specific requirements for managing UICs will be included in Yard Handbooks.

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 UICs*' at ODOT [Maintenance Yards](#) have been decommissioned.

If an '*automotive UIC*' is discovered, contact Region HazMat for assistance with decommissioning.

- **Facilities Management or the MOB must be notified when UICs are installed, discovered, or decommissioned at a [Maintenance facility](#).** UICs are allowed for the disposal of stormwater, roof runoff, and domestic sewage. UICs are not allowed for the disposal of wastewater from shop floor drains or wash racks. The person managing the installation of the new UIC is responsible for ensuring the UIC is properly registered and meets DEQ requirements.

#### 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.

- **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.
- **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 overflow the septic tank will clog the drainfield and result in system failure. Having the septic tank pumped out before the sludge reaches  $\frac{1}{3}$  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.

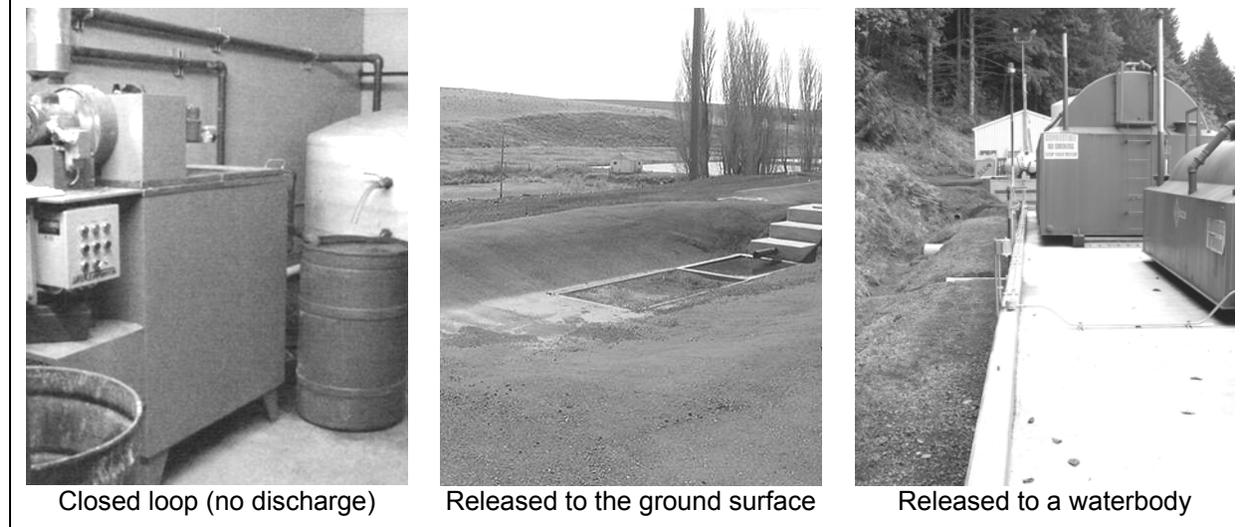
### 4.3 WASTEWATER DISCHARGES

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

BMPs for wastewater discharges are described in this Section. Releases to the ground surface include sheet flow from a paved surface, infiltration into the ground, or discharge to a piped system that terminates at the ground surface. Releases to a waterbody include discharge to a municipal stormwater system, to a ditch, or a piped system that terminates at a waterbody.

BMPs for activities that cause wastewater discharges (e.g. vehicle washing or equipment cleaning) are located in the EMS procedures (check the cross-reference for help finding the correct procedure). Information about water treatment and BMPs for the maintenance of water treatment systems are listed in Section 4.4 – Water Treatment.

*Figure 4-2: Examples of wastewater discharges. A DEQ permit may be required for wastewater discharges to the ground surface or to a waterbody. See Section 4.4 – Water Treatment Systems and product specific EMS Procedures for BMPs to minimize potential pollutants in wastewater.*



- **Shop drains (i.e. drains that receive water from shop floors, grease pit, and wash racks) should be connected to local, municipal, sanitary sewer systems where connections are available and allowed.** The local sewerage agency may 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, wastewater discharges that cannot be connected to municipal sanitary systems should be managed so that a DEQ permit is not required.** The use of closed loop or no-discharge systems (e.g. sealed drains, evaporators, or recycling systems) is recommended where appropriate. Information about DEQ vehicle and equipment 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. General BMPs for vehicle washing are listed in Section 5.9 – Equipment and Fleet and general BMPs for floor drains and grease pit sumps are listed in Section 4.1.1 – Catch Basins and Sumps. Contact the MOB with questions about DEQ wastewater permits.
- **Wastewater discharges (with a potential for receiving automotive fluids) 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.
- **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 taken in response to issues discovered during 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](#).
- **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.

#### 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 yards 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), Tables 4-1 and 4-2 can be used to help evaluate treatment options.

Table 4-1 - Water Treatment Summary lists several general methods for removing pollutants from water (stormwater or wastewater). Each method removes some types of pollutants better than other types of pollutants. The methods are rated for how well the treatment removes pollutants typically found at *maintenance yards*. The treatment methods are also rated for how much effort is needed to keep the systems functional.

The typical pollutants from *maintenance yards* are listed in Table 4-2 – Potential Pollutants. This general list of pollutants matches the treatment effectiveness categories in Table 4-1. The ratings assume that good housekeeping measures have been implemented. Spills and poor housekeeping will affect the level of pollutants.

Figure 4-3: Examples of ways to remove pollutants from water.

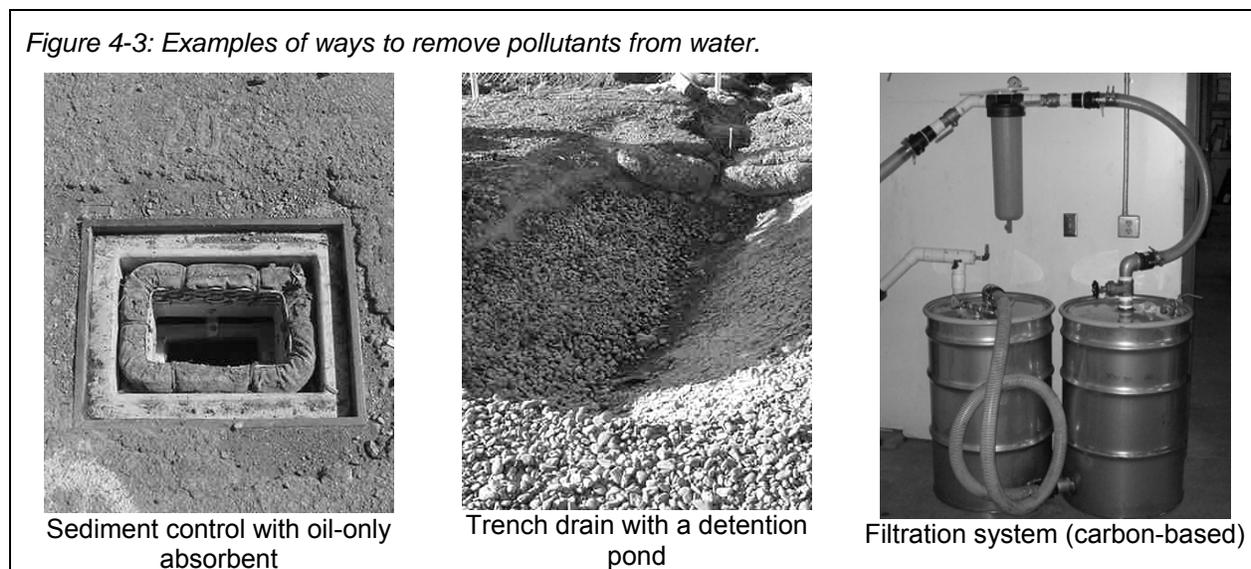


Table 4-1

| <b>Water Treatment Summary</b> |   | <b>Sediment or Erosion Control</b> | <b>Oil/water separator (vault type)</b> | <b>Filter media (sand / compost)</b> | <b>Filtration system (carbon)</b> | <b>Oil-only absorbent</b> | <b>Infiltration trench</b> | <b>Grassy swale or filter strip</b> | <b>Bio-retention</b> | <b>Detention pond (dry)</b> |
|--------------------------------|---|------------------------------------|---|--------------------------------------|-----------------------------------|---------------------------|----------------------------|-------------------------------------|----------------------|-----------------------------|
| <b>Symbol Key</b>              |   |                                    |   |                                      |                                   |                           |                            |                                     |                      |                             |
| ○ = low                        |   |                                    |   |                                      |                                   |                           |                            |                                     |                      |                             |
| ◐ = medium                     |   |                                    |   |                                      |                                   |                           |                            |                                     |                      |                             |
| ● = high                       |   |                                    |   |                                      |                                   |                           |                            |                                     |                      |                             |
| Blank = NA                     |   |                                    |   |                                      |                                   |                           |                            |                                     |                      |                             |
| <b>Treatment Effectiveness</b> | Sediment / particulate                    | ●                                  | ◐                                       | ●                                    | ●                                 | ○                         | ●                          | ●                                   | ●                    | ●                           |
|                                | Oil and grease                            | ○                                  | ●                                       | ○                                    | ●                                 | ●                         | ○                          | ○                                   | ○                    | ○                           |
|                                | Polycyclic aromatic hydrocarbons (PAHs)   |                                    |   | ○                                    | ○                                 |                           | ○                          | ●                                   | ●                    | ○                           |
|                                | Metals (particulate)                      | ○                                  | ○                                       | ●                                    | ●                                 | ○                         | ●                          | ●                                   | ●                    | ●                           |
|                                | Metals (dissolved)                        |                                    |   | ○                                    | ○                                 |                           | ○                          | ●                                   | ●                    | ○                           |
| <b>Maintenance Factors</b>     | Maintenance level of effort               | ○                                  | ○                                       | ○                                    | ○                                 | ○                         | ○                          | ○                                   | ○                    | ○                           |
|                                | Frequency of maintenance                  | ○                                  | ○                                       | ○                                    | ○                                 | ○                         | ○                          | ○                                   | ○                    | ○                           |
|                                | Reliability / durability                  | ○                                  | ○                                       | ○                                    | ○                                 | ○                         | ○                          | ○                                   | ○                    | ○                           |
|                                | Need for specialized equipment            | ○                                  | ○                                       | ○                                    | ○                                 | ○                         | ○                          | ●                                   | ○                    | ○                           |
|                                | Maintenance cost including waste disposal | ○                                  | ●                                       | ○                                    | ○                                 | ○                         | ○                          | ●                                   | ○                    | ○                           |

Table 4-2

| Potential Pollutants   | Sediment / particulates | Oil and grease | Polycyclic aromatic hydrocarbons (PAHs) | Metals (particulate) | Metals (dissolved) |
|--|-------------------------|----------------|---|----------------------|--------------------|
| <b>Symbol Key</b><br>○ = low<br>◐ = medium<br>● = high<br>Blank = NA |                         |                |   |                      |                    |
| Floor drains   | ○                       | ◐              |   |                      |                    |
| Grease pit sumps   | ○                       | ●              | ○                                       |                      |                    |
| Vehicle and equipment washing  | ◐                       | ◐              |   | ○                    |                    |
| Rinsing dirt from truck beds   | ●                       | ○              |   |                      |                    |
| Rinsing sweepers or vactor trucks                                    | ●                       | ●              | ◐                                       | ◐                    | ○                  |
| Cleaning engines or undercarriages                                   |                         | ●              | ◐                                       | ◐                    | ○                  |
| Equipment parking area   | ○                       | ○              |   |                      |                    |
| Equipment repair areas   |                         | ◐              | ○                                       | ○                    |                    |
| Fueling area   | ○                       | ○              |   |                      |                    |
| Sand piles   | ○                       |                |   |                      |                    |
| Bulk cold mix storage area   |                         | ◐              | ○                                       |                      |                    |

- **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 at least twice a year.** 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](#). Annual replacement of the filter media is recommended.
- **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 taken in response to issues discovered during the Monthly 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](#).

## 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 regulates the storage of flammable and 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 reduce *hazardous waste* generation, increase cost effectiveness, and conserve resources.
- Reduce or eliminate the use of *chlorinated 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 where applicable.** 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 where applicable. 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 entire contents of an aerosol can should be used before opening a new one.** Refer to Section 5.1.4.3.1 – Full, Partially Full, and Spent Aerosol Cans for the management of damaged or unusable (e.g. broken spray tips or rusted) cans.
- **Replacing the protective cap when the aerosol can is not in use is recommended.** The valve system on an aerosol can typically ensures the product remains inside the container.  
  
OSHA may require the use of protective caps.
- **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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*)
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*)
  - Throw in trash (ONLY if yard is a *CEG*). This disposal practice is discouraged but allowed by law.
- **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*.

- **Puncturing or recycling spent aerosol cans at least quarterly is recommended.**
- **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.
- **A plastic liner is recommended for the inside of the residue collection barrel.** Plastic liners allow the residue to be easily removed from the barrel so the barrel may be reused or recycled.
- **The residue collection barrel (or the liner) should be replaced before the volume of residue inside the container reaches the limit set by the manufacturer** (typically 70% of the capacity of the barrel).
- **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")



#### 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 DEQ sponsored *hazardous waste* collection event,(ONLY if yard is a *CEG*) or
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste*.(ONLY if yard is a *CEG*)

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events.

- **Filters from can puncture systems must be managed as *hazardous waste*** (see the list of disposal options in the bullet above). Typically, the used filters are stored inside (and disposed with) the residue collection barrel.

#### 5.1.4.3.4 Empty Aerosol Cans (punctured)

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

- **Recycling empty aerosol cans as scrap metal is recommended where available.** 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 taken in response to issues discovered during the Monthly Field Audit (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 the weight of the cans (¼ pound per can) or 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 product 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)
  - very small shops = 0.25 pound per month
  - medium size shops = 1 pound per month
  - compounds with multiple crews = purchase a can popper
- Average residue (cans are popped onsite as soon as empty)
  - very small shops = 0.1 pound per month
  - medium size shops = 0.2 - 0.5 pound per month
  - 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](#).

## 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 Fire Marshal regulates aboveground storage tanks that are used to store new and used emulsion.

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 loose products to reduce waste, when appropriate.
- Reduce or eliminate the use of [asbestos-containing products](#). 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 where applicable.** 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 where applicable. 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 \(SPCC\) plans](#), 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 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 NRC must be notified of all *reportable spills*. 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 spills that are reported to OERS.

#### 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. The *SDS* should be kept with paving equipment when labeling the containers and tanks is impractical (e.g. asphalt kettle).
- **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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 containers* 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 yards 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 and is 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 yards with SPCC Plans.** Overfill protection should be provided for paving oil tanks at Maintenance yards 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).
- **Asphalt kettles must be equipped with a tight-fitting cover.**

#### 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented. See Section 4.4 for additional information on water treatment.
- **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).
- **Storage of packaged asphalt products on pallets or equivalent structures is recommended,** where practical.

#### 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 tools should be emptied periodically** to ensure sufficient collection capacity. Drip trays and other collection tools do not have to be covered if the container is in active use.
- **Paving equipment and tools should be cleaned prior to end-of-season storage.**
- **Parking paving equipment inside, under cover, or away from stormdrains is recommended** when rain occurs during the paving season.

##### 5.2.4.2.3 Routine and Seasonal Cleaning of Paving Equipment

- **Nozzles should be routinely cleaned to maintain equipment function.** The use of heat to unclog distributor nozzles is recommended.
- **If asphalt release or cutting agents that contain diesel or bio-diesel are used, the use must be limited to cleaning the distributor system.** The distribution system **must** be either enclosed (self-recycling) or all waste **must** be captured and contained, if diesel or bio-diesel are used for cleaning. 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](#).
- **Chunks of hardened asphalt should be removed from paving equipment prior to cleaning.** Hardened asphalt should be swept up and managed as *solid waste* (i.e. trash).
- **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](#).
- **Disposal of waste emulsion is recommended at the end of each paving season.**

#### 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 taken in response to issues discovered during the Monthly Field Audit (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.
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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.** 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](#).

## 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 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, use propylene glycol instead of ethylene glycol where possible or increase the use of water-based products.
- Reduce or eliminate the use of *chlorinated products*. See the Definition of Terms section of this Manual for tips identifying chlorinated products.
- Reduce or eliminate the use of *asbestos-containing products*. 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 *asbestos-containing* products.
- 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.3.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

#### 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 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 5.3.4.3). 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented..

- **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 containers* 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 and 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 and Combustible Materials |   | SECONDARY CONTAINMENT REQUIRED  |   |
|--|---|---|---|
|  |   | Indoor area   | Outdoors or <a href="#">liquid storage room</a>   |
| Group 1  | 1. Aerosols (all types)   | If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a <a href="#">flammables cabinet</a> . | All containers if the aggregate liquid storage is more than 1,000 gallons<br><br>All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less |
|  | 2. Liquids with <a href="#">flashpoint</a> below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>                                    |   |   |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | containers larger than 55 gallons   |   |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |   |   |
| Group 3  | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>  | 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.** 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 containers* 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 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 5.3.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Flammable and 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 and Combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable and combustible materials exceeding the quantities listed in Table 1.

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

<sup>1</sup> 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* or *combustible liquids* 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 and combustible storage is located in Section 1 - Good Housekeeping.
- **If the aggregate storage of *flammable* and *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*.

#### 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.
- **Storing parts in the original package is recommended.**
- **If the parts are packaged, the label or product identification should be readable.**
- **Storing parts on pallets, shelves, or equivalent structures is recommended,** where practical.
- **Parts should be stored in a manner that protects the function and integrity of the product.** Parts 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.

### 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.

- **Open containers and product handling should be conducted in a manner that prevents spills.** Absorbent pads, drip pans, drain boards, or drying racks should be used where appropriate. 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** (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.
- **In-use containers should be stored inside,** where possible.
- **The entire contents of a container should be used before opening a new one.** *Empty containers* should be managed as *solid waste* (i.e. trash). A list of permitted municipal landfills and transfer stations is located in [Appendix J](#).
- **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

- **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.
- **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 exposure 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.** ODOT employees with a CDL may perform brake and clutch adjustments.
- **The use of chlorinated brake cleaners should be avoided.** Where possible, water-based brake washers or cleaners should be used.
- ***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.
- **Containers that contain asbestos waste must be labeled with the following statement.**

**DANGER**

**CONTAINS ASBESTOS FIBERS**

**AVOID CREATING DUST**

**CANCER AND LUNG DISEASE HAZARD**

- **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

- **Minimizing the use of liquid cleaners is recommended.** When liquid cleaners 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. *Chlorinated products* should be avoided. See the Definition of Terms section of this Manual for tips identifying chlorinated products.
- **Self-contained parts washers should be used when washing is required.** Parts washers should have a filter to remove contaminants. Washers that use hot water and detergent are recommended.
- **Solvents and cleaners used to clean parts should be managed according to the BMPs in Section 5.19 or Section 5.5, respectively.**
- **Parts washers should be managed in a manner that prevents spills and drips.** Drip pans, drain boards, and drying racks should be used to direct fluids back to holding tanks. Lids should be kept closed when not placing or removing parts.
- **A DEQ permit must be obtained if heated wash water (water from a steam cleaner) is released to a waterbody or a stormwater system.** Washing areas should be connected to sanitary sewer, where possible. Wash water should be treated prior to disposal. Additional guidance is located in Section 5.9.4.2.6 – Fleet and Equipment Washing.

#### 5.3.4.2.6 Metal Grinding

- **Metal filings produced by grinding and machining metal parts should be captured where practical.** The grinding unit should be enclosed as much as possible. Storing filings in a bin under the lathe or grinder is recommended. Filings should be kept out of stormwater and sanitary systems. Loose materials should be swept or vacuumed and carefully emptied into a storage bin.

#### 5.3.4.2.7 Storage of Used Automotive Fluids and Filters

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

- **Waste fluids that have been contaminated with *chlorinated products* must be collected and stored separately from other wastes.** Refer to the Definition of Terms for help identifying *chlorinated products*.
- **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.
- **Waste containers must clearly 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, Clutch Pads, and Asbestos-Containing Waste

- **Coveralls and reusable rags that may contain asbestos dust should be kept wet until laundered.**
- **Brake and clutch dust and other friable *asbestos-containing* waste must be taken to a landfill that is authorized by DEQ to accept asbestos.** An asbestos waste is considered friable if the waste can be reduced to small pieces with very little pressure. Automotive parts are non-friable; dust is friable. A list of landfills that are authorized to accept asbestos is located in [Appendix O](#).
- **Non-friable *asbestos-containing* waste should be managed as *solid waste*** (i.e. trash). Waste should be double bagged before throwing the bag in the dumpster.

#### 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

- **If chlorinated sprays (e.g. some brake cleaners, degreasers, and solvents) have been mixed with the fluids, the waste must be managed as *hazardous waste* using one of the following disposal options.** See the Definition of Terms section of this Manual for tips identifying *chlorinated products*. Check for area specific requirements.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events.

- **Waste brake fluid and other petroleum-based fluids (that have not been contaminated with *chlorinated products*) 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 in a space heater) 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.
- **Used coolant should be recycled at least annually.**
- **Distillation residues, including still bottoms and filters, may be classified as *hazardous waste* and must be characterized (e.g. sampled or assumed hazardous) prior to disposal.**

#### 5.3.4.3.6 Management of Used Automotive Parts

- **Where appropriate parts should be drained of residual fluids before disposal.**
- **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.
- **Absorbent used to cleanup hazardous products or *hazardous waste* (e.g. grease sweep with chlorinated brake cleaner) 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.

#### 5.3.4.3.8 Empty Drums and 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.

### 5.3.5 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 taken in response to issues discovered during the Monthly Field Audit (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 wastes](#) (e.g. brake fluids mixed with chlorinated brake cleaner) must be documented on the EMS Waste Generation and Waste Disposal Logs.**

If gasoline fuel filters are changed onsite,

On the Waste Generation Log

- For the Type of Waste, check "hazardous"
- For the Method of Characterization, check "lab analysis"
- 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

- For the Date of Disposal, write "various"
- For the Description of Waste, write "gasoline fuel filters"
- 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.
- 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.
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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**. 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](#).

## 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

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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.4.5 – Documentation
- **Where [rechargeable batteries](#) are used to replace standard sized [non-rechargeable batteries](#), the battery should meet the manufacturer's recommendations for the device.**

##### 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 *Recharging Dry Cell Batteries*

- **Battery chargers with the following features are recommended.**
  - Charges nickel-metal hydride (NiMH) batteries.
  - An optional discharge cycle, more commonly called a reconditioning cycle.
  - Switches to a trickle charge or shuts off automatically after the batteries are charged.
  - Individually charges each battery.
  - Automatically switches from recondition mode to recharge mode

- **Reconditioning (using the discharge cycle on the battery charger) is recommended for nickel-metal hydride (NiMH) batteries every fourth time the battery is charged.** More frequent reconditioning is recommended for nickel-cadmium (NiCd) batteries. Both NiCd and NiMH develop discharge memory, which means that if the battery is only partially discharged during each use eventually the battery will reach the partial discharge point and die.
- **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 is recommended 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.
  - The words "*Universal waste*"
  - The *accumulation start date*
  - 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

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](http://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 <http://www.deq.state.or.us/lq/sw/hhw/collection.htm>
- ***Universal waste* batteries must be removed from the site at least annually** (i.e. the difference between *accumulation start date* and today’s date should be less than one year).
- **Recycling *non-rechargeable batteries* (e.g. alkaline, carbon-zinc, and discharged lithium) batteries is recommended,** where practical. *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](#).
- ***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 *Conditionally Exempt 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 taken in response to issues discovered during the Monthly Field Audit (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 [conditionally exempt 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](#).
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. **Lead acid batteries are reportable if 500 pounds or more of category (wet, gel, or used) is stored onsite. Lead acid batteries in use in fleet and dry cell batteries are not reportable. Batteries in electric equipment (e.g. fork lift) must be reported if the quantity is exceeded.** 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. 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](#).

## 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.

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 vehicle wash water mixed with cleaning products 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 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 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.**



- 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.5.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

### 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 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 5.5.4.3). 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.** 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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).
- **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 containers* 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).
- **If the aggregate storage of flammable and combustible liquids (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*.
- ***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*.

#### 5.5.4.1.2 Storage of Dry Products and 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 containers* 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 5.5.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **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 on pallets, shelves, or equivalent structures is recommended, where practical.**

- **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*.
- **Dry products (e.g. powder or granular) should be stored away from liquids.**

#### 5.5.4.2 HANDLING AND USE OF CLEANING PRODUCTS

- **Mixing incompatible products should 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.**
- **Open containers and product handling should be conducted in a manner that prevents spills.** Containers, including bags, should be handled so that tears, bursts, and punctures are minimized.

#### 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](#).
- **Where practical 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a [CEG](#)), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a [CEG](#)).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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](#).

## 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 regulates the storage of flammable and combustible materials.

### 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.
- Use caution when welding or torch cutting metals that are significantly coated with deicer or 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>

### 5.6.4 Compressed Gas – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.6.5 – Documentation

#### 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 gases (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 gases* 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 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. duct tape, 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a [CEG](#)), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a [CEG](#)).
  - 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.

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 cleaning products.** Additional information on the Monthly Field Audit is located in [Appendix C](#).
- **A record of actions taken in response to issues discovered during the Monthly Field Audit (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 wastes** (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](#).
- A **Hazardous Materials Information Survey** **must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. Compressed gas is reportable if more than 200 ft<sup>3</sup> (e.g. a large single cylinder or multiple smaller cylinders of the same gas) is stored onsite at any time during the year.

A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. Additional information on the Fire Marshal Survey 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.

| <b>High Pressure Cylinders</b>                     |                         |                           |                     |
|--|-------------------------|---------------------------|---------------------|
| Approximate capacity cubic feet (ft <sup>3</sup> ) | 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          |

| <b>Acetylene Cylinders</b>                         |                         |                           |              |
|--|-------------------------|---------------------------|--------------|
| Approximate capacity cubic feet (ft <sup>3</sup> ) | 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        |

## 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 yards* 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).

### 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

- **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.

#### 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.**

#### 5.7.4.2 HANDLING AND USE OF ELECTRONIC EQUIPMENT AND COMPUTERS

- **Electronics should be operated according to instructions provided by the manufacturer.**
- **IT and other inventoried assets must be accompanied by a completed and signed Transfer of Property Form when moved to another crew** (e.g. organizational change, asset on loan, or location change).
- **Unwanted electronics should be stored indoors in a manner that prevents breakage**

#### 5.7.4.3 DISPOSAL OF ELECTRONIC EQUIPMENT AND COMPUTERS

Electronic waste (e-waste) is banned from Oregon landfills.

DAS Statewide Policy 107-009-0050 (effective 12-10-08) describes e-waste as:

1. Excess or surplus, obsolete or non-working electronic equipment including, but not limited to Information Technology equipment, televisions, copiers, facsimile machines, oscilloscopes, telephones, radios and electronic test equipment.

2. Other equipment that is primarily made of circuit boards, and or CRT monitors, plasma monitors, and liquid crystal displays.

- **E-waste must be send to ODOT Surplus Property for sorting and disposal.** Questions should be referred to the Supply Operations Supervisor or send an e-mail to: [odotsurplusproperty@odot.state.or.us](mailto:odotsurplusproperty@odot.state.or.us)
- **Usable electronics that are outdated, unwanted, or broken (but fixable) should be transferred to ODOT Surplus Property for resale or redistribution.** Items that are transferred to ODOT Surplus Property are not classified as waste and do not need to be tracked on the EMS Waste Generation and Disposal Logs.

#### 5.7.5 Documentation

Blank copies of EMS paperwork are located in [Appendix B](#).

- **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/](http://intranet.odot.state.or.us/fsb/)) for additional information.
- **EMS documentation is not required for the generation or disposal of electronic wastes that are transferred to Surplus Property or another ODOT crew.**

## 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, cement, fiberglass, filler, glue, grout, mortar, polymer, quick set, 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.

### 5.8.3 Alternatives And Pollution Prevention

- Reduce or eliminate the use of [asbestos-containing products](#).
- 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.8.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

### 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 and 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 and Combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable and combustible materials exceeding the quantities listed in Table 1.

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

<sup>1</sup> 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 containers* 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 and 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 and Combustible Materials |   | SECONDARY CONTAINMENT REQUIRED   |  |
|--|---|--|--|
|  |   | Indoor area  | Outdoors or <i>liquid storage room</i>   |
| Group 1  | 1. Aerosols (all types)   | If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a <i>flammables cabinet</i> . | All containers if the aggregate liquid storage is more than 1,000 gallons                  |
|  | 2. Liquids with <i>flashpoint</i> below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>   |  |  |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | containers larger than 55 gallons  | All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |  |  |

|         |  |                                   |  |
|---------|--|-----------------------------------|--|
| Group 3 | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i> | 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).
- 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 5.8.4.3). 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 containers* 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 and 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 and 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.

- **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.
- **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 where practical.**
- **The entire contents of a container should be used before opening a new one.**
- **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 Equipment Cleaning

- **Equipment cleaning areas should be located away from floor drains, stormwater conveyances, and waterbodies where practical based on site constraints.** When areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 tipe) 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a [CEG](#)), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a [CEG](#)).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflier.pdf> for a list of DEQ sponsored events. 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 taken in response to issues discovered during the Monthly Field Audit (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 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](#).
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal (50 gallons of a liquid or 500 pounds of a solid). 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 online, in the ODOT Emergency Operations Manual, and in [Appendix B](#).

## 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, variable message boards, and 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.

### 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 all periodic scheduled services and inspections aimed at preventing potential breakdowns, maintaining the equipment in safe and efficient operating condition, and detecting the need for, and scheduling major repairs.
- Keep tires properly inflated to increase mileage and improve wear. Rotate tires on a regular basis to prolong tire life.
- 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-owned wash stations that are connected to sanitary sewer or a closed loop system, where practical and available. Where ODOT-owned wash stations are not available, consider washing at commercial wash stations.

- Rent or borrow equipment that is only used occasionally (instead of buying). Create or utilize opportunities for resource sharing with other crews and governmental agencies.
- Consider installing idle reduction technology to reduce fuel consumption and air emissions. Idle reduction technology is designed to provide services that would otherwise require the operation of the engine (e.g. heat, air conditioning, or electricity) while the vehicle parked. Coordinate fleet modifications with the Equipment Shop.
- Use the appropriate equipment or tool for the job.
- Consider purchasing hybrid or low emission fleet and equipment where available. Non-road engines are a significant source of air pollution. EPA has issued emission standards for new non-road engines (e.g. forklifts, generators, or OHVs) manufactured after 2007. Coordinate all equipment purchases with Fleet Services.

## 5.9.4 Equipment And Fleet – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively.
- **The purchasing, storing, handling, and disposing of equipment and fleet must comply with the ODOT Fleet Management Policy and Fleet Guidelines Manual.** Equipment operators should become familiar with the ODOT Fleet Management Policy and the Fleet Guidelines Manual. Fleet Services should be contacted with questions regarding these documents.
- **ODOT Maintenance employees must be familiar with the operation and maintenance of job specific equipment.**
- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.9.5 – Documentation

### 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.
- **Before each use, the equipment operator must check equipment and fleet for damage and leaks.** Leaks should be repaired promptly. Perform the pre-trip inspection.

#### 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 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.** When parking areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 should be inspected for leaks and drips as soon as possible when brought (or discovered) onsite.** 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 wrecked vehicles.

#### 5.9.4.1.4 Storage of Portable Combustion Engine Tools (e.g. chain saw or push mower)

- **Portable combustion engine 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 of Equipment and Fleet

- **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 Portable Combustion Engine Tools

- **The fuel system of portable combustion engine tools must be visually inspected for deterioration and leaks prior to use.**
- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.**

#### 5.9.4.2.3 Routine Maintenance and In-House Repairs

- **Employees performing repair activities should be educated in equipment repair, management of automotive fluids, spill response, and 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. Transfer fluids from damaged equipment 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 possible based on building and site constraints.
- **If repairs are conducted in areas that are likely to flood, 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.
- **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.
- **Where practical, parts should be cleaned without liquid cleaners** (e.g. wiped clean). When liquid cleaners are used, a water-based or biodegradable solvent is recommended. The use of self-contained parts washers is recommended.
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

#### 5.9.4.2.4 Storage of Used Tires from ODOT Fleet

- **Used tire storage must be limited to no more than 100 whole, used, tires at a single location.** Parts and pieces (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

- **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 not occur in 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 recommended. When washing eight vehicles or more per week, no-discharge methods such as recycling or evaporation are recommended. Depending on site conditions, evaporation may consist of a commercial evaporator or evaporation off a paved surface.

Table 5.9 – 1: Vehicle and Equipment Washing Guidance

X = the activity is allowed without a DEQ permit; blank = the activity is not allowed;

| Washing Condition  | Use cold water | Use non-phosphate biodegradable cleaners | Use heated water or steam | Clean engines, undercarriages, asphalt equipment or sweepers | Use caustic cleaners or organic solvents (degreasers) | Water Treatment and Permits         |
|--|----------------|--|---------------------------|--|---|-------------------------------------|
| <b>If 7 or less vehicles are washed per week and the wash water . . .</b>                                    |                |  |                           |  |   |                                     |
| Seeps into the ground onsite (not part of a piped system,)   | X              | X  | WPCF <sup>1</sup>         | WPCF   |   | Vegetation is preferred             |
| Evaporates completely off a paved surface or processed in a closed-loop (no-discharge) system                | X              | X  | X                         | X  | X   | Possible waste disposal issue       |
| Flows off-site but does <u>not</u> go into a waterbody or stormwater system (seeps into the ground off-site) | X              | X  | WPCF                      | WPCF   |   | Treatment recommended               |
| Flows into waterbody or stormwater system (e.g. ditch or catch basin)  | X              | NPDES <sup>2</sup>                       | NPDES                     | NPDES  |   | See footnote <sup>2</sup> below     |
| Goes to a municipal sanitary sewer   | X              | X  | X                         | X  | X   | Local City or county <sup>3</sup>   |
| <b>If 8 vehicles or more are washed per week and the wash water . . .</b>                                    |                |  |                           |  |   |                                     |
| Seeps into the ground onsite (not part of a piped system)  | X              | X  | WPCF                      | WPCF   |   | Treatment recommended see Table 4-1 |
| Evaporates completely off a paved surface or processed in a closed-loop (no-discharge) system                | X              | X  | X                         | X  | X   | Possible waste disposal issue       |
| Flows off-site but does <u>not</u> go into a waterbody or stormwater system (seeps into the ground off site) | WPCF           | WPCF                                     | WPCF                      | WPCF   |   | See footnote <sup>1</sup> below     |
| Flows into waterbody or stormwater system (e.g. ditch or catch basin)  | NPDES          | NPDES                                    | NPDES                     | NPDES  |   | See footnote <sup>2</sup> below     |
| Goes to a municipal sanitary sewer   | X              | X  | X                         | X  | X   | Local City or county                |

<sup>1</sup> Washing practices must conform to DEQs 1700B 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 (refer to Table 4-1 in Section 4 - Drainage of this Manual for water treatment methods). Wash activities that clean engines, undercarriages, asphalt equipment, or sweepers or that utilize heated water must be conducted on a paved surface.

<sup>2</sup> Washing practices must conform to DEQs 1700A permit. Wash water must be treated for the removal of sediment and oil prior to release. Washing must be conducted on a paved surface if washing engines, undercarriages, asphalt equipment, or sweepers or using heated water. Treatment should also remove metals if washing engines, undercarriages, or sweepers (refer to Table 4-1 in Section 4 - Drainage of this Manual for water treatment methods). The discharge cannot cause a measurable increase in waterbody temperature. Where appropriate, efforts to 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.

<sup>3</sup> Water treatment to remove oil and sediment may be required by the municipality; refer to site-specific agreements. Water treatment equipment is usually 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.
- **Erosion control methods and water treatment systems 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. Additional information on water treatment systems is located in Section 4.4 – Water Treatment.
- **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

Rinsing means cold water sprayed onto the truck bed to remove dirt or sand. If soap or other cleaners are used or the material 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 on a paved surface that does not directly, discharge to a storm drain is recommended.** Allow water to soak into the surrounding ground or evaporate off the paved surface.
- **Erosion control measures should be used where appropriate.** Rinsing should not cause soil erosion or offsite runoff.

#### 5.9.4.2.7 Rinsing Activity Specific Equipment

Guidance for activity specific equipment (e.g. spray tanks) is listed under the procedure for the product.

#### 5.9.4.2.8 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

- **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](#).
- **See product specific procedures for guidance on the storing, handling, or disposing of equipment fluids.**

#### 5.9.4.3.2 Disposal of Whole Tires

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

- **Solids collected from washing equipment (e.g. sweepers or mowers) including solids and sludges from wash station sumps must be managed as roadwaste (see Section 5.18).** The solids may contain contaminants (e.g. oil) or wastes (e.g. litter) in addition to dirt.

### 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 taken in response to issues discovered during the Monthly Field Audit (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 heavy equipment operator must complete an "Operator's Inspection Report" (734-2473).** The report must be updated with all related services on equipment and filed by equipment number at the yard. In addition, pre-trip reports are required for 1-ton or larger equipment. A file must be kept on all motorized vehicles.
- **Service and repair records must be kept in the equipment file.** Records must be kept as long as the vehicle is in use.

## 5.10 FERTILIZER AND LIME

### 5.10.1 Purpose

This procedure is intended for the storing, handling, and disposing of fertilizer and lime.

Fertilizer includes, but is not limited to, N-P-K fertilizer, compound fertilizer, ammonium nitrate, urea, manure, rock phosphate, potash, limestone, and fishmeal.

This procedure establishes management requirements for lime and fertilizer that minimize waste generation, protect the environment, and encourage a safe, efficient working environment. Other relevant procedures include:

 Guidelines for fertilizer that contains pesticide are located in Section 5.16 – Pesticide.

### 5.10.2 Regulating Agencies

DEQ regulates discharges of particulate solids to air and suspended solids to waterbodies.

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 regulates the storage of flammable and combustible materials.

### 5.10.3 Alternatives And Pollution Prevention

- Choose non-hazardous (or less hazardous) products 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). For example, hydrated lime (calcium hydroxide or slaked lime) is preferred over quick lime (calcium oxide or burnt lime).
- Consider compost as a natural alternative to fertilizers.

### 5.10.4 Fertilizer and Lime – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.10.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

#### 5.10.4.1 STORAGE OF FERTILIZER AND LIME

- **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 containers* 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 5.10.4.3). Refer to Section 2 - Labels and Signs for guidance on labeling.
- **Products should be stored in pre-selected areas.** Storage areas should be organized and tidy. Liquid fertilizers should be stored away from floor drains, *stormwater conveyances*, and waterbodies where practical based on site constraints.
- **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.
- **Storage on pallets, shelves, or equivalent structures is recommended, where practical.**
- **Covering (e.g. roof, tarp, or plastic sheeting) is recommended,** where practical, for outdoor storage.
- **Products should be stored away from open flame, excessive heat, and sparks.**
- ***Incompatible products* should be stored away from each other** (e.g. keep lime away from acid and fertilizer away from diesel). *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*.

#### 5.10.4.2 HANDLING AND USE OF FERTILIZER AND LIME

- **In-use containers and product transfers should be managed in a manner that prevents spills.** Bags should be handled carefully so that spills, tears, bursts, and punctures are minimized.
- **The entire contents of a container should be used before opening a new one.** The management of un-usable product is discussed in the Disposal section of this procedure.
- **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.
- **Spills should be swept up and used in accordance with application guidelines,** where possible. Spilled material that cannot be used for the purpose intended by the manufacturer should be managed as a waste (see Section 5.10.4.3).

#### 5.10.4.3 DISPOSAL OF FERTILIZER AND LIME

- ***Empty containers* should be recycled where opportunities are available.** Products should be used until the container is empty. Where recycling is not available, the containers should be managed as *solid waste* (i.e. trash).

- **Waste fertilizer and lime (e.g. outdated, unusable, or unwanted) 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.**
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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](#).

### 5.10.5 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 fertilizer and lime.** Additional information on the Monthly Field Audit is located in [Appendix C](#).
- **A record of actions taken in response to issues discovered during the Monthly Field Audit (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 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](#).
- **A [Hazardous Materials Information Survey](#) must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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](#).** 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](#).

## 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 is 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 regulates aboveground fuel tanks and fuel dispensing.

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.

### 5.11.3 Alternatives And Pollution Prevention

- Oregon's Renewable Energy Action Plan (REAP) mandates the following use of *biofuels*: 10 percent of the gasoline used by state government's fleet vehicles will be E-85 by 2010, increasing to 25 percent by 2025; 25 percent of the diesel used by state government's fleet vehicles will be B-20 by July 2010, increasing to 100 percent by 2025. ODOT fuel stations have switched to *biofuels* 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/>.
- Consider using programmable thermostats to avoid heating empty buildings.

## 5.11.4 Fuel - 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.11.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

### 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.
- **Maintenance should schedule integrity testing of small fuel tanks** based on the guidance Section 3.1.2 – Stationary Metal Tanks. Facilities Management is responsible for scheduling routine tank integrity inspections for the large fuel tanks.
- **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, if installed, 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, annual testing is recommended.

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.



Example of an emergency fuel shutoff



Example of an overfill alarm

- **If the tank is not equipped with a leak detection alarm, the space between the tank walls should be checked periodically for leaks.** Refer to the tank manual for the inspection method and frequency.
- **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 yards 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 USTs. A document titled Guidance for Underground Fuel Tanks at ODOT Maintenance Yards is available from the MOB.

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

- **The available volume of the tank** must be determined before filling or refilling. Typically, the available volume is determined using a measuring stick or 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.

- **Decommissioning is recommended for heating oil tanks that are no longer in permanent use.** 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

- **Portable fuel tanks must be labeled with product identification (e.g. diesel) and hazard information (e.g. flammable or combustible).** Tanks with a storage capacity greater than 100 gallons must be labeled with a [NFPA diamond](#). 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)

- **Container 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 containers* 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 yards 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*.
- **Secondary containment must be provided for flammable and 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 and Combustible Materials |   | SECONDARY CONTAINMENT REQUIRED  |   |
|--|---|---|---|
|  |   | Indoor area   | Outdoors or <a href="#">liquid storage room</a>                           |
| Group 1  | 1. Aerosols (all types)   | If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a <a href="#">flammables cabinet</a> . | All containers if the aggregate liquid storage is more than 1,000 gallons |
|  | 2. Liquids with <a href="#">flashpoint</a> below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>                                    |   |   |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | containers larger than 55 gallons   |   |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |   |   |
| Group 3  | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>  | containers larger than 55 gallons   |   |

- **Overfill protection must be provided for all fuel containers (55 gallons or larger) Maintenance yards with SPCC Plans.** Overfill protection should be provided for fuel containers at *Maintenance yards* 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 (less than 30 gallons)

Gas cans are considered in-use. 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 containers* is recommended where effective for product handling. Additional information on [compatible containers](#) is located in the Definition of Terms.
- **Containers (including 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. 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 and 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

- **Secondary containment must be provided for fueling areas at Maintenance yards 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 (Course number: SA010006 - Safe Fueling of Vehicles) must be completed by the following people prior to dispensing fuel.**
  - 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 (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.
- **Fuel dispensers must be locked during non-operational hours.** Fuel dispensers are considered locked when fuel is not accessible to unauthorized users. Examples of locks include padlocks, cardlock system, or inaccessible power supply to pumps.
- **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 should 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
    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.
- **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 be 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 is 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 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 NRC must be notified of all *reportable spills*. 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 spills that are reported to OERS.

#### 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.

#### 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 where practical.**
- **The entire contents of a container should be used before opening a new one.**
- **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 products 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 is 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

- **Where practical, 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 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflier.pdf> for a list of DEQ sponsored events. 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 where practical.**

- **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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A *Hazardous Materials* Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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 spills** 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](#).
- **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.

## 5.12 LIGHTING

### 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 yards*. 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 *ballasts*.

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.

### 5.12.3 Alternatives And Pollution Prevention

- Consider purchasing and installing energy-efficient lamps with the lowest 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.
- 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 where practical and available. High efficiency LEDs have a long life span and are mercury free; however, LEDs are not currently available for all lighting needs. Future developments may increase opportunities for LEDs.
- Consider replacing standard *incandescent lamps* 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 lamps* 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.12.5 – Documentation
- **Where alternative lamps (e.g. low mercury, compact fluorescent, or solid state) are used to replace standard lamps, the lamps should meet the manufacturer's recommendations for the fixture and the operational needs of the crew.**

##### 5.12.4.1 STORAGE OF NEW LIGHTING PRODUCTS

###### Storage of Lamps

- **Lighting should be stored in the original package**, where practical. Some information is only located on the package, so keeping the package simplifies the identification and management of wastes. Packaging should limit breakage.
- **Lighting 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).
- **Lighting should be stored 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.

###### Storage of Road Flares

According to the 2007 fire code (the current standard), indoor [flammable solid](#) storage is limited to 125 pounds. If flammable solids are stored in a [flammables cabinet](#), the storage limit is doubled to 250 pounds. Buildings with sides are considered indoors.

There is an exemption to this limit if the building is classified as H-occupancy. Typically, buildings at maintenance yards are constructed to the H-occupancy standard in place at the time of construction, meaning the buildings are constructed for hazardous activities (e.g. welding) or hazardous storage (e.g. flares).

Legally established (permitted) existing uses are grandfathered into current building code compliance until the building is renovated, altered, or the use of the building (occupancy) is changed. **If the building is scheduled for a major change, make sure Facilities knows that flares are stored in the building.**

**If a building has consistently been used for storing road flares (including large quantities of road flares), the building can continue to be used for that purpose, unless the local fire authority requires an upgrade to current building codes.**

**If a building is not covered by local building codes (e.g. a cargo container) or if there are other questions, contact the local fire marshal.**

## 5.12.4.2 HANDLING AND USE OF LIGHTING PRODUCTS

### 5.12.4.2.1 Used Fluorescent and Other Mercury-Containing Lamps

- **Used fluorescent tubes and other mercury containing 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 be 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. *Ballasts* that do not contain PCBs are marked "No PCBs" by the manufacturer.

- **Lamp *ballasts* in must be examined for PCB content prior to disposal.** *Ballasts* that are not labeled as not containing PCBs (i.e. marked "No PCBs") and *ballasts* that are not labeled with a date after 1978 must be assumed PCB containing.
- **Waste PCB *ballasts* should be handled in a manner that prevents damage.** PCB *ballasts* should be stored in containers that prevent the release of potential leaks.
- **Container labels must clearly identify the contents and the hazard** (e.g. "Waste PCB lamp *ballasts*").
- **Containers that store used waste *ballasts* must be kept closed when *ballasts* are not being added or removed.**
- **Leaking *ballasts* should be stored in a separate container.**

#### 5.12.4.2.4 Handling of Road Flares and Other Light Sticks

- **Consult label, SDS, or vendor for product specific handling information.** Road flares are intended for outdoor use and should not be used indoors. These products are not typically used at *Maintenance yards*.

### 5.12.4.3 DISPOSAL OF LIGHTING PRODUCTS

#### 5.12.4.3.1 No-Mercury and Low-Mercury Lamp Disposal

- ***Incandescent lamps* 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 practical.** Non-hazardous, low mercury lamps will have documentation from the manufacturer stating the lamp is Toxic Characteristic Leaching Procedure (TCLP) compliant. 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 Mercury Lamp Disposal

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

- **Standard fluorescent tubes and other 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 (<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 lamps are accepted. A list county collection facilities is located on the DEQ website <http://www.deq.state.or.us/lq/sw/hhw/collection.htm>
- ***Universal waste* must be shipped offsite at least annually.**
- **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 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.
  - Pick up by a licensed *hazardous waste* management company
  - Take to a DEQ sponsored *hazardous waste* collection event that accepts mercury (ONLY if yard is a *CEG*).
  - Take to a County waste facility that is authorized by DEQ to accept mercury waste (ONLY if yard is a *CEG*)
  - Throw sealed containers in trash (ONLY if yard is a *CEG*).
- **Broken non-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 *ballasts* should be recycled where opportunities are available.** Non-PCB *ballasts* that are not recycled should be managed as *solid waste*. Non-PCB *ballasts* are labeled "No PCBs."
- ***Ballasts* that have fluids that contain PCBs must be sent to an EPA approved recycling center.** The State of Oregon (DAS) provides a price agreement for the collection, disposal, and recycling of various types of *hazardous materials*, including PCB *ballasts*. 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.**
- **Unwanted 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 taken in response to issues discovered during the Monthly Field Audit (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) does not have to be tracked. Used lamps that are picked up by the electrical crews for recycling need to be tracked.

- **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 *conditionally exempt 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](#).

## 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.

### 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 regulates placement and components of aboveground tanks used to store flammable and combustible liquids.

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 wastes*.

### 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a SDS).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.13.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

#### 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control or water treatment measures should be implemented. Refer to Section 4.4 – Water Treatment for additional information.
- **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 yards 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 yards* with SPCC Plans.** Overfill protection should be provided for oil tanks at *Maintenance yards* 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 yards* 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 containers* 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.
- **The TMM or designee should schedule tank integrity testing for stationary oil tanks.** The testing frequency should be based on the guidance in Section 3.1.2 – Stationary Metal Tanks.
- **If oil is stored in a double-walled tank, the space between the tank walls should be checked periodically for leaks.** Refer to the manufacturer information for the inspection method and frequency. If the manufacturer's recommendations are unavailable, annual inspections are recommended. Some double-walled tanks have a gauge that shows the level of liquid between the tank walls.

#### 5.13.4.1.2 Storage of Small Containers (less than 30 gallons)

- **Original and *secondary containers* (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 containers* 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*.

#### 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 where practical.**
- **The entire contents of a container should be used before opening a new one.** The management of unusable product is discussed in 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.

##### 5.13.4.2.2 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.
- **Recycling is recommended for clean, *empty containers* that are not reused or returned to the vendor.** Metal containers can typically be recycled as scrap metal. Contact local recyclers for availability and requirements.
- ***Empty containers* 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.**
- **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 taken in response to issues discovered during the Monthly Field Audit (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.

- **A [Hazardous Materials Information Survey](#) must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal (50 gallons of a liquid). 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 online, in the ODOT Emergency Operations Manual, and in [Appendix B](#).
- **Copies of the results for tank integrity tests should be kept at the [Maintenance yard](#).** Copies should be sent to Facilities Management. Integrity tests for small metal tanks are scheduled by Maintenance; see Section 3.1.2.4 – Routine Maintenance for testing frequency.

## 5.14 PAINT

### 5.14.1 Purpose

This procedure is intended for the storing, handling, and disposing of paint and paint products (including sandblasting media) routinely used by ODOT Maintenance employees in the maintenance of vehicles, facilities, and structures. This procedure also covers ink used by the ODOT Sign Shop in the creation of signs. This procedure does not include striping paints.

Paint includes, but is not limited to, latex, waterborne, oil-based, lacquer, enamel, primer, acrylic, pigment, alkyd, ink, urethane 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 regulates the storage of flammable and combustible materials.

### 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 go to <http://www.oregonmetro.gov/index.cfm/go/by.web/id=521>.
- Consider powder coating or other industrial coating (e.g. Line-X® or Rhino®) on metal surfaces and fleet rather than 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. **Solids (i.e. paint chips) need to be filtered 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>
- Explore trading opportunities with other crews or agencies.

#### 5.14.4 Paint – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.14.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

##### 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 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 5.14.4.3). 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 containers* 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 and 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 and Combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable and 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 and 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 and Combustible Materials |   | MAXIMUM STORAGE ALLOWED   |   |  |
|--|---|---|---|--|
|  |   | Per indoor area if NOT stored in a <i>flammables cabinet</i>  | Per indoor area if stored in a <i>flammables cabinet</i> <sup>1</sup> | Outdoors   |
| Group 1  | 1. Aerosols (all types)   | 10 gallons (liquids used for the maintenance or operation of equipment)<br>25 gallons (other flammable or combustible liquids)  | 60 gallons  | No limit<br>1,100 gallons adjacent to a building |
|  | 2. Liquids with flashpoint below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>  |   |   |  |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | 10 gallons (liquids used for the maintenance or operation of equipment)<br>120 gallons (other flammable or combustible liquids) | 240 gallons   | No Limit<br>1,100 gallons adjacent to a building |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |   |   |  |
| Group 3  | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>  | 120 gallons   | 660 gallons   | No Limit<br>1,100 gallons adjacent to a building |

<sup>1</sup> 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 and 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 | <b>SECONDARY CONTAINMENT REQUIRED</b> |
|--|---------------------------------------|

| Flammable and Combustible Materials |  | Indoor area   | Outdoors or <a href="#">liquid storage room</a>   |
|-------------------------------------|--|---|---|
| Group 1                             | 1. Aerosols (all types)<br>2. Liquids with <b>flashpoint</b> below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>   | If liquid is used for the maintenance or operation of equipment aggregate storage greater 10 gallons (any size container) must be in a <b>flammables cabinet</b> .<br><br>containers larger than 55 gallons | All containers if the aggregate liquid storage is more than 1,000 gallons<br><br>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<br>2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |   |   |
| Group 3                             | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>   | 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.

#### 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.**
- **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

- **Tools used to apply latex or water-based paint should be washed in the sink.** Do not wash tools used to apply petroleum-based paint in the sink (next bullet). Do not pour paint or solvent into the sanitary system.

- **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, labeled 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 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.

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

- **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.
- **Significant quantities of unwanted, unopened, usable, paint should be transferred to another ODOT crew or ODOT Surplus Property.**
- **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 <http://www.productcare.org/Oregon-collection-sites>
- **Hardened paint should be managed as **solid waste** (i.e. trash).** A list of permitted municipal landfills and transfer stations is located in [Appendix J](#).

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

- **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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 paint should be managed as *solid waste* (i.e. trash).** Recycling is encouraged where opportunities exist.

#### 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.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. DEQ and county collection events may have limitations or restrictions.

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

#### 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A Hazardous Materials Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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](#).

## 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.

### 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.15.5 – Documentation

- **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 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 NRC must be notified of all *reportable spills*. 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 spills that are reported to OERS.

#### 5.15.4.1 STORAGE OF PAVEMENT MARKING PRODUCTS

##### 5.15.4.1.1 Paints (e.g. waterborne paint, low VOC paint, 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.
- **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 5.15.4.3). 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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).
- **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 containers* 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).
- **Striping paints should be stored for the shortest period practical;** typically one season.

##### 5.15.4.1.2 Granular 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).
- **Covering is recommended**, where practical, for outdoor storage areas. Covering includes storing under a roof, an overhang, or under a tarp or plastic sheeting.
- **Granular products should be used within one year of purchase.**

#### 5.15.4.1.3 Hard Goods and Durable Markers (e.g. glass beads, pre-formed markers, and stick-and-stomps)

- **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 where practical.**
- **The entire contents of a container should be used before opening a new one.**
- **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.
- **End-of season cleaning of the application truck should be completed at the vendor or ODOT Fleet where practical.**

#### 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 markings 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 markings (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 DEQ sponsored *hazardous waste* collection event (ONLY if yard is a [CEG](#)), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a [CEG](#)).

Hazardous waste collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored hazardous waste collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events. 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 5.18.4.3.7 – Asphalt Grindings.

#### 5.15.4.3.5 Disposal of Empty Containers

- **The vendor should be contacted to remove empty totes** as soon as practical.
- ***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.

### 5.15.5 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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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 online, in the ODOT Emergency Operations Manual, and in [Appendix B](#).

## 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.

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, nematocides, 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.

### 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 plant 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 where applicable.** 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 where applicable. 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.
- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.16.5 – Documentation

- **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 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 NRC must be notified of all *reportable spills* (i.e. more than 200 pounds or 25 gallons of diluted or undiluted pesticide to the ground or any amount to a waterbody). 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 spills that are reported to OERS.

#### 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 containers* 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.

#### 5.16.4.1.2 Aerosol Can Storage

See Section 5.1 – Aerosol Cans

### 5.16.4.2 HANDLING AND USE OF PESTICIDE

#### 5.16.4.2.1 In-Use Containers (i.e. containers that have been opened and partially used)

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

- **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.

- **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 pesticide container should be used before opening a new one.**
- **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.
- **Corrective action to repair problems discovered during daily inspections should be completed as soon as possible.**
- **During transport, containers should be securely anchored to keep the container from 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 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.

A publication from the Purdue University Cooperative Extension Service titled "Poly Tanks for Farms and Businesses. . .preventing catastrophic failures" is located in [Appendix L – Poly Tanks](#). The publication provides general information on tank construction, purchasing, installation, and inspection.

- **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.

- **Truck-mounted tanks should be labeled "Herbicide Application"** to warn approaching drivers. Rectangular signs are recommended. If the truck will be used on the interstate, 5' by 2' signs with 8" letters are recommended. Smaller signs (4' x 1.5' sign with 6" letters) are recommended if the truck will not be used on the interstate. Orange signs are recommended unless the background is orange (e.g. do not put an orange sign on the orange part of the truck).
- **A Poly Tank Inspection Form must be completed at least annually on all poly transport tanks.** The inspections should be completed by ODOT Fleet Services as part of the annual equipment inspection. Maintenance may inspect truck-mounted tanks if additional inspections are warranted. Poly Tank Inspection Forms are located in [Appendix B](#) and additional information is located in [Appendix L](#).
- **Tank inspection should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. The absence of stress cracks or other damage does not guarantee the tank is structurally sound.**

#### 5.16.4.2.4 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.**

#### 5.16.4.2.5 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**
  - Returned to the vendor,
  - Stored onsite in the original package, OR
  - Transferred to a yard that has storage facilities.

#### 5.16.4.2.6 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: expired pesticide, banned pesticide, absorbent mixed with pesticide, soil contaminated with spilled pesticide, used rodenticides, or unlabeled pesticide).

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

- **Containers that hold waste pesticide that will be managed as [universal waste](#) must be clearly marked with all of the following items:**
  - The original product label or EPA label equivalent
  - "Universal Waste Pesticide"
  - The date the pesticide became a waste (the [accumulation start date](#))
- **Waste pesticide that is managed as a [universal waste](#) must be removed from site (i.e. taken to the universal waste collection center) at least annually.**
- **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

- **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.
- **Unopened containers of pesticide should be returned to the vendor 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 [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 (<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 pesticides are accepted. A list county collection facilities is located on the DEQ website <http://www.deq.state.or.us/lq/sw/hhw/collection.htm>
  - Contact the Statewide Vegetation Management Coordinator for additional disposal options.
- **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 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 use 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 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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A [Hazardous Materials](#) Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A pesticide must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal (50 gallons of a liquids or 500 pounds of a solid). 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.** 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) 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 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](#).

## 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 regulates 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 regulates the storage of liquefied petroleum gases.

### 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.
- Consider using programmable thermostats to avoid heating empty buildings.

### 5.17.4 Propane – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.17.5 – Documentation.

#### 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 where practical.
- **A protective cap 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).**
- **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 gallons (1272 lbs), the cylinders must be stored outdoors.** Portable cylinders may be stored indoors so long as the combined capacity is 300 gallons or less (about 63 of the 20 lbs cylinders). The entire capacity of empty 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 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 (bigger than 1 pound) 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).
- **Horizontal-type equipment fuel cylinders must be mounted with the liquid outlet on the bottom and the vapor outlet on the top.**

#### 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 Propane Fueled Vehicles and Equipment (with attached fuel)

- **Propane fueled equipment must have two or less fuel cylinders.** Fuel cylinders must be installed side-by-side; not stacked.
- **Propane fueled equipment must be parked away from sources of heat, open flames, ignition sources, and areas of possible excessive heat.**
- **Propane fueled equipment must be parked away from open grease pits unless the pit is adequately ventilated.**
- **If propane fueled equipment is stored or serviced indoors, the fuel system must be free of leaks.**
- **If propane fueled equipment is being repaired indoors, the shutoff valve must be kept closed except when fuel is required for engine operation**

#### 5.17.4.2.4 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.

#### 5.17.4.2.5 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

- **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 taken in response to issues discovered during the Monthly Field Audit (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](#).
- **A *Hazardous Materials* Information Survey must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. Additional information is located in [Appendix N](#).

## 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 various roadwaste generated from the day-to-day use and maintenance of highways.

Roadwaste includes, but is not limited to, litter and trash; sweepings; cleanings from catch basins, sumps, or stormwater facilities (Vactor® waste); ditching materials; landslide material; used sand and gravel; and asphalt 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 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.

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.

### 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 roadwaste as *clean fill* where opportunities and permits are available. Reuse options will depend on contamination levels (i.e. pollutants present in the roadwaste), difficulty of pollutant removal and management, and local needs. Permits requirements and material specifications should be considered before using roadwaste as a structural fill on projects. Roadwaste with high organic content makes a poor structural fill.
- 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 where applicable.** Employee safety and emergency procedures are located in the ODOT Safety & Health Manual and the Emergency Operations Plan, respectively.

#### 5.18.4.1 STORAGE OF ROADWASTE

Permanently storing roadwaste at locations without the intent of use, recycling, or disposal classifies the location as a landfill. Landfills are subject to DEQ regulation and may require a permit.

- **Roadwaste should be stored in pre-selected areas.** Storage areas should be organized and tidy. Storage areas should minimize the escape of solid materials. Stockpiles should be free of visible litter and trash. Storing roadwaste on a paved surface is recommended. 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).
- **Storage areas located near sensitive resources and new storage locations 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.** When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented. Refer to Section 4.4 – Water Treatment or 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, paved surfaces, or under cover).**
- **Storage sites must meet local zoning and land use requirements.** Contact Region HazMat or the MOB for assistance.
- **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.
- **Where practical, roadwaste storage areas should be sited in a manner that limits nuisance conditions and limits public access.** The use of trees or landscaping to screen remote roadwaste storage locations from public view is recommended where practical.

#### 5.18.4.2 HANDLING AND USE OF ROADWASTE

##### 5.18.4.2.1 Active Management for Recycling or Later Use

- **Roadwaste that is intended for recycling or later use must be actively managed.** Active management includes the following activities
  - Keeping the material free of visible litter and trash
  - Identifying options for recycling or use
  - Sorting waste according to recycling or use options
  - Maintaining containment and erosion control (if installed)

- **DEQ approval must be obtained prior using potentially contaminated roadwaste on projects. DEQ approval is not required for recycling or disposal at permitted landfills.** 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](#).

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   |
| Street sweeping fines                                    | Spill response absorbent   | After use of the waste a <a href="#">hazardous waste</a> determination must be conducted and the material disposed at an appropriate permitted <a href="#">disposal site</a> |
| 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; and the sand is separated from the street sweepings.                                 |

Refer to the Roadwaste Management Chart in [Appendix M](#) of the this Manual (or Appendix A in the [Routine Road Management Guide](#)) for additional information on rules, concerns, and management strategies.

- **Potentially contaminated roadwaste (e.g. sweepings, Vactor® waste, or ditchings) 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.

In general waste from road under 30,000 ADT typically have low levels of pollutants. However, site specific conditions (e.g. crashes, spills, or adjacent 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.

- **The MOB should be contacted to determine if a DEQ permit is required for roadwaste processing sites.** Storage sites that are continuously used to process roadwaste (i.e. separate [solid waste](#) from reusable materials) may require a DEQ permit. **Permits may be required if unmanaged roadwaste is stored for longer than six months.**

DEQ permits are NOT required for the following sites unless the amount or location of the material could create an adverse impact to surface water, ground water, or public health. **Local permits and land use authorization may still be required.**

- A [land disposal site](#) used exclusively for the disposal of [clean fill](#). **Disposal of clean fill may require a permit from the Oregon Division of State Lands.** Refer to BMPs the Routine Road Management Guide or contact the REC.
- A site used to separate materials for reuse, recycling, or composting. Special rules apply to composting facilities refer to Section 5.18.4.3.9 – Road Kill and [Appendix M](#) for additional information on composting.

#### 5.18.4.2.2 Transfer Ownership of Clean Fill to Private Landowner

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. Material must be placed in accordance with current ODOT guidance; contact MOB for current guidance. The guidance is intended to reduce 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 shows signs of pollutant contamination. Signs of contamination include: chemical odors; odd colors and stains; or the visible presence of litter, paint chips, or other [solid waste](#).

- **Prior to placing surplus clean 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 at the end of the Section of the EMS Manual, in [Appendix B](#), [Appendix M](#), and online.
- **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 break down of large quantities of organic material (brush, grass clippings, weeds) can result in degrading water quality and negatively impacting the environment.
- **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.
- **Photographing the condition of the site prior to placing materials is recommended** where appropriate.

#### 5.18.4.3 DISPOSAL OF ROADWASTE

##### 5.18.4.3.1 Litter Including Abandoned Hazardous Waste

- **Litter that is not banned from Oregon landfills should be managed as [solid waste](#) (i.e. trash).** Recycling non-hazardous waste (e.g. rubber or wood) collected from the highway or right-of-way is recommended where practical. Wastes that are banned from Oregon landfills (e.g. whole tires or appliances) are discussed in separate bullets.
- **Abandoned [hazardous waste](#) (including drug lab waste) 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 UNKNOWN. 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.

- **Vehicles and 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.
  - 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>

Electronics that are damaged to the point the waste is no longer recoverable should be managed as [solid waste](#).

- **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 Street Sweepings and Ditchings

- **Written DEQ approval (i.e. permit or letter of authorization) must be obtained prior to using sweepings or ditchings.** DEQ may allow waste that contains lead or hydrocarbons to be used as fill if the waste is protectively managed. Where possible, avoid long-term monitoring requirements when negotiating approval with DEQ. Contact the MOB for assistance obtaining DEQ permits.
- **Street sweepings and ditchings must be characterized prior to use** to ensure acceptable pollutant levels. Characterization may be based on representative sampling, knowledge of process, or site specific sampling.
- **Street sweepings and ditchings should be used as a material where practical and allowed.** Examples of material use opportunities include
  - Rockfall safety berm, OR
  - Shoulder repair, OR
  - Reclaiming a quarry, OR
  - Compost additives, OR
  - Fill on construction projects.

- **Street sweepings must be screened to remove visual evidence of litter prior to use.** See Section 5.18.4.3.1 for the disposal of litter.
- **Sweepings and ditchings should be kept in separate piles.** Ditchings typically contain less sand and gravel than sweepings so the material is more likely to meet construction specifications (e.g. compaction standards). ODOT has found that contaminant levels can vary widely in ditching material, regardless of whether the source is an urban or rural ditch. However, the contaminant levels in ditchings are typically lower than sweepings, especially sweepings from urban areas or high ADT roads.
- **Sweepings and ditchings that are not actively managed for reuse 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](#).
- **Street sweeping and ditching collected from areas where chemical spills, roadway accidents, or illicit dumping occurred should be characterized prior to disposal to determine if the waste is hazardous.** If contamination is suspected, contact the MOB or Region HazMat for assistance characterizing the waste prior to handling.

#### 5.18.4.3.3 Catch Basin, Sump, and Culvert Cleanings (Vactor® Waste)

- **Written DEQ approval (e.g. permit or letter of authorization) must be obtained prior to using Vactor® waste as fill material.** Permits may require pollutant management, monitoring, and reporting. In some cases, the waste may be stockpiled to allow time for the natural breakdown of hydrocarbons. Where possible, avoid long-term monitoring requirements when negotiating approval with DEQ. Contact the MOB for assistance with alternative methods of reducing pollutant levels and managing contaminated wastes (e.g. evaporation ponds, pollutant filters, microbes, or flocculants).
- **Where practical, partnerships with local jurisdictions should be created to manage catch basin 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.
- **Vactor® waste 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 permission from the municipality.
- **Vactor® waste collected from areas where chemical spills, roadway accidents, or illicit dumping occurred should be characterized prior to disposal to determine if the waste is hazardous.** In rare instances, waste collected from oil/water separators or water treatment systems can also be hazardous. Contact the MOB or Region HazMat for assistance characterizing the waste prior to handling.
- **Solids from Vactor® waste 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 Used Sand and Gravel

- **Used sand and gravel that still meets sanding specifications should be used where practical for winter maintenance activities.** Quick pickup of used sand and gravel reduces the need for screening.

DEQ has pre-approved the use of sand from winter storm applications provided the material is swept up 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 is a known source of contamination (e.g. fuel spill) within the material.

- **Used sand and gravel collected from areas where chemical spills, roadway accidents, or illicit dumping occurred should be characterized prior to disposal to determine if the waste is hazardous.** If contamination is suspected, contact the MOB or Region HazMat for assistance characterizing the waste prior to handling.

#### 5.18.4.3.5 Slide Material

Slide material is classified as *clean fill* unless there is a known source of contamination (e.g. fuel tank or septic system) within the 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 dispose of slide material must follow guidelines in the ODOT *Blue Book*.** The disposal of slide material is site-specific. Coordinate the pre-selection of disposal 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 type is not known, stripe grindings must be characterized (i.e. laboratory testing or assume hazardous) prior to disposal.** 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* using one of the following disposal options.** Labeled containers must be kept closed except when adding wastes. Check for area specific requirements.
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*), OR

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events.

- **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

Asphalt grindings are considered *clean fill* provided there is no evidence of fresh oil or significant amounts of traffic marking products.

- **Asphalt grindings (including off-spec asphalt paving products) 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

- **Asphalt grindings that are not actively managed for later 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.

- **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.** Projects may require a permit from the Army Corps of Engineers.
- **Brush and landscape debris 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](#).
- **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 is not allowed and many landfills will not accept this special waste.

- **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. 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.
- **The use of lime is recommended (in limited situations) to accelerate the decomposition of carcasses that cannot be moved.** Do not use lime if there is potential for lime to enter a waterway before being neutralized.

- **Composting is recommended 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 (e.g. *elk*) and small critters.

- **The use of an onsite commercial incinerator is recommended 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. Contact MOB for assistance.

### 5.18.5 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 roadwaste storage areas at Maintenance yards.** Additional information on the Monthly Field Audit is located in [Appendix C](#).
- **A record of actions taken in response to issues discovered during the Monthly Field Audit 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 pollutant characterization testing (required for the [beneficial use](#) or disposal of some roadwaste) should be maintained onsite.** Some waste disposal facilities will require pollutant testing prior to disposal. Contact local waste disposal facilities to determine pollutant-testing requirements. Contact MOB or Region HazMat with questions regarding waste characterization and documentation.

- **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 yards* above Conditionally Exempt Hazardous Waste Generator limits (more than 220 pounds/month).

- **Records of the disposal of *hazardous waste* that was generated by the motoring public should be kept to document proper waste management.** The generation and disposal of hazardous roadwaste that is generated by the motoring public should **not** be included on the EMS Waste Generation Log. The Waste Disposal Log may be used to document the disposal information (e.g. if there wasn't a receipt).
- **Tracking roadwaste management is recommended.** Information about the type and amount of wastes being managed helps ODOT define waste management problems and is useful in negotiating waste disposal contracts.
- **If a DEQ permit is obtained (i.e. for [beneficial use](#) or placement as fill) the documentation requirements specified in the permit must be followed.** Permits typically require routine pollutant testing.
- **Clean 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 should be notified of *hazardous waste* discovered along the right-of-way.**

## 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.

### 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 regulates the storage of flammable and combustible materials.

### 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) or semi-aqueous 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 [chlorinated 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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.19.5 – Documentation
- **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 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 NRC must be notified of all [reportable spills](#). 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 spills that are reported to OERS.

##### 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **Containers that hold flammable and combustible liquids 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 containers 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 and 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 and Combustible Materials |   | SECONDARY CONTAINMENT REQUIRED   |  |
|--|---|--|--|
|  |   | Indoor area  | Outdoors or liquid storage room  |
| Group 1  | 1. Aerosols (all types)   | 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. | All containers if the aggregate liquid storage is more than 1,000 gallons                  |
|  | 2. Liquids with flashpoint below 73°F and boiling point 95°F or less<br><i>(e.g. chlorinated solvents)</i>  |  |  |
| Group 2  | 1. Liquids with flashpoint below 73°F and boiling point more 95°F   | containers larger than 55 gallons  | All containers larger than 55 gallons if aggregate liquid storage is 1,000 gallons or less |
|  | 2. Liquids with flashpoint equal or greater 73°F and less 140°F<br><i>(e.g. gasoline, acetone, toluene, turpentine, diesel, kerosene, or mineral spirits)</i> |  |  |
| Group 3  | 1. Liquids with flashpoint equal or greater 140°F and less 200°F<br><i>(e.g. ethylene glycol or immersion solvent)</i>  | 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 and combustible materials allowed by the OFC are listed in Table 15.19-1 - Storage Chart for Flammable and Combustible Materials. Consult the *SDS* to determine the hazard classification.
- **Flammable and 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 and Combustible Materials. Consult the *SDS* to determine the group. A *liquid storage room* may be used to store flammable and combustible materials exceeding the quantities listed in Table 2.

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

<sup>1</sup> 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 containers* 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* and *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.

- **Open containers and product handling should be conducted in a manner that prevents spills.** Absorbent pads, drip pans, drain boards, or drying racks should be used where appropriate. Solvents should be pumped from larger containers (greater than 5 gallons) rather than poured.
- **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.** *Empty containers* should be managed as *solid waste* (i.e. trash).
- **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

- **Minimizing the use of solvents including liquid and aerosol solvents cleaners is recommended 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.

- **Self-contained parts washers should be used 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 containers* is recommended where effective for product handling.
- **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 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 contaminants 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 effect 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 Onsite Recycling and Distillation

Refer to the Storage section (5.19.4.1) of this procedure for additional BMPs.

The DEQ document titled "Solvent Recycling Counting Guidance" provides additional information on onsite solvent recycling. A copy of the document is located in [Appendix I – DEQ Fact Sheets](#).

- **Distillation units must be compatible with the solvents being processed.** The units must be installed and used according to the manufacturer specifications. Distillation units that are operated outside should be protected from the weather. A liner should be used to simplify cleaning. Units should be kept closed except when transferring liquids.
- **Solids and sludge (still bottoms) from the distillation unit must be managed as a solvent waste.** See the Disposal section of this procedure.

#### 5.19.4.3.2 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, OR
  - Picked up by a licensed *hazardous waste* management company, OR
  - Taken to a DEQ sponsored *hazardous waste* collection event (ONLY if yard is a *CEG*), OR
  - Taken to a County waste facility that is authorized by DEQ to accept *hazardous waste* (ONLY if yard is a *CEG*).

*Hazardous waste* collection events are listed on the DEQ website. Go to <http://www.deq.state.or.us/lq/sw/hhw/collection.htm> for a list of locally sponsored *hazardous waste* collection events and <http://www.deq.state.or.us/lq/pubs/factsheets/hw/cegflyer.pdf> for a list of DEQ sponsored events.

- **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.

#### 5.19.4.3.3 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 taken in response to issues discovered during the Monthly Field Audit 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 [Hazardous Materials Information Survey](#) must be completed annually and submitted to the Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. 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.** 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](#).
- **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](#).

## 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.

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 where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.20.5 – Documentation.

#### 5.20.4.1 STORAGE OF TREATED TIMBER

Creosote, pentachlorophenol and chrominated copper arsenate (CCA) are chemical preservatives commonly used in treating timbers. 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.
- **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.

- **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 reused by ODOT, should be transferred to ODOT Surplus Property.** ODOT Surplus Property will need the [SDSs](#) and product information.
- **Where opportunities are available, composting or chipping treated timber is recommended.**
- **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.

#### 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 taken in response to issues discovered during the Monthly Field Audit 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.

## 5.21 WINTER MAINTENANCE CHEMICALS

### 5.21.1 Purpose

This procedure is intended for the storing, handling, and disposing of winter maintenance chemicals. This procedure covers the management of various winter maintenance chemicals routinely used by ODOT Maintenance employees to prevent the build-up of ice or to remove ice from highways and properties.

Winter maintenance chemicals include, but is not limited to, liquid and solid deicers including chemical used on sidewalks.

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.

### 5.21.2 Regulating Agencies

Winter maintenance chemicals must meet the specifications developed by 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.

### 5.21.3 Alternatives And Pollution Prevention

- Manage only the chemicals needed for the season. Use winter maintenance chemicals when needed based on District winter maintenance level of service plans and maps.
- Consider using winter maintenance chemical to help sanding material bore into snow and ice. Pre-wetting sand helps improve traction and keep the sanding materials on the road longer.
- 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://intranet.odot.state.or.us/employeesafety/Hazard%20Alerts.html>

### 5.21.4 Winter Maintenance Chemicals – Best Management Practices

- **ODOT safety, health, and emergency response policies and standards must be followed where applicable.** 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 where applicable. The Region Safety Manager should be contacted with *SDS* questions (e.g. when or where to obtain a *SDS*).

- **Corrective action to repair problems discovered during routine inspections should be completed as soon as practical.** Documentation of corrective actions is discussed in Section 5.21.5 – Documentation

- **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 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 NRC must be notified of all *reportable spills*. Deicer spills are reportable if the spill reaches or has potential to reach a waterbody. 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 spills that are reported to OERS.

**The MOB should be notified of all winter maintenance chemical spills greater than 100 gallons and/or any spill that reaches (or have potential to reach) a waterbody.**

#### 5.21.4.1 STORAGE OF WINTER MAINTENANCE CHEMICAL

##### 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.

- **An inventory of poly tanks should be maintained.** An inventory sheet is located in [Appendix L](#).
- **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 new winter maintenance chemical tanks, the location 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, as soon as practical, 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 from 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. When storage areas cannot be located away from conveyances or waterbodies, appropriate source control (such as berms) or water treatment measures should be implemented.
- **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 Product and Containers of Liquid Product (all sizes)

- **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 containers](#) must be labeled with product and hazard information.** 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.
- **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 should be stored away from liquids.

- Containers **must be in good condition** (e.g. no 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).
- **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.

#### 5.21.4.1.3 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 release of clean water should be logged. 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.
- **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 drains are open.
- **Drain valves on secondary containment systems must be manually operated (not automatic).** Valves (rather than caps) should be used to close drains.
- **The integrity of secondary containment systems should be checked annually,** preferably before the first delivery of the season. Integrity tests typically consist of allowing the containment system to partially fill with water and checking that the water level does not change.

#### 5.21.4.2 HANDLING AND USE OF WINTER MAINTENANCE CHEMICAL

Refer to the District Winter Maintenance Level of Service guidelines for information on the application of winter maintenance chemical to roadways.

##### 5.21.4.2.1 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.

A publication from the Purdue University Cooperative Extension Service titled "Poly Tanks for Farms and Businesses. . .preventing catastrophic failures" is located in [Appendix L – Poly Tanks](#). The publication provides general information on tank construction, purchasing, installation, and inspection.

- **An inventory of poly tanks should be maintained.** An inventory sheet is located in [Appendix L](#).
- **Tanks should be thoroughly cleaned before changing products.** Avoid mixing winter maintenance chemical with residues of other chemicals.
- **Truck-mounted tanks should be labeled "deicer"** to warn approaching drivers. Rectangular signs are recommended. If the truck will be used on the interstate, 5' by 2' signs with 8" letters are recommended. Smaller signs (4' x 1.5' sign with 6" letters) are recommended if the truck will not be used on the interstate. Orange signs are recommended unless the background is orange (e.g. do not put an orange sign on the orange part of the a truck).
- **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.
- **A Poly Transport Tank Inspection Form must be completed at least annually on all poly transport tanks.** Transport tank inspections should be completed by ODOT Fleet Services as part of the annual equipment inspection. Maintenance may inspect truck-mounted tanks if additional inspections (more than 1 a year) are desired or indicated.
- **Tank inspections should be scheduled to allow ample time to purchase a new tank if the old one is defective or unreliable. The absence of stress cracks or other damage does not guarantee the tank is structurally sound.**

#### 5.21.4.2.2 Sampling Bulk Product Loads

- **Each bulk shipment of product must be sampled** by the ODOT employee receiving the shipment to ensure compliance with the [PNS](#) specifications. Sampling must be completed according to the ODOT [Winter Maintenance Chemical Checklist](#); a copy of the checklist is located in [Appendix L – Poly Tanks](#). Contact the MOB to obtain sample bottles. Sample protocol is summarized below.
  - Fill two new, clean, plastic sample bottles with product from the middle of the delivery transfer.
  - Fill in the label on the sample bottles. The label should include the following information
    - Product type
    - District number
    - Yard name
    - Product lot number
    - Date of sample collection
    - Time of sample collection
  - Complete the ODOT *Winter Maintenance Chemical Checklist* Sheet.
  - Return the sample to MOB as soon as practical (within two weeks of collection is preferred).

#### 5.21.4.2.3 Loading

- **Efforts should be made to reduce spills and drips that occur while loading.** 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 Routine Maintenance and Inspection of Stationary Poly Tanks

Annual inspections are intended to be more comprehensive and detailed than monthly visual inspections.

- **Tanks should be thoroughly cleaned before changing products.** Avoid mixing winter maintenance chemical with residues of other chemicals (e.g. pesticides). Standard *magnesium chloride* and cold weather modified *magnesium chloride* can be used in the same tank without cleaning between products.
- **Pumps and other equipment should be repaired as necessary** (e.g. leaking, fouling, corroding, or worn). Equipment should be adequate for the workload.
- **Valves, gaskets, or fittings should be repaired or replaced as needed** (e.g. misaligned, loose, or deteriorated) to prevent seepage, gapping, or brittleness. Loose fittings should be tightened.
- **Pipe and fitting supports should be replaced or realigned as needed.**
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of the exterior of stationary and transport 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.** Tank inspection should be conducted to allow ample time to purchase a new tank if the old one is found to be defective or unreliable. Annual inspections should occur before the winter maintenance season. Elevated temperatures can accelerate deterioration and weaknesses. 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 help control deterioration. Additional inspections (e.g. acoustic emission testing or ultrasonic testing) can be performed by professional testing companies.

#### 5.21.4.2.5 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 minor stress cracks should be replaced as soon as practical.** If a poly tank with minor stress cracks cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) inspected to monitor the status of the stress cracks.
- **Tanks with minor or moderate damage (e.g. short or shallow cracks; some brittleness but still flexible; or shallow cuts) should be replaced as soon as practical.** If a poly tank with minor or moderate cannot be replaced quickly, the tank should be frequently (e.g. at least bi-annually) to monitor damage.

#### 5.21.4.2.6 Equipment Cleaning

- **Winter maintenance chemicals should be frequently rinsed from vehicles to protect the vehicle.** Equipment rinsing should follow the BMPs outlined in Section 5.9 – Equipment and Fleet. Where practical, equipment should be allowed to dry indoors.

### 5.21.4.3 DISPOSAL OF WINTER MAINTENANCE CHEMICALS

#### 5.21.4.3.1 Off-Season Storage

- **Product remaining at the end of the season should be left in the storage tank, left in the original package, or transferred to a yard that has storage facilities.**

#### 5.21.4.3.2 Disposal of Unusable Product (including recovered spills)

- **Winter maintenance chemical that is unsuitable for normal application (including product recovered product from spills or leaks) should be applied to sand or cinder piles to reduce freezing and aid in the deicing of surfaces.** Care should be taken to prevent chemical runoff from treated sand piles.
- **The use of unwanted winter maintenance chemical for dust suppression during the off-season.**
- **Unusable product (including absorbent used to clean winter maintenance chemical spills) that cannot be used to aid in deicing or anti-icing surfaces should be managed as *solid waste* (i.e. trash).** Refer to Section 1 – Good Housekeeping for information on storing containers that hold waste deicer.

#### 5.21.4.3.3 Disposal of Tanks

- **Tanks that are no longer needed, but are still in good condition, should be transferred to Surplus Property or to another ODOT crew.** 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 of Empty Containers

- **Empty packages and totes should be returned to the vendor or managed as *solid waste* (i.e. trash).**

### 5.21.5 Documentation

Blank copies of EMS paperwork are located in [Appendix B](#).

- **Logbooks that record winter chemical use must be kept by the applicator.** The logbooks must include the type of product applied, the beginning and ending mile points, highway, application date, application rate, amount used, time, road conditions, and weather conditions. This documentation should be maintained at the District level.
- **Completed copies of the ODOT *Winter Maintenance Chemical Checklist* should be sent to the MOB.**
- **The Monthly Maintenance EMS Field Audit form must be used to document the visual inspection of winter maintenance chemical tanks and storage areas.** Additional information on the Monthly Field Audit is located in [Appendix C](#).
- **A record of actions taken in response to issues discovered during the Monthly Field Audit 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](#).

- **Reportable spills** 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 100 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.

- **A Hazardous Materials Information Survey** must be completed annually and submitted to the **Oregon Fire Marshal's Office** to comply with the Community Right to Know Act and the EPA Tier II Chemical Inventory requirements. A separate form must be completed for each facility location with a unique address. A product must be included on the survey if the quantity stored onsite exceeds the limits set by the Oregon Fire Marshal. Additional information is located in [Appendix N](#).

Winter maintenance chemicals should be included on the annual report to the OSFM, however a hazardous material storage fee should not be assessed. If a fee is assessed, contact the MOB and a 'Fee Review Request' letter will be sent.

## 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 (also 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                                     |
| <i>PNS</i> | <i>Pacific Northwest Snowfighters</i>                        |
| 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                                    |

## 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:

- o Distressed or dead juvenile and small fishes
- o Washed up or floating fish
- o Fish swimming abnormally or erratically
- o Fish lying lethargically at water surface or in shallow water
- o Fish that are listless or nonresponsive to disturbance
- o Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- o 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, and, 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. Asbestos-containing products 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.

Asbestos-containing products 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.

*Ballasts* contain tar-like oil that is designed to muffle operational noise. The oil in *ballasts* manufactured prior to 1978 is likely to contain polychlorinated biphenyls (PCBs). *Ballasts* that do not contain PCBs are marked "No PCBs" by the manufacturer. *Ballasts* 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.

- 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
- 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:

- Contain “chlor” (e.g. tetrachloride, trichloride, trichloroethane, chlorothene, or dichloride).
- Contain "per", "perc", or "perk" (e.g. perkone, percosolve, permethrin, or perchloroethylene).
- 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.

### **Combustible 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

### **Conditionally exempt generator (CEG)**

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, *corrosives* 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                   | ABS     | Carbon Steel | Polyethylene (e.g. poly tank) | Polyurethane (e.g. spill pallet) | PVC | Stainless Steel |
|---------------------------|---------|--------------|-------------------------------|----------------------------------|-----|-----------------|
| Antifreeze                | B       | No info      | A                             | D                                | A   | A               |
| Asphalt                   | No info | B            | B                             | B                                | A   | A               |
| Detergents                | B       | A            | A                             | B                                | A   | A               |
| Diesel                    | No info | A            | B                             | C                                | A   | A               |
| Gasoline                  | D       | B            | A                             | N                                | C   | A               |
| Kerosene                  | D       | A            | B                             | B                                | A   | A               |
| Lacquer thinner           | A       | A            | D                             | D                                | D   | A               |
| Lime                      | No info | No info      | No info                       | B                                | B   | A               |
| <i>Magnesium chloride</i> | B       | C            | A                             | A                                | B   | D               |
| Mineral spirits           | D       | A            | D                             | B                                | A   | A               |
| Motor oil                 | C       | A            | A                             | B                                | B   | A               |
| Stoddard solvent          | B       | A            | D                             | B                                | C   | A               |
| Water                     | A       | D            | A                             | A                                | B   | A               |

Grading Scale for 48-hour exposure:

A = Excellent; B = Good, minor effect; C = Fair, moderate effect; D = Severe effect, not recommend

Cole-Parmer has a (free) database <http://www.coleparmer.com/techinfo/chemcomp.asp>

**Corrosive**

A highly reactive substance that causes obvious damage to living tissue. Acids and bases are common *corrosives*. *Corrosives* 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.

**Dry storage facility**

An unstaffed location with at least one structure (with a facility number) that is primarily used for dry storage (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.

**Elk**

The elk is one of the largest species of deer in the world. Elk range in forest and forest-edge habitat, feeding on grasses, plants, leaves, and bark. Male elk have large antlers that are shed each year. All elk have small and clearly defined rump patches with short tails.

As is true for many species of deer, especially those in mountainous regions, elk migrate into areas of higher altitude in the spring, following the retreating snows, and the opposite direction in the fall. Hunting pressure impacts migration and movements. Elk have a tendency to do most of their feeding in the mornings and evenings, seeking sheltered areas in between feedings to digest.

Elk are hunted as a game species; the meat is leaner and higher in protein than beef or chicken. (reference: <http://en.wikipedia.org/wiki/Elk>). For information on hunting elk and other big game in Oregon refer to the ODFW website. [http://www.dfw.state.or.us/resources/hunting/big\\_game/](http://www.dfw.state.or.us/resources/hunting/big_game/)

**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
  - a. Less than ½ gallon in 150 gallon tank
  - b. 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 wastes* (oil, asphalt emulsion, and anti-freeze) are tracked by the EMS Program.

**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 Office of Maintenance 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

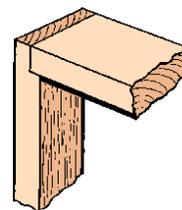


Illustration of rabbeted joint

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

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

**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: [corrosive](#), [ignitable](#), [reactive](#), and [toxic](#).

**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 (ft <sup>2</sup> ) | Total Allowable Quantities (gal/ft <sup>2</sup> 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 facility**

A manned or unmanned facility where maintenance actions occur and where the facility includes structures identified by facility numbers.

### **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 are stored onsite.

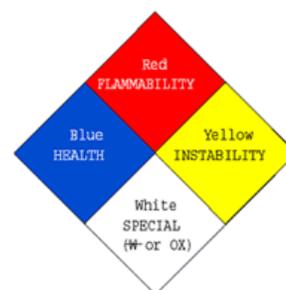
### **Material Safety Data Sheet (MSDS)**

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 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-**

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**

Solvents are substances that are 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.

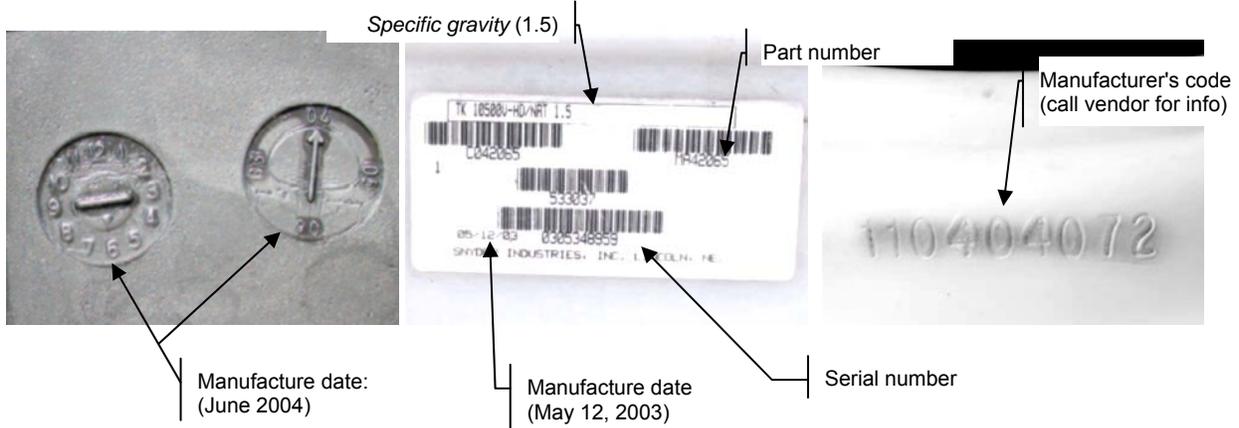
### **Specific gravity**

*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.

**Winter Maintenance Chemical Checklist**

A checklist to be completed at ODOT Maintenance Yards to document delivery inspections, visual inspections, and sampling of winter maintenance chemicals. The checklist is to be submitted with chemical samples sent to the Office of Maintenance.

**Winter maintenance site**

A remote location for bulk deicer storage. The facility could have one or more structures that are not intended for crew occupancy.

# CROSS REFERENCE

## - A -

|  |   |
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| Abandoned hazardous waste .....            | Section 5.18 - Roadwaste                  |
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| Acetylene.....                             | Section 5.6 – Compressed Gas              |
| Adhesives                                  |   |
| Bulk .....                                 | Section 5.8 – Epoxy                       |
| Spray.....                                 | Section 5.1 – Aerosol Cans                |
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| 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                   |
| Ant bait .....                             | Section 5.16 – Pesticide                  |
| Anti-freeze .....                          | Section 5.3 – Automotive Fluids and Parts |
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| Asphalt cement .....                       | Section 5.2 – Asphalt Paving              |
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| Instructions .....              | Appendix B  |
| Schedule and expectations ..... | Introduction  |
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| Bio-fuel .....  | Section 5.11 - Fuel                                 |
| Bio slide .....   | Section 5.2 – Asphalt Paving                        |
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| Blowers .....   | Section 5.9 – Equipment and Fleet                   |
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| 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 -

CF 7 liquid deicer .....Section 5.21 – Winter Maintenance Chemical

Calcium magnesium acetate (CMA) .....Section 5.21 – Winter Maintenance Chemical

Carbon dioxide .....Section 5.6 – Compressed Gas

Car wash / wax .....Section 5.5 – Cleaning Products

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Cell phones .....Section 5.7 – Electronic Equipment

Cement .....Section 5.8 – Epoxy

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Chemical treated post .....Section 5.20 – Treated Timber

Cinders .....Section 1 – Good Housekeeping

Citrus cleaner .....Section 5.5 – Cleaning Products

CMA (calcium magnesium acetate) .....Section 5.21 – Winter Maintenance Chemical

Cold mix .....Section 5.2 – Asphalt Paving

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Creosote treated pole .....Section 5.20 – Treated Timber

|               |                               |
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- D -

|                                      |  |
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- E -

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    Storing propane fueled equipment indoors.....Section 5.17 – Propane

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