



# Application for a Solid Waste Beneficial Use Determination

DEQ USE ONLY – BUSINESS OFFICE  
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## A. REFERENCE INFORMATION (Please type or print clearly.)

|                                                                       |                                                   |                                                |                     |
|-----------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------|---------------------|
| <u>Oregon Department of Transportation</u><br>Legal name of applicant |                                                   | <u>Business name of applicant if different</u> |                     |
| <u>455 Airport Road SE, Building K</u><br>Mailing address             | <u>Salem</u><br>City                              | <u>OR</u><br>State                             | <u>97301</u><br>Zip |
| <u>503.931.9557</u><br>Phone                                          | <u>Lucinda.M.MOORE@odot.state.or.us</u><br>E-mail |                                                | <u>Fax</u>          |

  

|                                                                                                   |                                                   |                    |                     |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------|---------------------|
| <u>Oregon Department of Transportation</u><br>Generator of solid waste (may be same as applicant) |                                                   |                    |                     |
| <u>445 Airport Road SE, Building K</u><br>Mailing address                                         | <u>Salem</u><br>City                              | <u>OR</u><br>State | <u>97301</u><br>Zip |
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## B. TYPE OF BENEFICIAL USE DETERMINATION REQUESTED

Beneficial Use Determination applications are categorized based on the type of information and potential amount of work required by DEQ staff to review application materials and render a decision. A tiered review and fee system has been established in rule. The tiers are:

- Tier 1 For a beneficial use of a solid waste that does not contain hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product and that will be used in a manufactured product;
- Tier 2 For a beneficial use of a solid waste that contains hazardous substances significantly exceeding the concentration in a comparable raw material or commercial product, or involves application on the land;
- Tier 3 For a beneficial use of a solid waste that requires research, such as a literature review or risk assessment, or for a demonstration project to demonstrate compliance with this rule.

I am applying for a ☐ Tier 1 ☒ Tier 2 ☐ Tier 3 determination.

## C. DOES THIS PROPOSED BENEFICIAL USE INVOLVE LAND APPLICATION OF ANY MATERIAL?

☒ Yes ☐ No

## D. SIGNATURE

I hereby certify by my signature below that the information contained in this application, and the documents I have attached, are true and correct to the best of my knowledge and belief.

|                                                |                      |                                                  |                   |
|------------------------------------------------|----------------------|--------------------------------------------------|-------------------|
| <u>Lucinda Moore</u>                           | <u>Lucinda Moore</u> | <u>State Maintenance and Operations Engineer</u> | <u>11/29/2021</u> |
| Signature of legally authorized representative | Print name           | Title                                            | Date              |

**E. REQUIRED ATTACHMENTS TO THIS APPLICATION** *(For an application to be complete, it must provide the required information for each listed item of the tier which is being applied for.)*

**Tier 1**

- ☒ A description of the material, manner of generation, and estimated quantity to be used each year;
- ☒ A description of the proposed use;
- ☒ A comparison of the chemical and physical characteristics of the material proposed for use with the material it will replace;
- ☒ A demonstration of compliance with the performance criteria in OAR 340-093-0280 based on knowledge of the process that generated the material, properties of the finished product, or testing; and
- ☒ Any other information that DEQ may require to evaluate the proposal.

**Tier 2**

- ☒ The information required for a Tier 1 application;
- ☒ Sampling and analysis that provides chemical, physical, and biological characterization of the material and that identifies potential contaminants in the material or the end product, as applicable;
- ☒ A risk screening comparing the concentration of hazardous substances in the material to existing, DEQ approved, risk-based screening level values, and demonstrating compliance with acceptable risk levels;
- ☒ Location or type of land use where the material will be applied, consistent with the risk scenarios used to evaluate risk;
- ☒ Contact information of property owner(s) if this is a site-specific land application proposal, including name, address, phone number, e-mail, site address and site coordinates (latitude and longitude); and
- ☒ A description of how the material will be managed to minimize potential adverse impacts to public health, safety, welfare, or the environment.

**Tier 3**

- ☐ The information required for a Tier 1 & 2 application;
- ☐ A discussion of the justification for the proposal;
- ☐ An estimate of the expected length of time that would be required to complete the project, if it is a demonstration; and
- ☐ If it is a demonstration project, the methods proposed to ensure safe and proper management of the material.

**F. PERFORMANCE CRITERIA** *(For all tiers - An application for a beneficial use determination must demonstrate satisfactory compliance with the following performance criteria.)*

**The use is productive, including:**

- ◆ There is an identified or reasonably likely use for the material that is not speculative;
- ◆ The use is a valuable part of a manufacturing process, an effective substitute for a valuable raw material or commercial product, or otherwise authorized by DEQ, and does not constitute disposal; and
- ◆ The use is in accordance with applicable engineering standards, commercial standards, and agricultural or horticultural practices.

**The use will not create an adverse impact to public health, safety, welfare, or the environment, including:**

- ◆ The material is not a hazardous waste under ORS 466.005;
- ◆ Until the time the material is used in accordance with a beneficial use determination, the material will be managed, including any storage, transportation, or processing, to prevent releases to the environment or nuisance conditions;
- ◆ Hazardous substances in the material do not significantly exceed the concentration in a comparable raw material or commercial product, or do not exceed naturally occurring background concentrations, or do not exceed acceptable risk levels, including evaluation of persistence and potential bioaccumulation, when the material is managed according to a beneficial use determination.

**The use will not result in the increase of a hazardous substance in a sensitive environment.**

**The use will not create objectionable odors, dust, unsightliness, fire, or other nuisance conditions.**

**The use will comply with all applicable federal, state, and local regulations.**

**G. FEES** *(Must accompany the application for it to be considered complete)*

|                                     |                                     |         |
|-------------------------------------|-------------------------------------|---------|
| <input type="checkbox"/>            | Tier 1 beneficial use determination | \$1,000 |
| <input checked="" type="checkbox"/> | Tier 2 beneficial use determination | \$2,000 |
| <input type="checkbox"/>            | Tier 3 beneficial use determination | \$5,000 |

Make checks out to: **Oregon DEQ**Total fees included: \$2,000**H. APPLICATION PROCEDURE**Step 1

Contact a DEQ staff person for assistance with the preparation of the application. DEQ staff will help with: 1) Determination of the eligibility for a beneficial use determination of a particular waste or process; and, 2) If eligible, establish the tier of beneficial use determination review required and associated fee to submit with the application.

Step 2

Mail the original signed application, all attachments, including the fee payment plus one extra copy to the appropriate regional office (see listing below.) Note that DEQ review work will not begin until a complete application packet is received. Incomplete applications may be returned. DEQ recommends the applicant keep a full copy of all application materials to guard against possible loss in transit.

Step 3

DEQ will contact the applicant, acknowledging receipt of the application, and will identify the staff person assigned to carryout the review. This staff person will contact the applicant if any additional information is needed.

| Region           | Counties Served                                                                                                                                               | Address & Phone                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Eastern Region   | Baker, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, and Wheeler | Eastern Region<br>Department of Environmental Quality<br>400 E Scenic Drive, Ste 2.307<br>The Dalles, OR 97058<br>(541) 298-7255 ext. 221 |
| Northwest Region | Clatsop, Clackamas, Columbia, Multnomah, Tillamook, and Washington                                                                                            | Northwest Region<br>DEQ Solid Waste Programs<br>700 NE Multnomah Street, Suite 600<br>Portland, OR 97232<br>(503) 229-5353                |
| Western Region   | Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Polk, and Yamhill                                                              | Western Region<br>DEQ Solid Waste Programs<br>165 E 7th Ave., Suite 100<br>Eugene, OR 97401<br>(541) 687-7465                             |

**Attachments for Beneficial Use  
Determination Application  
Oregon Statewide Street sweepings**

**November 17, 2021**

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## 1.0 INTRODUCTION

This document supports the application for an Oregon Department of Environmental Quality (DEQ) Solid Waste Beneficial Use Determination (BUD) for street sweepings as defined below in Section 2.0. The application was prepared by the Oregon Department of Transportation (ODOT) Maintenance and Operations Branch (MOB) and the HazMat Program (HazMat). The following information is provided in Section 3 of this document, to satisfy the requirements of a Tier 2 BUD Application:

- Tier 1 BUD Application Requirements (Section 3.1); and
- Tier 2 BUD Application Requirements (Section 3.2).

## 2.0 BACKGROUND

For the purpose of this BUD, the term “street sweepings” consists of soil, sand, or rock and organics collected from street sweeping activities on ODOT paved highways. These materials are often inadequate for screening and reuse for sanding materials due to the size or nature of the material. While DEQ does have a standing BUD for sweepings reuse as spill absorbent (See Tables in OAR 340-093-0270), ODOT generates more sweepings than can be used for this purpose. The majority of this material needs to be managed as a waste, adding significant costs in some ODOT Regions. This BUD application is intended to encompass street sweepings that have not been used as an absorbent material, and assumes that the street sweepings have been screened and free of visible solid waste (i.e., litter, vehicle debris, etc.).

As discussed below, street sweepings may be affected by traffic-related hazardous constituents, such as oils or operating fluids, residual fuel, and metals. The concentrations of hazardous substances in street sweepings in selected higher population areas in Oregon have been evaluated based on data collected from hundreds of samples from ODOT sweepings activities over several years. Recent data assembly and evaluation has led ODOT to the conclusion that street sweepings would potentially be eligible for a statewide Tier II BUD for reuse of this material. The following subsections provide a summary of the street sweepings evaluations conducted to date by ODOT and the conclusions and recommendations that have been developed based on that work.

### 2.1 HAZARDOUS CONSTITUENTS IN STREET SWEEPINGS

Elevated concentrations of traffic-related hazardous constituents are common in street sweepings. In most cases, the impacted soil poses no threat to human health and the environment when it is in place (i.e., on surface streets before collection). However, during normal maintenance of state highways, sweeping activities can collect large volumes of these materials. If these accumulated street sweepings are disposed or reused in inappropriate locations, constituents in the sweepings could potentially pose a risk to human and ecological health. Therefore, a management plan for these materials is necessary.

## 2.2 CURRENT MANAGEMENT OF OREGON HIGHWAY STREET SWEEPINGS

Currently, street sweepings generated by ODOT Maintenance Crews are handled and managed in accordance with the *“EMS Manual 2020: ODOT Maintenance Yards Environmental Management System Policy and Procedures”* (December 2019) ([https://www.oregon.gov/odot/Maintenance/Documents/EMS/2020EMS\\_Manual\\_final.pdf](https://www.oregon.gov/odot/Maintenance/Documents/EMS/2020EMS_Manual_final.pdf)) (EMS Manual). The EMS Program is a Statewide Program, intended to provide regulatory guidance to Maintenance Facility Staff through easy to follow Best Management Practices (BMPs) for the management of materials typically stored on ODOT Maintenance yards (i.e., fuels, operational fluids, deicer, etc.), and the generation, tracking, storage and disposal of wastes and excess materials generated by ODOT crews.

Currently, ODOT manages street sweepings in several ways: managed in stockpiles for use as spill absorbent, recovered sand and gravel that meets sanding specifications are screened and reused, reused under a site specific BUD (primarily Lane County area), or disposed at a landfill. The majority of the recovered street sweepings in NW Oregon are landfilled due to the overwhelming volume of materials generated through regular highway maintenance. This is a costly solution for the Agency, and the public, and impacts landfill space unnecessarily.

DEQ’s Clean Fill Internal Management Directive (IMD) notes that if statistical analyses of soil data do not show that “the material is substantially like clean fill” interested parties should “explore other disposal options such as site-specific or material-specific disposal determinations (solid waste letter authorization, permit exemption, mine reclamation material, restricted beneficial use as fill, or restricted uses such as use as fill at Cleanup sites with deed restrictions, etc.)” (DEQ, 2014). This application for a BUD has been prepared consistent with that recommendation.

## 2.3 STREET SWEEPINGS SAMPLING AND ANALYSIS

ODOT has collected and analyzed street sweepings samples sporadically since the late 1990s. Recently these data were collected from various projects and those that had supporting laboratory data reports were tabulated into a spreadsheet and statistically evaluated to determine whether there were enough samples to draw reasonable conclusions about the contaminant levels common to street sweepings. These samples came from stockpile sites before disposal and known fill sites at ODOT materials sources (quarries). In total, 83 samples have been collected from six of the ten Physiographic Provinces outlined in the 2014 IMD. Of those, the majority of the samples have been collected in the Portland Basin (53), South Willamette Valley (13), and the Cascade Range (10) Provinces. No samples have been collected from the Basin and Range, Blue Mountains, Deschutes-Columbia Plateau, and Owyhee Uplands Provinces.

The goal of the evaluation was to develop a general understanding of the types and magnitude of constituents in street sweepings. The overwhelming number of samples have come from the Portland Basin and South Willamette Valley Provinces, and are reflective of urban highway maintenance, primarily in the Greater Portland and Salem Metro areas. These data provide a conservative, “worst case” scenario for contaminant concentrations in street sweepings. This is

based on not only the higher traffic loads, but increased sweeping frequency used as a BMP to minimize impacts of sediment loads to storm water systems and ODOT storm water facilities.

Street sweepings sampling and analysis by ODOT has spanned over 20 years, and laboratory analysis has not been the same for each sample event. This is primarily a function of the specific constituents of interest (COIs) at the time of sampling, and different laboratory analytical requirements for local disposal. Broadly speaking, most samples were analyzed for fuels (gasoline and diesel) and oils (heavy or residual oils), select total metals (antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc), and polynuclear aromatic hydrocarbons (PAHs), using the following methods:

- Gasoline Range Hydrocarbons by NW TPH-Gx,
- Diesel and Heavy Oil Range Hydrocarbons by NW TPH-Dx,
- Total Metals by EPA Series Method 6020,
- PAHs by EPA Method 8270D.

Table 1 presents a summary of the total number of each COI analyzed, the total number of detections, the range of concentrations detected, the mean and the 90% upper-confidence limit (UCL) (including the 95% UCL calculation method for each constituent), and appropriate screening levels for comparison from DEQ (Clean Fill Screening Levels, Residential and Occupational RBCs) and EPA (Regional Screening Levels, or RSLs). Ecological RBCs were not included, as DEQ's Clean Fill Screening Levels use the lowest RBC (Residential or Ecological) for all non-metal COIs. Tables 2 through 7 break out the samples for metals from each Physiographic Province, comparing the analytical results to the applicable background concentration for the street sweepings collected from that Province.

## 2.4 OBSERVATIONS

Observations regarding how COI concentrations in ODOT street sweepings data compare to clean fill criteria and other risk-based screening criteria are summarized below. There is no discussion or conclusions for regions that have no data. Note that unless otherwise indicated, all concentrations discussed below represent the calculated 90% UCL value.

- Of the 83 total samples of street sweepings, 58 were analyzed for gasoline-range hydrocarbons, with only 2 detections. As gasoline is generally volatile, and with a concentration 8.416 mg/kg, ODOT does not consider gasoline-range hydrocarbons a constituent of potential concern (COPC) in street sweepings.
- Of the 83 total samples of street sweepings, 74 were analyzed for diesel and heavy oil-range hydrocarbons, with 16 and 65 detections, respectively. Concentrations for diesel and heavy oil-range hydrocarbons (86.07 mg/kg and 1,093 mg/kg, respectively) are below the most conservative applicable screening levels, and ODOT does not consider diesel and heavy oil-range hydrocarbons COPCs in street sweepings.

- Of the selected list of PAHs in Table 1, only four constituents' concentrations are greater than their accompanying Clean Fill Screening Level, and are discussed below. None of the selected PAH concentrations exceeded any other applicable screening level or RBC, with the exception of benzo(a)pyrene (B(a)P).
  - Acenaphthene was detected in 1 of 74 samples, at a concentration of 0.34 mg/kg. With only one detection a 90% UCL was not calculated. While the detected concentration (0.34 mg/kg) is greater than the Clean Fill screening level, ODOT does not consider Acenaphthene a COPC based on the 1.4% detection rate in street sweepings.
  - B(a)P was detected in approximately 42% of the analyzed samples, with concentration of 0.198 mg/kg. This concentration is greater than the Clean Fill screening level and the Residential RBC, and the Residential RSL (all at 0.11 mg/kg), but is almost two orders of magnitude less than the Occupational RBC (17 mg/kg). ODOT considers B(a)P a constituent of concern (COC) in street sweepings.
  - Naphthalene was only detected in 6 of 75 total samples (approximately 8%), but at a mean concentration of 0.759 mg/kg, and a 90% UCL concentration of 0.229 mg/kg. The 90% UCL for naphthalene is less than all other applicable screening levels or RBCs. ODOT considers naphthalene a COPC, as both concentrations are greater than the Clean Fill screening level of 0.077 mg/kg.
  - Pyrene was detected in 45 of 76 samples, at an approximate rate of 59%. The pyrene concentration was calculated at 14.81 mg/kg, greater than the Clean Fill screening level (10 mg/kg), but less than other applicable screening levels or RBCs by orders of magnitude. ODOT considers pyrene a COC in street sweepings.
- While Tables 2 through 7 detail the sample results by Physiographic Province, and compare the Statewide 90% UCLs to the Province-based Clean Fill screening levels, several generalizations on the entire data set of metals analyses are made below.
  - Mercury, selenium, and silver were detected in one or none of the analyzed samples, and ODOT does not consider these metals to be COPCs in street sweepings.
  - Arsenic, barium, chromium were detected in almost all analyzed samples (88%, 100%, and 100% of samples, respectively). While concentrations of arsenic in street sweeping samples (2.06 mg/kg) is greater than both the Residential and Occupational RBCs for arsenic (0.43 and 1.9 mg/kg, respectively), all three of these concentrations are less than the Clean Fill screening levels for all Physiographic Provinces. As such, ODOT does not consider arsenic, barium, and chromium to be COPCs in street sweepings.
  - Cadmium (0.624 mg/kg Statewide 90% UCL) is present in street sweepings at concentrations greater than the Clean Fill screening levels for the Cascade Range, the Coast Range, and the Klamath Mountain Physiographic Provinces, and just less than

the screening level for Portland Basin. ODOT considers cadmium a COPC in street sweepings.

- Concentrations of copper (56.57 mg/kg Statewide 90% UCL) are greater than the Portland Basin screening level only. As most of the street sweeping samples are from this Physiographic Province (see Table 6), and because the highest volume of street sweepings are generated from this area, ODOT considers copper a COC in street sweepings.
- Concentrations of antimony (2.06 mg/kg 90% UCL, mean concentration 1.79) are greater than all Clean Fill screening levels. Though only 3 samples have been analyzed for antimony with 2 detections (Table 6), the calculated concentration is relatively high compared to background levels across the state. Antimony is also a common component of brake shoes and pads. For these reasons, ODOT considers antimony a COC in street sweepings.
- Concentrations of lead (115.5 mg/kg Statewide 90% UCL) and zinc (173.8 mg/kg Statewide 90% UCL) are greater than most (zinc) or all (lead) of the Clean Fill screening levels from all Physiographic Provinces. The concentration for all detections of zinc is less than the screening level in the Portland Basin (180 mg/kg), but the mean concentration of zinc for samples collected from the Portland Basin is approximately 186 mg/kg, which is greater than the screening level. For these reasons, ODOT considers lead and zinc to be COCs in street sweepings.

## 2.5 CONCLUSIONS

Based on the dataset ODOT has collected to date, several COPCs and COCs have been identified as potential or common contaminants in street sweepings. While the majority of these samples have come from the Portland Basin (64%), most of the street sweepings grab samples contained one or more constituents at concentrations greater than the Clean Fill screening levels. Based on these data, ODOT concludes the following:

1. ODOT retained cadmium and naphthalene as COPCs. While the rate of detections of these contaminants in grab samples is generally low and inconsistent, the detected concentrations were high enough to retain for consideration as a potential “risk driver” for Clean Fill consideration.
2. ODOT has concluded that four metals (antimony, copper, lead, and zinc) and two PAHs (benzo(a)pyrene and pyrene) are present in street sweepings at concentrations that are consistently above Clean Fill screening levels in most or all Physiographic Provinces.
3. The remaining constituents analyzed (fuels, oil, metals, and PAHs) are not considered COPCs in street sweepings statewide.
4. Benzo(a)pyrene was the only COC that had a 90% UCL concentration that was greater than the Residential RBC and the EPA RSL, which are equal to the Clean Fill screening value for that constituent. The 90% UCL for B(a)P was less than all other applicable RBCs and RSLs.

5. None of the remaining constituents were detected at concentrations that were greater than any of the applicable Residential RBCs or RSLs.
6. Based on these results and process knowledge, ODOT concludes that street sweepings from other (unsampled) Physiographic Provinces are unlikely to contain contaminant concentrations greater than what is summarized in Table 1.
7. ODOT proposes that future laboratory analysis of street sweeping samples be limited to the constituents screened in as COPCs and COCs by this data evaluation. This includes the 5 metals (antimony, cadmium, copper, lead, and zinc) by EPA Method 6020A, and PAHs by EPA method 8270D-SIM (which include B(a)P, naphthalene, and pyrene).
8. Based on these conclusions, ODOT is proposing unrestricted re-use of street sweepings as fill in ODOT owned rights-of-way, and ODOT facilities (e.g., Maintenance Yards, etc.). This assumes that there are no stains, odors, oily residues, or solid waste (litter) in the street sweepings.
9. After the collection of street sweepings, and prior to placement under this BUD, ODOT will observe sweepings for odors, oils, or staining, and if not present, the material will be mechanically screened to remove debris and litter (solid waste). The separated debris will be disposed as solid waste, and the screened sweepings will be actively managed until placement, in accordance with the EMS Manual.

## 3.0 APPLICATION INFORMATION

The following subsections contain the information required for a Tier 2 BUD application. Sections 3.1 and 3.2 present the information required for Tier 1 and Tier 2 BUD applications, respectively.

### 3.1 TIER 1 APPLICATION REQUIREMENTS

#### *Description of the Material, Manner of Generation, and Estimated Quantity to be Used Each Year*

The material, street sweepings, is generated during road maintenance and cleaning activities conducted by ODOT. The material consists of soil, organic matter (leaves, twigs, etc.), and rock. In some instances, litter is also swept and collected by the sweepers. Based on estimates only, ODOT generates approximately 6,000 to 10,000 cubic yards of street sweepings annually depending on various factors such as traffic, weather, trees, landslides, local mandates, etc.

#### *Description of the Proposed Use*

As noted in Section 2.4, the concentrations of COCs in street sweepings vary based on collection volumes, frequency of sweeping, and location (i.e., urban vs. rural). While this is the case, the sample data were statistically evaluated as a group, in order to provide a broadly applicable (i.e., statewide) BUD that was conservative, kept generated materials under ODOT control, decreased disposal costs, is protective of human health and the environment, and provides all Maintenance Crews with easy to interpret re-use options for screened (litter-free) material.

ODOT proposes the following:

- Unless sampled, and laboratory results for the COCs listed in Section 2.5 are less than Clean Fill screening levels, any street sweepings generated (statewide) will be reused as follows:
  - Reuse of street sweepings as fill will be restricted to ODOT owned properties. These properties will include (but may not be limited to) reuse in ODOT rights of way, at ODOT Maintenance Facilities, equipment and vehicle storage areas, utility corridors, or at ODOT Source Material Sites (quarries) being reclaimed. The limit on reuse options will only be limited by exposure to the public, as all street sweeping sample concentrations are less than the applicable Occupational RBCs.
  - If street sweepings cannot be reused by ODOT as fill or under some other DEQ approved permit, they will be characterized and managed as a waste material and disposed.
- ODOT proposes following limitations and/or conditions for street sweepings sampling and reuse:
  - Street sweepings will not need to be sampled, as a rule, except for testing required for continuance of the BUD, and then for the COCs identified in Section 2.4.
  - Additional sampling and analysis will be conducted when warranted, and indications of potential for contamination is observed. This would potentially include sweeping adjacent to areas of staining or recent accidents (i.e., fuels and oils), areas near transformers or other heavy electrical equipment requiring cooling oil (i.e., PCBs), etc.
  - Consistent with the reuse options listed above, ODOT will not place these materials in areas that have ecological habitat. These materials will generally be placed in vehicle travel or storage areas, as fill material in ODOT ROWs, or in other locations described above.
  - These sweepings will not be eligible for reuse as fill or parking areas where ODOT staff are living without additional sampling and analysis. In the event that ODOT would use street sweepings at properties that have residences, ODOT will sample the material and analyze for the COCs identified in Section 2.4. If the material meets Residential RBCs for all COCs, it may be used in these facilities, but generally kept within the “road prism” definition used for asphalt grinding reuse. That is, it will not be used in grassy areas around the residences.
  - Street sweepings will be mechanically screened, and visually litter free before reuse. This will remove larger organics, but also any litter or solid waste (crash debris, etc.) before placement.

Street sweepings may also be managed in accordance with the DEQ Clean Fill IMD and outside of this BUD, if project-specific data demonstrates that constituent concentrations in soil are below clean fill criteria.

*Comparison of the Chemical and Physical Characteristics of the Material Proposed for Use with the Material it will Replace*

The physical characteristics of the street sweepings will vary depending on the origin of the sweepings, but generally consist of fine soils, sand, and organics. Prior to use, the physical characteristics will be evaluated to confirm that the soil is appropriate for the desired beneficial use, as needed. For example, soil that contains insignificant quantities of organic material may be used as structural or trench fill. Other sweepings material may be used for top dressing in parking or pull-out areas, or other similar purposes.

The chemical characteristics of street sweepings and the proposed reuse alternatives are summarized in Section 2.5 and described in more detail in Section 3.2. In summary, reuse alternatives were proposed that ensure chemical concentrations in street sweepings will not exceed applicable RBCs. Unless used in an ODOT facility that has employee residences, these will be generally Occupational RBCs, allowing placement of this material in Maintenance Facilities.

*A Demonstration of the Compliance with the Performance Criteria in OAR 340-093-0280 Based on Knowledge of the Process that Generated the Material, Properties of the Finished Product, or Testing*

If managed as proposed earlier in this section, street sweepings meets the performance criteria in OAR 340-093-0280. Compliance with OAR 340-093-0280(3)(c)(C), in particular, has been demonstrated through extensive testing and analysis of street sweepings, as discussed in Section 2.4, and summarized in Table 1.

Because the number of street sweepings samples heavily favor the Portland Basin and South Willamette Valley Physiographic Provinces (80% of the total samples collected), the data represents a contaminant profile for street sweepings that is heavily biased to an urban environment, and highways that have the heaviest vehicle travel (Portland and Salem Metro areas, and I-5 Corridor). This dataset, therefore, represents the likely “worst-case” scenario for street sweeping concentrations, where the increased volume of sweepings are affected by non-point sources of contaminants like vehicle use and heavy traffic, various types of construction activities, increased runoff (and entrained sediments) from hardscapes onto highways, a higher incidence of metals in paints (residential and commercial), industrial activities, vehicle leaks and accidents, etc. This provides ODOT with a relatively conservative data set, and the knowledge of process to understand nature of street sweepings’ COCs, and the ability to conclude that street sweepings from other Physiographic Provinces are unlikely to contain contaminant concentrations greater than what is summarized in Table 1.

Overall, testing has shown that street sweepings meets clean fill criteria or contains COC concentrations that are less than Residential RBCs and RSLs (with the exception of B(a)P). All analytical testing has shown that all sample concentrations are much less than the Occupational RBCs. The reuse of street sweepings in accordance with the categories proposed in this Section will be protective of human and ecological health, when placed with the proposed conditions/limitations.

### 3.2 TIER 2 APPLICATION REQUIREMENTS

*Sampling and Analysis that Provides Chemical, Physical, and Biological Characterization of the Material and that Identifies Potential Contaminants in the Material or the End Product as Applicable*

*A Risk Screening Comparing the Concentration of Hazardous Substances in the Material to Existing, DEQ Approved, Risk-Based Screening Level Values, and Demonstrating Compliance with Acceptable Risk Levels*

Available street sweepings data has been evaluated in Section 2.4, and summarized in Tables 1 through 7. As noted previously, traffic related hazardous constituents that are detected above Clean Fill screening levels include antimony, cadmium, copper, lead, zinc, B(a)P, naphthalene, and pyrene. Of those, only B(a)P concentrations are greater than the Residential RBC and Residential RSL, which are both equal to the Clean Fill screening level.

For street sweepings across the state, no COC concentrations exceed Occupational, Construction Worker, or Excavation Worker RBCs, or the applicable EPA RSLs. Based on this risk-based screening, ODOTs proposed reuse options for street sweepings are protected for the proposed reuse exposure pathways.

*Location or Type of Land Use where the Material Will be Applied, Consistent with the Risk Scenarios Used to Evaluate Risk*

The precise location of material application is unknown as street sweepings will be generated at multiple locations statewide. Use of street sweepings that have been characterized as clean fill (through additional sampling and physical screening) will be unrestricted, subject to the limitations of Oregon Clean Fill IMD (DEQ, 2014).

Otherwise, street sweepings have been sufficiently characterized as appropriate for uses on ODOT owned and controlled properties as fill. The only restriction on this reuse will be for facilities that include ODOT employee residences, and in those cases additional sampling and reuse restrictions will apply, as previously discussed.

*Contact Information of Property Owner(s) if this Site-Specific Land Application Proposal, including Name, Address, phone number, e-mail, site address, and site coordinates*

This is not a site-specific land application proposal, limited to ODOT owned properties and rs across the state.

*A Description of How the Material will be Managed to Minimize Potential Adverse Impacts to Public Health, Safety, Welfare, or the Environment*

As previously discussed, ODOT will generate, manage, and reuse the screened street sweepings on ODOT owned and controlled properties. Reused sweepings will be managed so that it will not create an adverse impact on groundwater, surface water, or public health or safety. Street sweepings, regardless of which location and use is determined to be the most appropriate, will not be placed in wetlands, in areas that will contact seasonal high groundwater, or adjacent to surface water bodies.

If street sweepings are to be stockpiled for future use by ODOT, stockpiles will be screened of debris, and maintained on ODOT-controlled property. Stockpiles will be managed in accordance with the procedures and best management practices outlined in the ODOT Routine Road Maintenance Program *2020 Water Quality and Habitat Guide for Best Management Practices* (July 2020)( [https://www.oregon.gov/odot/Maintenance/Documents/blue\\_book.pdf](https://www.oregon.gov/odot/Maintenance/Documents/blue_book.pdf)), and EMS Manual (2019).

If accumulated street sweepings are to be transported via truck to a fill or storage location, transport will be conducted in accordance with ODOT Motor Carrier Division Rules and Regulations.

## 4.0 REFERENCES

- Oregon Department of Environmental Quality (DEQ), 2013. *Development of Oregon Background Metals Concentrations in Soil*. State of Oregon Department of Environmental Quality Land Quality Division Cleanup Program. March 2013.
- DEQ, 2014. *Clean Fill Determinations – Internal Management Directive*. State of Oregon Department of Environmental Quality Solid Waste Program. February 21, 2019.
- DEQ, 2015. *Risk Based Concentrations, Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*. State of Oregon Department of Environmental Quality. Revised May 2018.
- ODOT, 2019. *EMS Manual 2020: ODOT Maintenance Yards Environmental Management System Policy and Procedures*. State of Oregon Department of Transportation. December 2019.
- ODOT, 2020. *Routine Road Maintenance – Water Quality and Habitat Guide – Best Management Practices*. State of Oregon Department of Transportation. July 2020.

## TABLES

Table 1: Statewide Summary of ODOT Street Sweeping Data

| Table 1: Statewide Summary of ODOT Street Sweeping Data |                   |                                |          |        |       |        | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg)   | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) |
|---------------------------------------------------------|-------------------|--------------------------------|----------|--------|-------|--------|-------------------------------------------------------|-----------------------------------------------|---------------------------------|-----------------------------|----------------------------------|
| Number samples                                          | Detectable levels | 95% UCL method                 | 90% UCL* | High   | Low   | Mean   | Petroleum Hydrocarbons                                |                                               |                                 |                             |                                  |
| 58                                                      | 2                 | 95% KM (Chebyshev) UCL         | 8.416    | 31.70  | 5.32  | 18.51  | Gasoline (GRO)                                        | 31                                            | 1,200                           |                             | 20,000                           |
| 74                                                      | 16                | 95% KM Approximate Gamma UCL   | 86.07    | 680    | 14    | 124.1  | Diesel (DRO)                                          | 1,100                                         | 1,200                           |                             | 14,000                           |
| 74                                                      | 65                | 95% GROS Approximate Gamma UCL | 1,093    | 2,370  | 0.60  | 971.5  | Oil (RRO)                                             | --                                            | 2,800                           |                             | 36,000                           |
|                                                         |                   |                                |          |        |       |        | Total Metals - EPA 6020 - mg/kg                       |                                               |                                 |                             |                                  |
| 3                                                       | 2                 | 95% KM (t) UCL                 | 2.06     | 1.99   | 1.58  | 1.79   | Antimony                                              | Clean Fill screening levels vary by Province. | -                               | 31                          | --                               |
| 24                                                      | 21                | 95% KM (t) UCL                 | 2.937    | 5.60   | 0.72  | 2.83   | Arsenic                                               |                                               | 0.43                            | 0.68                        | 1.9                              |
| 23                                                      | 23                | 95% Chebyshev (Mean, Sd) UCL   | 143.9    | 302.00 | 14.70 | 109.04 | Barium                                                |                                               | 15,000                          | 15,000                      | 220,000                          |
| 79                                                      | 33                | 95% KM (t) UCL                 | 0.624    | 1.84   | 0.08  | 0.78   | Cadmium                                               |                                               | 78                              | 71                          | 350                              |
| 36                                                      | 36                | 95% Adjusted Gamma UCL         | 35.99    | 144.00 | 3.40  | 29.50  | Chromium                                              |                                               | 120000(III)<br>0.30 (IV)        | 120000(III)<br>0.30 (IV)    | 6.3 (VI)                         |
| 73                                                      | 71                | 95% KM (Chebyshev) UCL         | 56.57    | 325.00 | 4.00  | 43.41  | Copper                                                |                                               | 3,100                           | 3,100                       | 47,000                           |
| 83                                                      | 79                | KM H-UCL                       | 115.5    | 628.00 | 1.46  | 65.35  | Lead                                                  |                                               | 400                             | 400                         | 800                              |
| 13                                                      | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Mercury                                               |                                               | 23                              | 23                          | 350                              |
| 11                                                      | 1                 | NA                             | NA       | 0.26   | 0.26  | 0.261  | Selenium                                              |                                               | -                               | 390                         | --                               |
| 11                                                      | 1                 | NA                             | NA       | 0.67   | 0.67  | 0.674  | Silver                                                |                                               | 390                             | 390                         | 5800                             |
| 67                                                      | 67                | 95% Student's-t UCL            | 173.8    | 401.00 | 0.72  | 160.50 | Zinc                                                  | -                                             | 23,000                          | --                          |                                  |
|                                                         |                   |                                |          |        |       |        | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                               |                                 |                             |                                  |
| 74                                                      | 1                 | NA                             | NA       | 0.34   | 0.34  | 0.34   | Acenaphthene                                          | 0.25                                          | 4,700                           | 3600                        | 70,000                           |
| 37                                                      | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Acenaphthylene                                        | 120                                           | -                               | -                           | --                               |
| 72                                                      | 6                 | 95% KM Approximate Gamma UCL   | 0.0307   | 0.31   | 0.01  | 0.076  | Anthracene                                            | 6.8                                           | 23,000                          | 18,000                      | 350,000                          |
| 76                                                      | 21                | KM H-UCL                       | 0.116    | 1.33   | 0.04  | 0.214  | Benzo(a)anthracene                                    | 0.73                                          | 1.1                             | 1.1                         | 21                               |
| 76                                                      | 32                | 95% KM (Chebyshev) UCL         | 0.198    | 2.16   | 0.00  | 0.174  | Benzo(a)pyrene                                        | 0.11                                          | 0.11                            | 0.11                        | 2.1                              |
| 76                                                      | 25                | 95% KM (Chebyshev) UCL         | 0.175    | 1.360  | 0.05  | 0.188  | Benzo(b)fluoranthene                                  | 1.1                                           | 1.1                             | 1.1                         | 21                               |
| 47                                                      | 23                | 95% KM (Chebyshev) UCL         | 0.234    | 1.81   | 0.02  | 0.208  | Benzo(g,h,i)perylene                                  | 25                                            | -                               | -                           | --                               |
| 76                                                      | 18                | KM H-UCL                       | 0.0598   | 0.82   | 0.02  | 0.151  | Benzo(k)fluoranthene                                  | 11                                            | 11                              | 15                          | 210                              |
| 76                                                      | 38                | KM H-UCL                       | 0.211    | 1.96   | 0.03  | 0.218  | Chrysene                                              | 3.1                                           | 110                             | 110                         | 2100                             |
| 74                                                      | 4                 | 95% KM Approximate Gamma UCL   | 0.0974   | 1.24   | 0.07  | 0.391  | Dibenz(a,h)anthracene                                 | 0.11                                          | 0.11                            | 0.11                        | 2.1                              |
| 76                                                      | 35                | KM H-UCL                       | 0.244    | 5.35   | 0.04  | 0.392  | Fluoranthene                                          | 10                                            | 2,400                           | 2400                        | 30,000                           |
| 74                                                      | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Fluorene                                              | 3.7                                           | 3,100                           | 240                         | 47,000                           |
| 76                                                      | 20                | KM H-UCL                       | 0.106    | 1.84   | 0.04  | 0.221  | Indeno(1,2,3-cd)pyrene                                | 1.1                                           | 1.1                             | 1.1                         | 21                               |
| 75                                                      | 6                 | 95% KM Approximate Gamma UCL   | 0.229    | 2.80   | 0.04  | 0.759  | Napththalene                                          | 0.077                                         | 5.3                             | 2.0                         | 23                               |
| 48                                                      | 14                | 95% KM (Chebyshev) UCL         | 0.449    | 4.37   | 0.03  | 0.470  | Phenanthrene                                          | 5.5                                           | -                               | -                           | --                               |
| 76                                                      | 45                | 95% KM (Chebyshev) UCL         | 14.810   | 240.00 | 0.01  | 5.659  | Pyrene                                                | 10                                            | 1,800                           | 1800                        | 23,000                           |

**Key:**

The 90% UCL is yellow highlighted if the value exceeds any of the four listed SL or RBCs. Clean fill screening levels for metals vary by physiographic province. 90% UCL exceedances for metals are summarized in Tables 2-7.

Other cells are highlighted for the highest exceedance.

The cell is red highlighted if the value is greater than the CF limit.

The cell is green highlighted if the value is greater than the Residential RBC.

The cell is blue highlighted if the value exceeds Residential EPA RSL.

The cell is orange highlighted if the value exceeds the Occupational RBC.

\* If more than one UCL method was recommended in the 95% UCL analysis the method with the higher (more conservative) level is listed. Per EPA guidance, data sets with 10 or fewer detectable values may be less reliable. Calculation cannot be complete on data set that have less than 2 detectable samples; these are listed as NA.

Table 2: Summary of ODOT Cascade Range Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High   | Low   | Mean   | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|--------|-------|--------|-------------------|
| 0                                                                         | 0                 | Antimony                        | 0.67                                   | 0.00   | 0.00  | ND     | 2.06              |
| 3                                                                         | 2                 | Arsenic                         | 19                                     | 1.46   | 0.72  | 1.09   | 2.937             |
| 2                                                                         | 2                 | Barium                          | 630                                    | 130.00 | 17.50 | 73.75  | 143.9             |
| 8                                                                         | 1                 | Cadmium                         | 0.545                                  | 0.49   | 0.49  | 0.49   | 0.624             |
| 3                                                                         | 3                 | Chromium                        | 200                                    | 9.13   | 5.14  | 6.85   | 35.99             |
| 10                                                                        | 10                | Copper                          | 73                                     | 34.70  | 11.50 | 20.71  | 56.57             |
| 10                                                                        | 9                 | Lead                            | 34                                     | 95.70  | 6.62  | 25.34  | 115.5             |
| 2                                                                         | 0                 | Mercury                         | 0.24                                   | 0.00   | 0.00  | ND     | NA                |
| 2                                                                         | 0                 | Selenium                        | 0.52                                   | 0.00   | 0.00  | ND     | NA                |
| 2                                                                         | 0                 | Silver                          | 2.6                                    | 0.00   | 0.00  | ND     | NA                |
| 8                                                                         | 8                 | Zinc                            | 170                                    | 294.00 | 19.60 | 101.71 | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |        |       |        |                   |
| 9                                                                         | 2                 | Benzo(a)pyrene                  | 0.11                                   | 0.29   | 0.05  | 0.17   | 0.198             |
| 7                                                                         | 2                 | Napththalene                    | 0.077                                  | 0.35   | 0.32  | 0.33   | 0.229             |
| 9                                                                         | 1                 | Pyrene                          | 10                                     | 0.29   | 0.29  | 0.29   | 14.81             |

Table 3: Summary of ODOT Coast Range Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High  | Low   | Mean  | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|-------|-------|-------|-------------------|
| 0                                                                         | 0                 | Antimony                        | 0.55                                   | 0.00  | 0.00  | ND    | 2.06              |
| 1                                                                         | 1                 | Arsenic                         | 12                                     | 1.74  | 1.74  | 1.74  | 2.937             |
| 0                                                                         | 0                 | Barium                          | 840                                    | 0.00  | 0.00  | ND    | 143.9             |
| 1                                                                         | 1                 | Cadmium                         | 0.54                                   | 1.16  | 1.16  | 1.16  | 0.624             |
| 1                                                                         | 1                 | Chromium                        | 240                                    | 17.90 | 17.90 | 17.90 | 35.99             |
| 1                                                                         | 1                 | Copper                          | 100                                    | 28.70 | 28.70 | 28.70 | 56.57             |
| 1                                                                         | 1                 | Lead                            | 34                                     | 45.80 | 45.80 | 45.80 | 115.5             |
| 0                                                                         | 0                 | Mercury                         | 0.11                                   | 0.00  | 0.00  | ND    | NA                |
| 0                                                                         | 0                 | Selenium                        | 1.5                                    | 0.00  | 0.00  | ND    | NA                |
| 0                                                                         | 0                 | Silver                          | 2.6                                    | 0.00  | 0.00  | ND    | NA                |
| 1                                                                         | 1                 | Zinc                            | 140                                    | 92.50 | 92.50 | 92.50 | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |       |       |       |                   |
| 1                                                                         | 0                 | Benzo(a)pyrene                  | 0.11                                   | 0.00  | 0.00  | NA    | 0.198             |
| 1                                                                         | 0                 | Napththalene                    | 0.077                                  | 0.00  | 0.00  | NA    | 0.229             |
| 1                                                                         | 0                 | Pyrene                          | 10                                     | 0.00  | 0.00  | NA    | 14.81             |

Table 4: Summary of ODOT High Lava Plains Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High  | Low   | Mean  | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|-------|-------|-------|-------------------|
| 0                                                                         | 0                 | Antimony                        | 0.35                                   | 0.00  | 0.00  | ND    | 2.06              |
| 1                                                                         | 0                 | Arsenic                         | 7.2                                    | 0.00  | 0.00  | ND    | 2.937             |
| 0                                                                         | 0                 | Barium                          | 790                                    | 0.00  | 0.00  | ND    | 143.9             |
| 1                                                                         | 1                 | Cadmium                         | 0.78                                   | 0.78  | 0.78  | 0.78  | 0.624             |
| 1                                                                         | 1                 | Chromium                        | 140                                    | 10.00 | 10.00 | 10.00 | 35.99             |
| 1                                                                         | 1                 | Copper                          | 62                                     | 21.00 | 21.00 | 21.00 | 56.57             |
| 1                                                                         | 1                 | Lead                            | 21                                     | 10.40 | 10.40 | 10.40 | 115.5             |
| 0                                                                         | 0                 | Mercury                         | 0.06                                   | 0.00  | 0.00  | ND    | NA                |
| 0                                                                         | 0                 | Selenium                        | 0.54                                   | 0.00  | 0.00  | ND    | NA                |
| 0                                                                         | 0                 | Silver                          | 2.6                                    | 0.00  | 0.00  | ND    | NA                |
| 1                                                                         | 1                 | Zinc                            | 140                                    | 49.40 | 49.40 | 49.40 | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |       |       |       |                   |
| 1                                                                         | 0                 | Benzo(a)pyrene                  | 0.11                                   | ND    | 0.00  | 0.00  | 0.198             |
| 1                                                                         | 0                 | Napththalene                    | 0.077                                  | ND    | 0.00  | 0.00  | 0.229             |
| 1                                                                         | 1                 | Pyrene                          | 10                                     | 0.13  | 0.13  | 0.13  | 14.81             |

Table 5: Summary of ODOT Klamath Mountains Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High   | Low    | Mean   | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|--------|--------|--------|-------------------|
| 0                                                                         | 0                 | Antimony                        | 0.59                                   | 0.00   | 0.00   | ND     | 2.06              |
| 2                                                                         | 2                 | Arsenic                         | 12                                     | 4.00   | 1.06   | 2.53   | 2.937             |
| 2                                                                         | 2                 | Barium                          | 630                                    | 105.00 | 91.20  | 98.10  | 143.9             |
| 4                                                                         | 1                 | Cadmium                         | 0.52                                   | 0.49   | 0.49   | 0.49   | 0.624             |
| 2                                                                         | 2                 | Chromium                        | 890                                    | 144.00 | 134.00 | 139.00 | 35.99             |
| 2                                                                         | 0                 | Copper                          | 110                                    | 0.00   | 0.00   | ND     | 56.57             |
| 4                                                                         | 2                 | Lead                            | 36                                     | 26.50  | 5.74   | 16.12  | 115.5             |
| 2                                                                         | 0                 | Mercury                         | 0.17                                   | 0.00   | 0.00   | ND     | NA                |
| 2                                                                         | 1                 | Selenium                        | 0.8                                    | 0.26   | 0.26   | 0.26   | NA                |
| 2                                                                         | 1                 | Silver                          | 2.6                                    | 0.67   | 0.67   | 0.67   | NA                |
| 2                                                                         | 2                 | Zinc                            | 140                                    | 2.29   | 0.72   | 1.50   | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |        |        |        |                   |
| 2                                                                         | 0                 | Benzo(a)pyrene                  | 0.11                                   | 0.00   | 0.00   | ND     | 0.198             |
| 2                                                                         | 1                 | Napththalene                    | 0.077                                  | 2.80   | 2.80   | 2.80   | 0.229             |
| 2                                                                         | 0                 | Pyrene                          | 10                                     | 0.00   | 0.00   | ND     | 14.81             |

Table 6: Summary of ODOT Portland Basin Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High   | Low   | Mean   | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|--------|-------|--------|-------------------|
| 3                                                                         | 2                 | Antimony                        | 0.56                                   | 1.99   | 1.58  | 1.79   | 2.06              |
| 8                                                                         | 8                 | Arsenic                         | 8.8                                    | 4.48   | 1.01  | 2.78   | 2.937             |
| 12                                                                        | 12                | Barium                          | 790                                    | 302.00 | 62.50 | 127.35 | 143.9             |
| 52                                                                        | 23                | Cadmium                         | 0.36                                   | 1.84   | 0.08  | 0.86   | 0.624             |
| 16                                                                        | 16                | Chromium                        | 76                                     | 52.50  | 3.40  | 25.21  | 35.99             |
| 50                                                                        | 50                | Copper                          | 34                                     | 325.00 | 4.00  | 49.24  | 56.57             |
| 54                                                                        | 53                | Lead                            | 27                                     | 628.00 | 1.46  | 72.71  | 115.5             |
| 6                                                                         | 0                 | Mercury                         | 0.23                                   | 0.00   | 0.00  | ND     | NA                |
| 6                                                                         | 0                 | Selenium                        | 0.71                                   | 0.00   | 0.00  | ND     | NA                |
| 6                                                                         | 0                 | Silver                          | 2.6                                    | 0.00   | 0.00  | ND     | NA                |
| 47                                                                        | 47                | Zinc                            | 180                                    | 401.00 | 59.60 | 186.67 | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |        |       |        |                   |
| 53                                                                        | 24                | Benzo(a)pyrene                  | 0.11                                   | 2.16   | 0.00  | 0.20   | 0.198             |
| 54                                                                        | 3                 | Naphthalene                     | 0.077                                  | 0.78   | 0.04  | 0.36   | 0.229             |
| 53                                                                        | 36                | Pyrene                          | 10                                     | 5.89   | 0.01  | 0.36   | 14.81             |

Table 7: Summary of ODOT South Willamete Valley Sweeping Data

| Number samples                                                            | Detectable levels | Total Metals - EPA 6020 - mg/kg | DEQ Clean Fill Screening Level (mg/kg) | High   | Low   | Mean   | Statewide 90% UCL |
|---------------------------------------------------------------------------|-------------------|---------------------------------|----------------------------------------|--------|-------|--------|-------------------|
| 0                                                                         | 0                 | Antimony                        | 0.39                                   | 0.00   | 0.00  | ND     | 2.06              |
| 9                                                                         | 8                 | Arsenic                         | 18                                     | 5.60   | 2.21  | 3.54   | 2.937             |
| 7                                                                         | 7                 | Barium                          | 730                                    | 132.00 | 14.70 | 90.87  | 143.9             |
| 13                                                                        | 6                 | Cadmium                         | 1.6                                    | 0.84   | 0.28  | 0.52   | 0.624             |
| 13                                                                        | 13                | Chromium                        | 100                                    | 42.10  | 4.03  | 25.55  | 35.99             |
| 9                                                                         | 9                 | Copper                          | 140                                    | 62.50  | 12.60 | 40.33  | 56.57             |
| 13                                                                        | 13                | Lead                            | 28                                     | 492.00 | 5.49  | 76.37  | 115.5             |
| 3                                                                         | 0                 | Mercury                         | 0.07                                   | 0.00   | 0.00  | ND     | NA                |
| 1                                                                         | 0                 | Selenium                        | 0.68                                   | 0.00   | 0.00  | ND     | NA                |
| 1                                                                         | 0                 | Silver                          | 2.6                                    | 0.00   | 0.00  | ND     | NA                |
| 8                                                                         | 8                 | Zinc                            | 200                                    | 165.00 | 64.60 | 128.09 | 173.8             |
| constituents of concern (COC) and constituent of potential concern (COPC) |                   |                                 |                                        |        |       |        |                   |
| 10                                                                        | 6                 | Benzo(a)pyrene                  | 0.11                                   | 0.08   | 0.02  | 0.07   | 0.198             |
| 10                                                                        | 0                 | Naphthalene                     | 0.077                                  | 0.00   | 0.00  | ND     | 0.229             |
| 10                                                                        | 7                 | Pyrene                          | 10                                     | 0.80   | 0.01  | 0.21   | 14.81             |

| Table 8: ODOT Street Sweeping Data - Statewide |                   |                                |          |        |       |        | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg)   | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Rocky Butte            | Rocky Butte    | Rocky Butte    | Rocky Butte    | Rocky Butte    |
|------------------------------------------------|-------------------|--------------------------------|----------|--------|-------|--------|-------------------------------------------------------|-----------------------------------------------|---------------------------------|-----------------------------|----------------------------------|------------------------|----------------|----------------|----------------|----------------|
|                                                |                   |                                |          |        |       |        |                                                       |                                               |                                 |                             |                                  | Berm                   | Berm           | Berm           | Berm           | Berm           |
|                                                |                   |                                |          |        |       |        |                                                       |                                               |                                 |                             |                                  | 7/1/1998               | 11/13/1998     | 1/28/1999      | 3/10/1999      | 6/11/1999      |
|                                                |                   |                                |          |        |       |        |                                                       |                                               |                                 |                             |                                  | Portland Basin         | Portland Basin | Portland Basin | Portland Basin | Portland Basin |
|                                                |                   |                                |          |        |       |        |                                                       |                                               |                                 |                             |                                  | Physiographic Province |                |                |                |                |
| Number samples                                 | Detectable levels | 95% UCL method                 | 90% UCL* | High   | Low   | Mean   | Petroleum Hydrocarbons                                |                                               |                                 |                             |                                  |                        |                |                |                |                |
| 58                                             | 2                 | 95% KM (Chebyshev) UCL         | 8.416    | 31.70  | 5.32  | 18.51  | Gasoline (GRO)                                        | 31                                            | 1,200                           |                             | 20,000                           | ND                     | ND             | ND             | ND             | ND             |
| 74                                             | 16                | 95% KM Approximate Gamma UCL   | 86.07    | 680    | 14    | 124.1  | Diesel (DRO)                                          | 1,100                                         | 1,200                           |                             | 14,000                           | ND                     | ND             | ND             | ND             | ND             |
| 74                                             | 65                | 95% GROS Approximate Gamma UCL | 1,093    | 2,370  | 0.60  | 971.5  | Oil (RRO)                                             | --                                            | 2,800                           |                             | 36,000                           | 2,000                  | 1,100          | 2,000          | 0.6            |                |
|                                                |                   |                                |          |        |       |        | Total Metals - EPA 6020 - mg/kg                       |                                               |                                 |                             |                                  |                        |                |                |                |                |
| 3                                              | 2                 | 95% KM (t) UCL                 | 2.06     | 1.99   | 1.58  | 1.79   | Antimony                                              | Clean Fill screening levels vary by Province. | -                               | 31                          | --                               |                        |                |                |                |                |
| 24                                             | 21                | 95% KM (t) UCL                 | 2.937    | 5.60   | 0.72  | 2.83   | Arsenic                                               |                                               | 0.43                            | 0.68                        | 1.9                              |                        |                |                |                |                |
| 23                                             | 23                | 95% Chebyshev (Mean, Sd) UCL   | 143.9    | 302.00 | 14.70 | 109.04 | Barium                                                |                                               | 15,000                          | 15,000                      | 220,000                          |                        |                |                |                |                |
| 79                                             | 33                | 95% KM (t) UCL                 | 0.624    | 1.84   | 0.08  | 0.78   | Cadmium                                               |                                               | 78                              | 71                          | 350                              | ND                     | ND             | 0.6            | ND             | ND             |
| 36                                             | 36                | 95% Adjusted Gamma UCL         | 35.99    | 144.00 | 3.40  | 29.50  | Chromium                                              |                                               | 120000(III)<br>0.30 (IV)        | 120000(III)<br>0.30 (IV)    | 6.3 (VI)                         |                        |                |                |                |                |
| 73                                             | 71                | 95% KM (Chebyshev) UCL         | 56.57    | 325.00 | 4.00  | 43.41  | Copper                                                |                                               | 3,100                           | 3,100                       | 47,000                           | 28                     | 34             | 33             | 4              | 52             |
| 83                                             | 79                | KM H-UCL                       | 115.5    | 628.00 | 1.46  | 65.35  | Lead                                                  |                                               | 400                             | 400                         | 800                              | 40                     | ND             | 51             | 80             | 78             |
| 13                                             | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Mercury                                               |                                               | 23                              | 23                          | 350                              |                        |                |                |                |                |
| 11                                             | 1                 | NA                             | NA       | 0.26   | 0.26  | 0.261  | Selenium                                              |                                               | -                               | 390                         | --                               |                        |                |                |                |                |
| 11                                             | 1                 | NA                             | NA       | 0.67   | 0.67  | 0.674  | Silver                                                |                                               | 390                             | 390                         | 5800                             |                        |                |                |                |                |
| 67                                             | 67                | 95% Student's-t UCL            | 173.8    | 401.00 | 0.72  | 160.50 | Zinc                                                  |                                               | -                               | 23,000                      | --                               | 140                    | 160            | 120            | 170            | 230            |
|                                                |                   |                                |          |        |       |        | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                               |                                 |                             |                                  |                        |                |                |                |                |
| 74                                             | 1                 | NA                             | NA       | 0.34   | 0.34  | 0.34   | Acenaphthene                                          | 0.25                                          | 4,700                           | 3600                        | 70,000                           | ND                     | ND             | ND             | ND             | ND             |
| 37                                             | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Acenaphthylene                                        | 120                                           | -                               | -                           | --                               |                        |                |                |                |                |
| 72                                             | 6                 | 95% KM Approximate Gamma UCL   | 0.0307   | 0.31   | 0.01  | 0.076  | Anthracene                                            | 6.8                                           | 23,000                          | 18,000                      | 350,000                          | ND                     | ND             | ND             | ND             | ND             |
| 76                                             | 21                | KM H-UCL                       | 0.116    | 1.33   | 0.04  | 0.214  | Benzo(a)anthracene                                    | 0.73                                          | 1.1                             | 1.1                         | 21                               | ND                     | ND             | ND             | ND             | ND             |
| 76                                             | 32                | 95% KM (Chebyshev) UCL         | 0.198    | 2.16   | 0.00  | 0.174  | Benzo(a)pyrene                                        | 0.11                                          | 0.11                            | 0.11                        | 2.1                              | ND                     | 0.00017        | 0.00014        | 0.000061       | ND             |
| 76                                             | 25                | 95% KM (Chebyshev) UCL         | 0.175    | 1.360  | 0.05  | 0.188  | Benzo(b)fluoranthene                                  | 1.1                                           | 1.1                             | 1.1                         | 21                               | ND                     | ND             | ND             | ND             | ND             |
| 47                                             | 23                | 95% KM (Chebyshev) UCL         | 0.234    | 1.81   | 0.02  | 0.208  | Benzo(g,h,i)perylene                                  | 25                                            | -                               | -                           | --                               |                        |                |                |                |                |
| 76                                             | 18                | KM H-UCL                       | 0.0598   | 0.82   | 0.02  | 0.151  | Benzo(k)fluoranthene                                  | 11                                            | 11                              | 15                          | 210                              | ND                     | ND             | ND             | ND             | ND             |
| 76                                             | 38                | KM H-UCL                       | 0.211    | 1.96   | 0.03  | 0.218  | Chrysene                                              | 3.1                                           | 110                             | 110                         | 2100                             | ND                     | ND             | ND             | ND             | ND             |
| 74                                             | 4                 | 95% KM Approximate Gamma UCL   | 0.0974   | 1.24   | 0.07  | 0.391  | Dibenz(a,h)anthracene                                 | 0.11                                          | 0.11                            | 0.11                        | 2.1                              | ND                     | ND             | ND             | ND             | ND             |
| 76                                             | 35                | KM H-UCL                       | 0.244    | 5.35   | 0.04  | 0.392  | Fluoranthene                                          | 10                                            | 2,400                           | 2400                        | 30,000                           | ND                     | ND             | ND             | ND             | ND             |
| 74                                             | 0                 | NA                             | NA       | 0.00   | 0.00  | NA     | Fluorene                                              | 3.7                                           | 3,100                           | 240                         | 47,000                           | ND                     | ND             | ND             | ND             | ND             |
| 76                                             | 20                | KM H-UCL                       | 0.106    | 1.84   | 0.04  | 0.221  | Indeno(1,2,3-cd)pyrene                                | 1.1                                           | 1.1                             | 1.1                         | 21                               | ND                     | ND             | ND             | ND             | ND             |
| 75                                             | 6                 | 95% KM Approximate Gamma UCL   | 0.229    | 2.80   | 0.04  | 0.759  | Naphthalene                                           | 0.077                                         | 5.3                             | 2.0                         | 23                               | ND                     | ND             | ND             | ND             | ND             |
| 48                                             | 14                | 95% KM (Chebyshev) UCL         | 0.449    | 4.37   | 0.03  | 0.470  | Phenanthrene                                          | 5.5                                           | -                               | -                           | --                               |                        |                |                |                |                |
| 76                                             | 45                | 95% KM (Chebyshev) UCL         | 14.810   | 240.00 | 0.01  | 5.659  | Pyrene                                                | 10                                            | 1,800                           | 1800                        | 23,000                           | ND                     | ND             | ND             | ND             | ND             |

Key:  
The 90% UCL is yellow highlighted if the value exceeds any of the four listed SL or RBCs.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.

\* If more than one UCL method was recommended in the 95% UCL analysis the method with the higher (more conservative) level is listed. Per EPA guidance, data sets with 10 or fewer detectable values may be less reliable. Calculation cannot be complete on data set that have less than 2 detectable samples; these are listed as NA.

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Rocky Butte    | Rocky Butte    | Rocky Butte    | Rocky Butte    | Rocky Butte      | Rocky Butte      | Rocky Butte      | Rocky Butte      | Rocky Butte    | Rocky Butte    | Rocky Butte    | Rocky Butte    |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|
|                                                       |                                                        |                                       |                                |                                        | Berm           | Berm           | Berm           | Berm           | South berm - old | North berm - new | South berm - old | North berm - new | N Road         | Rd South       | #1 Pile S      | #2 Pile S      |
|                                                       |                                                        |                                       |                                |                                        | 9/21/1999      | 11/30/1999     | 2/1/2000       | 7/3/2001       | 9/18/2001        | 9/18/2001        | 5/21/2002        | 5/21/2002        | 8/19/2004      | 8/19/2004      | 8/19/2004      | 8/19/2004      |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin   | Portland Basin   | Portland Basin   | Portland Basin   | Portland Basin | Portland Basin | Portland Basin | Portland Basin |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 | ND             | ND             | ND             | ND<20.0        | ND<200           | ND<20.0          | ND<4.00          | ND<4.0           | ND<4.0         | ND<4.0         | ND<4.0         | ND<4.0         |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 | ND             | ND             | ND             | ND<50.0        | ND<500           | ND<50.0          | ND<1000          | ND<500           | ND<1000        | ND<250         | ND<250         | ND<1000        |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 | 547            | 495            | 560            | 632            | 692              | 1,340            | 1,720            | 1,130            | 1,860          | 901            | 983            | 2,370          |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    | 3.82           | 4.48           |                |                |                  |                  |                  |                  |                |                |                |                |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | 0.814          | 1.84           | 1.54           | ND<0.50        | 0.528            | ND<0.5           | ND<0.769         | ND<0.901         | ND<2.5         | ND<17.5        | ND<1.82        | ND<1.64        |
| Chromium                                              |                                                        | 120000(III)<br>0.30(IV)               | 120000(III)<br>0.30(IV)        | 6.3(VI)                                | 37.9           | 47.8           |                |                |                  |                  |                  |                  |                |                |                |                |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 54.9           | 41.2           | 40.6           | 60.8           | 73               | 55.3             | 34.7             | 33.6             | 127            | 141            | 325            | 60.7           |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 70.7           | 80.4           | 58.6           | 71.1           | 129              | 69.6             | 29.9             | 95.7             | 61.2           | 628            | 97             | 77.8           |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Zinc                                                  | -                                                      | 23,000                                | --                             |                                        | 193            | 203            | 195            | 308            | 276              | 291              | 132              | 294              | 304            | 337            | 401            | 263            |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                |                |                |                |                  |                  |                  |                  |                |                |                |                |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND             | ND             | ND             | 0.34           | ND<0.067         | ND<0.168         | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     |                |                |                | ND<0.650       | ND<0.130         | ND<0.325         | ND<0.067         | ND<0.134         |                |                |                |                |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND             | ND             | 0.0146         | 0.0584         | ND<0.0067        | 0.0222           | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | 0.145          | ND             | 0.0682         | 0.229          | 0.0408           | 0.117            | ND<0.067         | 0.202            | 0.107          | ND<0.067       | ND<0.067       | ND<0.168       |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | 0.167          | 0.0851         | 0.101          | 0.022          | 0.0666           | 0.191            | ND<0.067         | 0.289            | 0.129          | ND<0.134       | ND<0.067       | ND<0.335       |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | 0.225          | ND             | 0.0572         | 0.202          | 0.0522           | 0.131            | ND<0.067         | 0.278            | 0.137          | ND<0.134       | 0.0963         | ND<0.335       |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     |                |                |                | 0.173          | ND<0.015         | ND<0.0375        | 0.0757           | 0.278            |                |                |                |                |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | 0.0788         | ND             | 0.0418         | 0.0969         | 0.0217           | 0.0691           | ND<0.067         | 0.222            | 0.0865         | ND<0.134       | ND<0.067       | ND<0.335       |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | 0.237          | 0.105          | 0.0775         | 0.221          | 0.0581           | 0.124            | ND<0.067         | 0.306            | 0.153          | 0.0975         | 0.073          | 0.172          |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND             | ND             | ND             | ND<0.075       | ND<0.015         | ND<0.0375        | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.134       | ND<0.067       | ND<0.335       |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | 0.301          | ND             | 0.128          | 0.353          | ND<0.015         | ND<0.0375        | ND<0.067         | 0.291            | 0.19           | 0.16           | 0.096          | 0.228          |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND             | ND             | ND             | ND<0.075       | ND<0.015         | ND<0.0375        | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | 0.329          | ND             | 0.0894         | 0.158          | ND<0.015         | ND<0.0375        | ND<0.067         | 0.207            | 0.112          | ND<0.134       | ND<0.067       | ND<0.335       |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND             | ND             | ND             | ND<0.335       | ND<0.067         | ND<0.168         | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     |                |                |                | 0.229          | 0.0416           | 0.125            | ND<0.067         | ND<0.134         |                |                |                |                |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | 0.378          | 0.124          | 0.132          | 0.31           | 0.0561           | 0.223            | ND<0.067         | 0.287            | 0.155          | 0.133          | 0.0754         | 0.2            |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    |     |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|
|                                                       |                                                        |                                       |                                |                                        | Unscreened     | Screened       | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 7 | Compost Cell 7 | Compost Cell 7 | Compost Cell 7 | Compost Cell 7 |     |
|                                                       |                                                        |                                       |                                |                                        | 4/5/1999       | 4/5/1999       | 4/30/1999      | 6/21/1999      | 8/5/1999       | 11/30/1999     | 1/4/2000       | 4/30/1999      | 6/21/1999      | 8/5/1999       | 11/30/1999     | 1/4/2000       |     |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin |     |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 | ND             | ND             | ND             | ND             | ND             | ND             | ND             | 221.00         | ND             | ND             | ND             | ND             |     |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 | 2,030          | 1,060          | 469            |                | 442            | 637            | 430            | 1,152          | DET            | 715            | 662            | 634            |     |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | ND             | ND             | ND             | 0.669          | 1.1            | 1.22           | 0.658          | 0.734          | 0.713          | 1.1            | 1.22           | 0.989          |     |
| Chromium                                              |                                                        | 120,000 (III)<br>0.30 (IV)            | 120,000 (III)<br>0.30 (IV)     | 6.3 (VI)                               |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 29.7           | 63.4           | 41.4           | 4.68           | 50.1           | 30.8           | 23.1           | 34.9           | 32.6           | 42.1           | 30.9           | 40.5           |     |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 81.8           | 83.1           | 33.1           | 53.2           | 64.6           | 33.3           | 88.8           | 38.6           | 42.9           | 37.2           | 33.3           | 54.7           |     |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Zinc                                                  |                                                        | -                                     | 23,000                         | --                                     |                | 180            | 294            | 159            | 165            | 183            | 140            | 127            | 133            | 162            | 159            | 170            | 193 |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | ND             | ND             | ND             | ND             | ND             | ND             | 0.0399         | ND             | ND             | ND             | ND             | 0.0561         |     |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND             | ND             | ND             | ND             | 0.0962         | 0.0892         | 0.076          | ND             | ND             | 0.0892         | ND             | 0.103          |     |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | 0.104          |     |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | ND             | ND             | ND             | ND             | ND             | ND             | 0.038          | ND             | ND             | ND             | ND             | 0.0511         |     |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | ND             | ND             | 0.318          | 0.103          | 0.19           | ND             | 0.0439         | ND             | 0.144          | 0.137          | ND             | 0.0615         |     |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | ND             | ND             | ND             | ND             | 0.541          | ND             | 0.11           | ND             | 0.231          | ND             | ND             | 0.15           |     |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND             | ND             | ND             | ND             | ND             | ND             | 0.147          | ND             | ND             | ND             | ND             | 0.155          |     |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |     |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     |                |                |                |                |                |                |                |                |                |                |                |                |     |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | ND             | ND             | 0.423          | 0.1            | ND             | 0.123          | 0.187          | ND             | 0.118          | 0.133          | 0.118          | 0.204          |     |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Wilsonville      | Wilsonville     | Wilsonville     | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville                | Sandy Blvd           | Sandy Blvd           | Milwaukie         |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------------------|----------------------|----------------------|-------------------|
|                                                       |                                                        |                                       |                                |                                        | Unscreened - Old | Unscreened - N1 | Unscreened - N2 | +1/4"          | -1/4"(sand)    | Fine           | 1/4"-10(sand)  | 3/4"(Gravel)   | Screened Sand<br>Composite | SA - after screening | SB -before screening | Berm - unscreened |
|                                                       |                                                        |                                       |                                |                                        | 8/20/2004        | 8/20/2004       | 8/20/2004       | 10/3/2007      | 10/3/2007      | 7/10/2008      | 7/10/2008      | 7/10/2008      | 2/11/2009                  | 6/29/2001            | 6/29/2001            | 8/19/2004         |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Portland Basin   | Portland Basin  | Portland Basin  | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin             | Portland Basin       | Portland Basin       | Portland Basin    |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                  |                 |                 |                |                |                |                |                |                            |                      |                      |                   |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 | ND<4.0           | ND<4.0          | ND<4.0          |                |                | ND             | ND             | ND             |                            | ND<20.0              | ND<20.0              | ND<4.0            |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 | ND<1000          | ND<1000         | ND<1000         | ND<63.9        | ND<134         | <139           | <130           | <129           | 120                        | ND<50.0              | ND<50.0              | ND<1000           |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 | 1,610            | 1,420           | 2,220           | 220            | 771            | 770            | 338            | <259           | 1500                       | 210                  | 165                  | 1,540             |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                  |                 |                 |                |                |                |                |                |                            |                      |                      |                   |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                  |                 |                 |                |                |                |                |                |                            |                      |                      |                   |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |                  |                 |                 |                |                | 2.02           | 1.01           | 1.88           |                            |                      |                      |                   |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |                  |                 |                 |                |                | 167            | 62.5           | 114            | 125                        |                      |                      |                   |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | ND<2.50          | ND<2.50         | ND<2.50         |                |                | ND<0.534       | ND<0.535       | ND<0.521       | 0.9                        | ND<0.50              | ND<0.50              | ND<1.66           |
| Chromium                                              |                                                        | 120000(III)<br>0.30 (IV)              | 120000(III)<br>0.30 (IV)       | 6.3 (VI)                               |                  |                 |                 |                |                | 52.5           | 6.76           | 13.3           | 17.4                       |                      |                      |                   |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 40               | 48              | 59.3            |                |                | 63.1           | 21             | 39.5           | 67.8                       | 34.7                 | 31.1                 | 41.7              |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 531              | 25              | 28.1            | 1.46           | 10.4           | 42.1           | 15.7           | 35.5           | 19.9                       | 36.6                 | 34                   | 219               |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                  |                 |                 |                |                |                | ND<0.0916      | ND<0.0839      | ND<0.0871                  |                      |                      |                   |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                  |                 |                 |                |                |                | ND<0.534       | ND<0.535       | ND<0.521                   |                      |                      |                   |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                  |                 |                 |                |                |                | ND<0.534       | ND<0.535       | ND<0.521                   |                      |                      |                   |
| Zinc                                                  | -                                                      | 23,000                                | --                             |                                        | 152              | 185             | 145             |                |                |                |                |                | 111                        | 166                  | 132                  | 161               |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                  |                 |                 |                |                |                |                |                |                            |                      |                      |                   |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.335             |                      | ND<0.100          |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     |                  |                 |                 | ND<0.272       | ND<0.702       |                |                |                |                            | ND<0.360             |                      |                   |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.0335            |                      | ND<0.100          |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0922         | ND<0.0344      | 0.0369         | ND<0.030                   | 0.0628               |                      | ND<0.100          |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.116          | ND<0.0344      | 0.0467         | ND<0.030                   | 0.0468               |                      | ND<0.100          |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.128          | ND<0.0344      | 0.0554         | ND<0.030                   | ND<0.075             |                      | 0.106             |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     |                  |                 |                 | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   |                      |                      |                   |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0801         | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.0335            |                      | ND<0.100          |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.153          | 0.0378         | 0.0665         | ND<0.030                   | 0.0468               |                      | ND<0.100          |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.075             |                      | ND<0.100          |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | 0.181            | 0.0744          | ND<0.134        | ND<0.272       | ND<0.702       | 0.187          | 0.0386         | 0.0761         | 0.038                      | ND<0.075             |                      | ND<0.100          |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.075             |                      | ND<0.100          |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0888         | ND<0.0344      | 0.0362         | ND<0.030                   | ND<0.075             |                      | ND<0.100          |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.335             |                      | ND<0.100          |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     |                  |                 |                 | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                   | ND<0.0335            |                      |                   |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | 0.165            | 0.0706          | ND<0.134        | ND<0.272       | ND<0.702       | 0.223          | 0.0496         | ND<0.0345      | 0.049                      | 0.0494               |                      | ND<0.100          |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Lawnfield      | Lawnfield                    | Lawnfield                    | N. Portland                | Hwy 30         | Holman             | Holman                     | Holman                  | Carus<br>(Hwy 213) | Canemah Stockpile | Canemah Stockpile | Canemah Stockpile |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|----------------|------------------------------|------------------------------|----------------------------|----------------|--------------------|----------------------------|-------------------------|--------------------|-------------------|-------------------|-------------------|
|                                                       |                                                        |                                       |                                |                                        | sweeping pile  | Pile 2 - composite<br>#13-18 | Pile 2 - composite<br>#18-22 | screened sand<br>composite | unscreened     | pre-test composite | Screened Sand<br>Composite | Unscreened<br>Composite | sweep 0-12in       | Pile #1 Composite | Pile #2 Composite | Pile #3 Composite |
|                                                       |                                                        |                                       |                                |                                        | 10/18/2001     | 9/18/2012                    | 9/18/2012                    | 2/5/2009                   | 2/5/2009       | 4/6/2000           | 2/5/2009                   | 5/1/2009                | 4/23/2014          | 8/13/2020         | 8/13/2020         | 8/13/2020         |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Portland Basin | Portland Basin               | Portland Basin               | Portland Basin             | Portland Basin | Portland Basin     | Portland Basin             | Portland Basin          | Portland Basin     | Portland Basin    | Portland Basin    | Portland Basin    |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                |                              |                              |                            |                |                    |                            |                         |                    |                   |                   |                   |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 | 31.70          | ND<5.1                       | ND<4.8                       |                            |                | ND<20.0            |                            |                         |                    |                   |                   |                   |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 | ND<50.0        | 63.00                        | 16.00                        | 680                        | 120.00         | ND<50.0            |                            | 159.00                  |                    | ND<448            | ND<435            | ND<25             |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 | 1,730          | 530                          | 140                          | 2100                       | 730            | DET>100            |                            | 1,740                   |                    | 1,530             | 1,310             | 204               |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                |                              |                              |                            |                |                    |                            |                         |                    |                   |                   |                   |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                |                              |                              |                            |                |                    |                            |                         |                    | 1.58              | 1.99              | ND<1.3            |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |                |                              |                              |                            |                |                    |                            |                         |                    | 2.65              | 2.9               | 3.44              |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |                |                              |                              | 302                        | 156            |                    | 62.7                       | 106                     |                    | 118               | 123               | 114               |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | ND<2.50        | ND<1.1                       | ND<1.1                       | 0.084                      | 0.67           | 1.29               | 0.55                       | 1.2                     | ND<0.62            | 0.271             | 0.403             | ND<0.261          |
| Chromium                                              |                                                        | 120,000 (III)<br>0.30 (IV)            | 120,000 (III)<br>0.30 (IV)     | 6.3 (VI)                               |                | 41                           | 26                           | 11.2                       | 23.9           |                    | 3.4                        | 19.2                    |                    | 33.2              | 38.6              | 27.4              |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 39.7           |                              |                              | 45.6                       | 23.6           | 50.7               | 15.3                       | 34.3                    | 30                 | 55.6              | 56.8              | 25.7              |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 60.6           | 74                           | 20                           | 13.5                       | 86.7           | 72.4               | 4.9                        | 13.9                    | 75                 | 24.6              | 29.9              | 11.8              |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                |                              |                              |                            |                |                    |                            |                         |                    | ND<0.091          | ND<0.0976         | ND<0.104          |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                |                              |                              |                            |                |                    |                            |                         |                    | ND<1.14           | ND<1.22           | ND<1.3            |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                |                              |                              |                            |                |                    |                            |                         |                    | ND<0.541          | ND<0.244          | ND<0.261          |
| Zinc                                                  | -                                                      | 23,000                                | --                             |                                        | 234            |                              |                              | 60.3                       | 130            | 264                | 60.3                       | 109                     | 120                | 236               | 267               | 99.3              |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                |                              |                              |                            |                |                    |                            |                         |                    |                   |                   |                   |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND<0.067       | ND<0.031                     | ND<0.015                     | ND<0.029                   | ND<0.028       | ND<2.010           | ND<0.028                   | ND<0.155                | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     | ND<0.130       | ND<0.031                     | ND<0.015                     |                            |                | ND<3.900           |                            |                         | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND<0.0067      | 0.028                        | 0.019                        | ND<0.029                   | ND<0.028       | 0.311              | ND<0.028                   | ND<0.155                |                    | ND<0.103          | ND<0.104          | ND<0.0111         |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | ND<0.0268      | 0.960                        | 0.140                        | ND<0.029                   | ND<0.028       | 1.330              | ND<0.028                   | ND<0.155                | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | 0.0915         | 0.550                        | 0.130                        | ND<0.029                   | ND<0.028       | 2.160              | ND<0.028                   | 0.169                   | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.015       | 0.500                        | 0.11                         | ND<0.029                   | ND<0.028       | 1.360              | ND<0.028                   | ND<0.155                | ND<0.15            | 0.109             | 0.117             | ND<0.0111         |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     | 0.0741         | 0.260                        | 0.086                        | ND<0.029                   | ND<0.028       | 1.810              | ND<0.028                   | 0.228                   | 0.18               | 0.163             | 0.13              | 0.0162            |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | 0.0259         | 0.510                        | 0.11                         | ND<0.029                   | ND<0.028       | 0.820              | ND<0.028                   | ND<0.155                | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | ND<0.0067      | 0.990                        | 0.16                         | ND<0.029                   | 0.05           | 1.960              | ND<0.028                   | 0.162                   | ND<0.15            | 0.106             | ND<0.104          | ND<0.0111         |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.015       | 0.077                        | 0.067                        | ND<0.029                   | ND<0.028       | 1.240              | ND<0.028                   | 0.179                   | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | 0.191          | 2.200                        | 0.21                         | 0.075                      | 0.046          | 5.350              | 0.059                      | 0.157                   | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND<0.015       | ND<0.031                     | ND<0.015                     | ND<0.029                   | ND<0.028       | ND<0.0450          | ND<0.028                   | ND<0.155                | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.015       | 0.230                        | 0.073                        | ND<0.029                   | ND<0.028       | 1.840              | ND<0.028                   | 0.157                   | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND<0.067       | ND<0.031                     | ND<0.015                     | 0.78                       | ND<0.028       | ND<2.010           | 0.044                      | 0.266                   | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     | 0.07           | 0.600                        | 0.046                        | 0.056                      | ND<0.028       | 4.370              | 0.033                      | ND<0.155                | ND<0.15            | ND<0.103          | ND<0.104          | ND<0.0111         |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | 0.134          | 2.000                        | 240                          | 0.12                       | 0.069          | 5.890              | 0.088                      | 0.231                   | ND<0.15            | 0.127             | ND<0.104          | 0.0117            |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Prospect Stockpile         | Newberg                    | Sweet Home                 | Chemawa                    | Chemawa                    | Laurel Hill Stockpile      | Laurel Hill Stockpile      | Laurel Hill Stockpile      | Laurel Hill Stockpile      | Laurel Pit                 | Ellensburg Quarry          | Ellensburg Quarry          |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                                       |                                                        |                                       |                                |                                        | Screened Sand<br>Composite | Bell Rd - unscreened       | Maint - unscreened         | #1                         | #2                         | LHSWEEP-comp1              | LHSWEEP-comp2              | LHSWEEP-comp3              | LHSWEEP-discrete           | Unscreened                 | 22E-214-<br>1_Processed    | 22E-214-<br>2_Processed    |
|                                                       |                                                        |                                       |                                |                                        | 2/5/2009                   | 4/11/2000                  | 4/11/2000                  | 3/23/2006                  | 3/23/2006                  | 5/31/2007                  | 5/31/2007                  | 5/31/2007                  | 5/31/2007                  | 8/7/2008                   | 11/3/2016                  | 11/3/2016                  |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Portland Basin             | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley | South Willamette<br>Valley |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 |                            | ND<20.0                    | ND<20.0                    | ND<4.38                    | 5.32                       | ND<4.03                    | ND<4.54                    | ND<4.02                    | ND<4.55                    |                            |                            |                            |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 | 75                         | ND<50.0                    | ND<50.0                    | ND<299                     | ND<302                     | 78.4                       | ND<65.4                    | ND<67.0                    | ND<69.5                    | 15.9                       |                            |                            |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 | 410                        | DET>100                    | DET>100                    | 1280                       | 1430                       | 779                        | 673                        | 700                        | 777                        | 191                        |                            |                            |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |                            | 3.45                       | 2.21                       | 2.42                       | 2.55                       | 3.59                       | 5.6                        | 4.83                       | 3.66                       | ND<0.510                   |                            |                            |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                | 78                         |                            |                            | 104                        | 132                        | 91.1                       | 94.9                       | 113                        | 86.4                       | 14.7                       |                            |                            |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | 0.68                       | 0.821                      | 0.837                      | ND<0.570                   | ND<0.600                   | ND<0.544                   | ND<0.543                   | ND<0.506                   | ND<0.542                   | ND<0.510                   | 0.386                      | 0.331                      |
| Chromium                                              |                                                        | 120000(III)<br>0.30(IV)               | 120000(III)<br>0.30(IV)        | 6.3(VI)                                | 3.8                        | 20.2                       | 29.2                       | 42.1                       | 20.9                       | 34.9                       | 17.7                       | 20                         | 31.4                       | 4.03                       | 30.4                       | 30                         |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 15.7                       | 18.8                       | 34.6                       | 62.5                       | 40                         | 54.2                       | 54.3                       | 42.1                       | 43.9                       | 12.6                       |                            |                            |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 5                          | 25.7                       | 67                         | 27.7                       | 26.6                       | 43.6                       | 43.5                       | 45.7                       | 81.4                       | 5.49                       | 492                        | 40.9                       |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                            |                            |                            | ND<0.117                   | ND<0.124                   |                            |                            |                            |                            | ND<0.0926                  |                            |                            |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                            |                            |                            |                            |                            |                            |                            |                            |                            | ND<0.510                   |                            |                            |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                            |                            |                            |                            |                            |                            |                            |                            |                            | ND<0.510                   |                            |                            |
| Zinc                                                  |                                                        | -                                     | 23,000                         | --                                     |                            | 59.6                       | 64.6                       | 81.1                       | 129                        | 165                        | 136                        | 163                        | 143                        |                            |                            |                            |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |                            |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND<0.028                   | ND<0.134                   |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.049                   | ND<0.049                   |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     |                            | ND<0.260                   |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.049                   | ND<0.049                   |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND<0.028                   | ND<0.0134                  |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.049                   | ND<0.049                   |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | ND<0.028                   | ND<0.0134                  |                            | ND<0.0779                  | 0.397                      | ND<0.0364                  |                            |                            | 0.0726                     | ND<0.0264                  | 0.057                      | ND<0.049                   |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.028                   | 0.0202                     |                            | ND<0.0779                  | ND<0.330                   | 0.0749                     |                            |                            | 0.0789                     | ND<0.0264                  | 0.0733                     | ND<0.049                   |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.028                   | ND<0.0300                  |                            | ND<0.0779                  | ND<0.330                   | 0.0649                     |                            |                            | 0.0633                     | ND<0.0264                  | 0.118                      | 0.0622                     |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     | ND<0.028                   | ND<0.0300                  |                            | 0.135                      | ND<0.330                   | 0.0891                     |                            |                            | 0.0989                     | ND<0.0264                  | ND<0.0491                  | 0.117                      |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | ND<0.028                   | ND<0.0134                  |                            | ND<0.0779                  | ND<0.330                   | 0.0466                     |                            |                            | 0.0465                     | ND<0.0264                  | 0.156                      | ND<0.049                   |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | ND<0.028                   | ND<0.0134                  |                            | ND<0.0779                  | 0.419                      | 0.463                      |                            |                            | 0.0869                     | ND<0.0264                  | 0.107                      | 0.0671                     |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.028                   | ND<0.0300                  |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.0491                  | ND<0.049                   |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | ND<0.028                   | ND<0.0300                  |                            | 0.0934                     | 1.09                       | 0.0372                     |                            |                            | 0.157                      | ND<0.0264                  | 0.0991                     | ND<0.049                   |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND<0.028                   | ND<0.0300                  |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.0491                  | ND<0.049                   |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.028                   | ND<0.0300                  |                            | ND<0.0779                  | ND<0.330                   | 0.0592                     |                            |                            | 0.0623                     | ND<0.0264                  | 0.0827                     | ND<0.049                   |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND<0.028                   | ND<0.134                   |                            | ND<0.0779                  | ND<0.330                   | ND<0.0364                  |                            |                            | ND<0.0369                  | ND<0.0264                  | ND<0.098                   | ND<0.098                   |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     | ND<0.028                   | ND<0.0134                  |                            | ND<0.0779                  | 0.696                      | ND<0.0364                  |                            |                            | 0.0732                     | ND<0.0264                  | 0.0502                     | ND<0.049                   |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | 0.039                      | ND<0.0134                  |                            | 0.0958                     | 0.802                      | ND<0.0364                  |                            |                            | 0.146                      | ND<0.0264                  | 0.139                      | 0.00638                    |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Ellensburg Quarry          | Ellensburg Quarry          | Veneta             | Bend                           | Central Point     | Central Point     | Region 3          | Region 3          | Whiskey Stockpile -          | Hood River    | Hood River    | Cascade Locks |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|----------------------------|----------------------------|--------------------|--------------------------------|-------------------|-------------------|-------------------|-------------------|------------------------------|---------------|---------------|---------------|
|                                                       |                                                        |                                       |                                |                                        | IS-chem-<br>1_Processed    | IS-chem-<br>2_Processed    | Maint - unscreened | Hwy 99; MP 135 -<br>Unscreened | SP-1              | SP-2              | Sweeping - 1      | Sweeping 2009     | Hwy 26; MP73 -<br>Unscreened | sweepings new | sweepings old | Raw sweeping  |
|                                                       |                                                        |                                       |                                |                                        | 11/3/2016                  | 11/3/2016                  | 4/13/2000          | 4/13/2000                      | 11/6/2002         | 11/6/2002         | 2/12/2009         | 6/16/2009         | 4/14/2000                    | 5/21/2002     | 5/21/2002     | 8/7/2008      |
| Physiographic Province                                |                                                        |                                       |                                |                                        | South Willamette<br>Valley | South Willamette<br>Valley | Coast Range        | High Lava Plains               | Klamath Mountains | Klamath Mountains | Klamath Mountains | Klamath Mountains | Cascade Range                | Cascade Range | Cascade Range | Cascade Range |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |                            |                            |                    |                                |                   |                   |                   |                   |                              |               |               |               |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 |                            |                            | ND<20.0            | ND<20.0                        | DET>20.0          | ND<20.0           | ND<20.0           | ND<5.2            | ND<20.0                      |               |               |               |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 |                            |                            | ND<50.0            | ND<50.0                        | ND<50.0           | ND<50.0           | 170               | 76.6              | ND<50.0                      |               |               | ND<126        |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 |                            |                            | DET>100            | DET>100                        | 886               | 832               | 1700              | 878               | DET>100                      | 1130          | 1720          | 1,010         |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |                            |                            |                    |                                |                   |                   |                   |                   |                              |               |               |               |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |                            |                            |                    |                                |                   |                   |                   |                   |                              |               |               |               |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |                            |                            | 1.74               | ND<0.500                       |                   |                   | 1.06              | 4.00              | ND<0.500                     |               |               | 1.46          |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |                            |                            |                    |                                |                   |                   | 105               | 91                |                              |               |               | 130           |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | 0.46                       | 0.276                      | 1.16               | 0.778                          | ND<0.100          | ND<0.100          | 0.49              | ND<1.0            | ND<0.500                     |               |               | 0.491         |
| Chromium                                              |                                                        | 120000(III)<br>0.30 (IV)              | 120000(III)<br>0.30 (IV)       | 6.3 (VI)                               | 26.9                       | 24.4                       | 17.9               | 10                             |                   |                   | 134               | 144               | 5.14                         |               |               | 9.13          |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 |                            |                            | 28.7               | 21                             | ND<0.100          | ND<0.100          |                   |                   | 13.3                         | 33.6          | 34.7          | 22.9          |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 33.4                       | 59.8                       | 45.8               | 10.4                           | ND<0.100          | ND<0.100          | 5.74              | 26.5              | ND<10.0                      | 95.7          | 29.9          | 16.5          |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |                            |                            |                    |                                |                   |                   | ND<0.0848         | ND<0.10           |                              |               |               | ND<0.0989     |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |                            |                            |                    |                                |                   |                   | 0.261             | ND<1.0            |                              |               |               | ND<0.489      |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |                            |                            |                    |                                |                   |                   | 0.674             | ND<1.0            |                              |               |               | ND<0.489      |
| Zinc                                                  |                                                        | -                                     | 23,000                         | --                                     |                            |                            | 92.5               | 49.4                           | 0.716             | 2.29              |                   |                   | 19.6                         | 294           | 134           |               |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |                            |                            |                    |                                |                   |                   |                   |                   |                              |               |               |               |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND<0.049                   | ND<0.049                   | ND<0.335           | ND<0.335                       | ND<0.335          | ND<0.067          |                   |                   | ND<0.0670                    |               |               | ND<0.0543     |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     | ND<0.049                   | ND<0.049                   | ND<0.650           | ND<0.650                       | ND<0.335          | ND<0.067          |                   |                   | ND<0.130                     |               |               | ND<0.0543     |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                | ND<0.049                   | ND<0.049                   | ND<0.0335          | ND<0.0335                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   |               |               | ND<0.0543     |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | 0.068                      | 0.0664                     | ND<0.0335          | ND<0.0335                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | 0.202         | ND            | ND<0.0543     |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | 0.0794                     | 0.0819                     | ND<0.0335          | ND<0.0335                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | 0.289         | ND            | 0.0546        |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | 0.137                      | 0.139                      | ND<0.0750          | ND<0.0750                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    | 0.278         | ND            | 0.0677        |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     | 0.146                      | 0.148                      | ND<0.0750          | 0.097                          | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    | 0.278         | 0.0757        | 0.0986        |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | ND<0.049                   | ND<0.049                   | ND<0.0335          | ND<0.0335                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | 0.222         | ND            | ND<0.0543     |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | 0.105                      | 0.106                      | ND<0.0335          | ND<0.0335                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | 0.306         | ND            | 0.0584        |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.049                   | ND<0.049                   | ND<0.0750          | ND<0.0750                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    |               |               | ND<0.0543     |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | 0.137                      | 0.109                      | ND<0.0750          | ND<0.0750                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    | 0.291         | ND            | 0.0593        |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND<0.049                   | ND<0.049                   | ND<0.0750          | ND<0.0750                      | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    |               |               | ND<0.0543     |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | 0.0809                     | 0.0769                     | ND<0.0750          | 0.224                          | ND<0.335          | ND<0.067          |                   |                   | ND<0.0150                    | 0.207         | ND            | ND<0.0543     |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | ND<0.098                   | ND<0.098                   | ND<0.335           | ND<0.335                       | 2.800             | ND<0.067          |                   |                   | ND<0.0670                    |               |               | 0.316         |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     | 0.0689                     | ND<0.049                   | ND<0.0335          | 0.125                          | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | ND            | ND            | ND<0.0543     |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | 0.141                      | 0.133                      | ND<0.0335          | 0.13                           | ND<0.335          | ND<0.067          |                   |                   | ND<0.00670                   | 0.287         | ND            | ND<0.0543     |

| Analyte                                               | DEQ Clean Fill<br>(CF) Screening<br>Level (mg/kg)      | Residential<br>Generic RBC<br>(mg/kg) | Residential EPA<br>RSL (mg/kg) | Occupational<br>Generic RBC<br>(mg/kg) | Cascade Locks | Gvt Camp Loop | Gvt Camp Yard | Gvt Camp Ditch        | Sandy                      | Sandy         |      |
|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------|--------------------------------|----------------------------------------|---------------|---------------|---------------|-----------------------|----------------------------|---------------|------|
|                                                       |                                                        |                                       |                                |                                        | sweeping      | Raw sweeping  | Raw sweeping  | sweeping used as fill | Maint yard -<br>unscreened | #1 sweeping   |      |
|                                                       |                                                        |                                       |                                |                                        | 4/23/2014     | 8/7/2008      | 8/7/2008      | 8/7/2008              | 4/6/2000                   | 11/3/2006     |      |
| Physiographic Province                                |                                                        |                                       |                                |                                        | Cascade Range | Cascade Range | Cascade Range | Cascade Range         | Cascade Range              | Cascade Range |      |
| Petroleum Hydrocarbons                                |                                                        |                                       |                                |                                        |               |               |               |                       |                            |               |      |
| Gasoline (GRO)                                        | 31                                                     | 1,200                                 |                                | 20,000                                 |               |               |               |                       | ND<20.0                    |               |      |
| Diesel (DRO)                                          | 1,100                                                  | 1,200                                 |                                | 14,000                                 |               | 27            | 103           | 14                    | ND<50.0                    | 46.10         |      |
| Oil (RRO)                                             | --                                                     | 2,800                                 |                                | 36,000                                 |               | 229           | 611           | 192                   | DET>100                    | 381           |      |
| Total Metals - EPA 6020 - mg/kg                       |                                                        |                                       |                                |                                        |               |               |               |                       |                            |               |      |
| Antimony                                              | Clean Fill<br>screening levels<br>vary by<br>Province. | -                                     | 31                             | --                                     |               |               |               |                       |                            |               |      |
| Arsenic                                               |                                                        | 0.43                                  | 0.68                           | 1.9                                    |               |               |               | 0.719                 |                            |               |      |
| Barium                                                |                                                        | 15,000                                | 15,000                         | 220,000                                |               |               |               | 17.5                  |                            |               |      |
| Cadmium                                               |                                                        | 78                                    | 71                             | 350                                    | ND<0.55       | ND<0.505      | ND<0.511      | ND<0.517              | ND<0.5                     | ND<3.26       |      |
| Chromium                                              |                                                        | 120,000(III)<br>0.30 (IV)             | 120,000(III)<br>0.30 (IV)      | 6.3 (VI)                               |               |               |               | 6.27                  |                            |               |      |
| Copper                                                |                                                        | 3,100                                 | 3,100                          | 47,000                                 | 22            | 17.2          | 17.1          | 11.5                  | 16.1                       | 18.7          |      |
| Lead                                                  |                                                        | 400                                   | 400                            | 800                                    | 14            | 12.9          | 6.62          | 6.63                  | 28.8                       | 17            |      |
| Mercury                                               |                                                        | 23                                    | 23                             | 350                                    |               |               |               | ND<0.0718             |                            |               |      |
| Selenium                                              |                                                        | -                                     | 390                            | --                                     |               |               |               | ND<0.489              |                            |               |      |
| Silver                                                |                                                        | 390                                   | 390                            | 5800                                   |               |               |               | ND<0.489              |                            |               |      |
| Zinc                                                  |                                                        | -                                     | 23,000                         | --                                     |               | 110           | 45.7          | 37.5                  |                            | 101           | 71.9 |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                                        |                                       |                                |                                        |               |               |               |                       |                            |               |      |
| Acenaphthene                                          | 0.25                                                   | 4,700                                 | 3600                           | 70,000                                 | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.402                   | ND<0.0303     |      |
| Acenaphthylene                                        | 120                                                    | -                                     | -                              | --                                     | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND,0.780                   | ND<0.0303     |      |
| Anthracene                                            | 6.8                                                    | 23,000                                | 18,000                         | 350,000                                |               |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Benzo(a)anthracene                                    | 0.73                                                   | 1.1                                   | 1.1                            | 21                                     | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Benzo(a)pyrene                                        | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Benzo(b)fluoranthene                                  | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Benzo(g,h,i)perylene                                  | 25                                                     | -                                     | -                              | --                                     | ND<0.066      |               | 0.0274        | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Benzo(k)fluoranthene                                  | 11                                                     | 11                                    | 15                             | 210                                    | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Chrysene                                              | 3.1                                                    | 110                                   | 110                            | 2100                                   | ND<0.066      |               | 0.0298        | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Dibenz(a,h)anthracene                                 | 0.11                                                   | 0.11                                  | 0.11                           | 2.1                                    | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Fluoranthene                                          | 10                                                     | 2,400                                 | 2400                           | 30,000                                 | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Fluorene                                              | 3.7                                                    | 3,100                                 | 240                            | 47,000                                 | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                                    | 1.1                                   | 1.1                            | 21                                     | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.090                   | ND<0.0303     |      |
| Naphthalene                                           | 0.077                                                  | 5.3                                   | 2.0                            | 23                                     | 0.35          |               | ND<0.027      | ND<0.0277             | ND<0.402                   | ND<0.0303     |      |
| Phenanthrene                                          | 5.5                                                    | -                                     | -                              | --                                     | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |
| Pyrene                                                | 10                                                     | 1,800                                 | 1800                           | 23,000                                 | ND<0.066      |               | ND<0.027      | ND<0.0277             | ND<0.0402                  | ND<0.0303     |      |

| Table 9: ODOT Street Sweeping Data for Cascade Range |                   |                                |                   |          |        |        | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Whiskey Stockpile -       | Hood River    | Hood River    | Cascade Locks | Cascade Locks | Gvt Camp Ditch        | Gvt Camp Loop | Gvt Camp Yard | Sandy                   |    |
|------------------------------------------------------|-------------------|--------------------------------|-------------------|----------|--------|--------|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|---------------------------|---------------|---------------|---------------|---------------|-----------------------|---------------|---------------|-------------------------|----|
|                                                      |                   |                                |                   |          |        |        |                                                       |                                             |                                 |                             |                                  | Hwy 26; MP73 - Unscreened | sweepings new | sweepings old | Raw sweeping  | sweeping      | sweeping used as fill | Raw sweeping  | Raw sweeping  | Maint yard - unscreened |    |
|                                                      |                   |                                |                   |          |        |        |                                                       |                                             |                                 |                             |                                  | 4/14/2000                 | 5/21/2002     | 5/21/2002     | 8/7/2008      | 4/23/2014     | 8/7/208               | 8/7/2008      | 8/7/2008      | 4/6/2000                |    |
|                                                      |                   |                                |                   |          |        |        | Physiographic Province                                | Cascade Range                               | Cascade Range                   | Cascade Range               | Cascade Range                    | Cascade Range             | Cascade Range | Cascade Range | Cascade Range | Cascade Range |                       |               |               |                         |    |
| Number samples                                       | Detectable levels | 95% UCL method                 | Statewide 90% UCL | high     | low    | mean   | Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                           |               |               |               |               |                       |               |               |                         |    |
| 2                                                    | 0                 | 95% KM (Chebyshev) UCL         | 8.416             | 0.00     | 0.00   | ND     | Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | ND<20.0                   |               |               |               |               |                       |               |               | ND                      |    |
| 6                                                    | 4                 | 95% KM Approximate Gamma UCL   | 86.07             | 103.00   | 14.10  | 47.55  | Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<50.0                   |               |               |               |               | 14                    | 27            | 103           | ND                      |    |
| 8                                                    | 7                 | 95% GROS Approximate Gamma UCL | 1,093             | 1,720.00 | 192.00 | 753.29 | Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | DET>100                   | 1130          | 1720          | 1,010         |               | 192                   | 229           | 611           |                         |    |
| 0                                                    | 0                 |                                |                   |          |        |        | Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                           |               |               |               |               |                       |               |               |                         |    |
| 0                                                    | 0                 | 95% KM (t) UCL                 | 2.06              | 0.00     | 0.00   | ND     | Antimony                                              | 0.67                                        | -                               | 31                          | --                               |                           |               |               |               |               |                       |               |               |                         |    |
| 3                                                    | 2                 | 95% KM (t) UCL                 | 2.937             | 1.46     | 0.72   | 1.09   | Arsenic                                               | 19                                          | 0.4                             | 0.68                        | 1.9                              | ND<0.500                  |               |               | 1.46          |               | 0.72                  |               |               |                         |    |
| 2                                                    | 2                 | 95% Chebyshev (Mean, Sd) UCL   | 143.9             | 130.00   | 17.50  | 73.75  | Barium                                                | 630                                         | 15,000                          | 15,000                      | 220,000                          |                           |               |               | 130           |               | 17.5                  |               |               |                         |    |
| 8                                                    | 1                 | 95% KM (t) UCL                 | 0.624             | 0.49     | 0.49   | 0.49   | Cadmium                                               | 0.545                                       | 78.00                           | 71                          | 350                              | ND<0.500                  |               |               | 0.49          | ND<0.55       | ND<0.517              | ND<0.505      | ND<0.511      | ND                      |    |
| 3                                                    | 3                 | 95% Adjusted Gamma UCL         | 35.99             | 9.13     | 5.14   | 6.85   | Chromium                                              | 200                                         | 120000(III) 0.30 (IV)           | 120000(III) 0.30 (IV)       | 6.3 (VI)                         | 5.14                      |               |               |               | 9.13          |                       | 6.27          |               |                         |    |
| 10                                                   | 10                | 95% KM (Chebyshev) UCL         | 56.57             | 34.7     | 11.50  | 20.71  | Copper                                                | 73                                          | 3100                            | 3,100                       | 47,000                           | 13.3                      | 33.6          | 34.7          | 22.9          | 22            | 11.5                  | 17.2          | 17.1          | 16.1                    |    |
| 10                                                   | 9                 | KM H-UCL                       | 115.5             | 95.7     | 6.62   | 25.34  | Lead                                                  | 34                                          | 400                             | 400                         | 800                              | ND<10.0                   | 95.7          | 29.9          | 16.5          | 14            | 6.63                  | 12.9          | 6.62          | 28.8                    |    |
| 2                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Mercury                                               | 0.24                                        | 23                              | 23                          | 350                              |                           |               |               | ND<0.0989     |               | ND<0.0718             |               |               |                         |    |
| 2                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Selenium                                              | 0.52                                        | -                               | 390                         | --                               |                           |               |               | ND<0.489      |               | ND<0.489              |               |               |                         |    |
| 2                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                           |               |               | ND<0.489      |               | ND<0.489              |               |               |                         |    |
| 8                                                    | 8                 | 95% Student's-t UCL            | 173.8             | 294      | 19.60  | 101.71 | Zinc                                                  | 170                                         | -                               | 23,000                      | --                               | 19.6                      | 294           | 134           |               | 110           |                       | 45.7          | 37.5          | 101                     |    |
| 0                                                    | 0                 |                                |                   |          |        |        | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                           |               |               |               |               |                       |               |               |                         |    |
| 7                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Anthracene                                            | 6.8                                         | 23000                           | 3600                        | 70,000                           | ND<0.0670                 |               |               |               | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 6                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Acenaphthene                                          | 0.25                                        | 4700                            | -                           | --                               | ND<0.130                  |               |               |               | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                |    |
| 6                                                    | 0                 | 95% KM Approximate Gamma UCL   | 0.0307            | 0.00     | 0.00   | ND     | Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.00670                |               |               |               | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 9                                                    | 1                 | KM H-UCL                       | 0.116             | 0.20     | 0.20   | 0.20   | Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.00670                | 0.202         | ND            | ND            | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 9                                                    | 2                 | 95% KM (Chebyshev) UCL         | 0.198             | 0.29     | 0.05   | 0.17   | Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.00670                | 0.289         | ND            | 0.0546        | ND<0.066      | ND<0.0277             |               | ND<0.027      | ND                      |    |
| 9                                                    | 2                 | 95% KM (Chebyshev) UCL         | 0.175             | 0.28     | 0.07   | 0.17   | Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0150                 | 0.278         | ND            | 0.0677        | ND<0.066      | ND<0.0277             |               | ND<0.027      | ND                      |    |
| 8                                                    | 4                 | 95% KM (Chebyshev) UCL         | 0.234             | 0.28     | 0.03   | 0.12   | Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | ND<0.0150                 | 0.278         | 0.08          | 0.0986        | ND<0.066      | ND<0.0277             |               | 0.0274        |                         |    |
| 9                                                    | 1                 | KM H-UCL                       | 0.0598            | 0.22     | 0.22   | 0.22   | Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.00670                | 0.222         | ND            | ND            | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 9                                                    | 3                 | KM H-UCL                       | 0.211             | 0.31     | 0.03   | 0.13   | Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.00670                | 0.306         | ND            | 0.0584        | ND<0.066      | ND<0.0277             |               | 0.0298        | ND                      |    |
| 7                                                    | 0                 | 95% KM Approximate Gamma UCL   | 0.0974            | 0.00     | 0.00   | ND     | Dibenz(a,h)anthrace                                   | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0150                 |               |               |               | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 9                                                    | 2                 | KM H-UCL                       | 0.244             | 0.29     | 0.06   | 0.18   | Fluoranthene                                          | 10                                          | 2400                            | 2400                        | 30,000                           | ND<0.0150                 | 0.291         | ND            | 0.0593        | ND<0.066      | ND<0.0277             |               | ND<0.027      | ND                      |    |
| 7                                                    | 0                 | NA                             | NA                | 0.00     | 0.00   | ND     | Fluorene                                              | 3.7                                         | 3100                            | 240                         | 47,000                           | ND<0.0150                 |               |               |               | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 9                                                    | 1                 | KM H-UCL                       | 0.106             | 0.21     | 0.21   | 0.21   | Indeno[1,2,3-                                         | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0150                 | 0.207         | ND            | ND            | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |
| 7                                                    | 2                 | 95% KM Approximate Gamma UCL   | 0.229             | 0.35     | 0.32   | 0.33   | Naphthalene                                           | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.0670                 |               |               |               | 0.316         | 0.35                  | ND<0.0277     |               | ND<0.027                | ND |
| 8                                                    | 0                 | 95% KM (Chebyshev) UCL         | 0.449             | 0.00     | 0.00   | ND     | Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | ND<0.00670                | ND            | ND            | ND            | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                |    |
| 9                                                    | 1                 | 95% KM (Chebyshev) UCL         | 14.81             | 0.29     | 0.29   | 0.29   | Pyrene                                                | 10                                          | 1800                            | 1800                        | 23,000                           | ND<0.00670                | 0.287         | ND            | ND            | ND<0.0543     | ND<0.066              | ND<0.0277     |               | ND<0.027                | ND |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

| Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Sandy         |
|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|---------------|
|                                                       |                                             |                                 |                             |                                  | #1 sweeping   |
|                                                       |                                             |                                 |                             |                                  | 11/3/2006     |
| Physiographic Province                                |                                             |                                 |                             |                                  | Cascade Range |
| Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |               |
| Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           |               |
| Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | 46.10         |
| Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | 381           |
| Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |               |
| Antimony                                              | 0.67                                        | -                               | 31                          | --                               |               |
| Arsenic                                               | 19                                          | 0.4                             | 0.68                        | 1.9                              |               |
| Barium                                                | 630                                         | 15,000                          | 15,000                      | 220,000                          |               |
| Cadmium                                               | 0.545                                       | 78.00                           | 71                          | 350                              | ND<3.26       |
| Chromium                                              | 200                                         | 120000(III)<br>0.30 (IV)        | 120000(III)<br>0.30 (IV)    | 6.3 (VI)                         |               |
| Copper                                                | 73                                          | 3100                            | 3,100                       | 47,000                           | 18.7          |
| Lead                                                  | 34                                          | 400                             | 400                         | 800                              | 17            |
| Mercury                                               | 0.24                                        | 23                              | 23                          | 350                              |               |
| Selenium                                              | 0.52                                        | -                               | 390                         | --                               |               |
| Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |               |
| Zinc                                                  | 170                                         | -                               | 23,000                      | --                               | 71.9          |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |               |
| Anthracene                                            | 6.8                                         | 23000                           | 3600                        | 70,000                           | ND<0.0303     |
| Acenaphthene                                          | 0.25                                        | 4700                            | -                           | --                               | ND<0.0303     |
| Acenaphtylene                                         | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.0303     |
| Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.0303     |
| Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0303     |
| Benzo(b)fluoranthen                                   | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0303     |
| Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | ND<0.0303     |
| Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.0303     |
| Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.0303     |
| Dibenz(a,h)anthrace                                   | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0303     |
| Fluoranthene                                          | 10                                          | 2400                            | 2400                        | 30,000                           | ND<0.0303     |
| Fluorene                                              | 3.7                                         | 3100                            | 240                         | 47,000                           | ND<0.0303     |
| Indeno[1,2,3-                                         | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0303     |
| Napththalene                                          | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.0303     |
| Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | ND<0.0303     |
| Pyrene                                                | 10                                          | 1800                            | 1800                        | 23,000                           | ND<0.0303     |

Table 10: ODOT Street Sweeping Data for Coast Range

| Table 10: ODOT Street Sweeping Data for Coast Range |                   |                                |                   |       |       |       | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Veneta             |
|-----------------------------------------------------|-------------------|--------------------------------|-------------------|-------|-------|-------|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|--------------------|
|                                                     |                   |                                |                   |       |       |       |                                                       |                                             |                                 |                             |                                  | Maint - unscreened |
|                                                     |                   |                                |                   |       |       |       |                                                       |                                             |                                 |                             |                                  | 4/13/2000          |
|                                                     |                   |                                |                   |       |       |       |                                                       |                                             |                                 |                             |                                  | Coast Range        |
| Number samples                                      | Detectable levels | 95% UCL method                 | Statewide 90% UCL | high  | low   | mean  | Physiographic Province                                |                                             |                                 |                             |                                  | Coast Range        |
| Petroleum Hydrocarbons                              |                   |                                |                   |       |       |       |                                                       |                                             |                                 |                             |                                  |                    |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 8.416             | 0.00  | 0.00  | ND    | Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | ND<20.0            |
| 1                                                   | 0                 | 95% KM Approximate Gamma UCL   | 86.07             | 0     | 0     | ND    | Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<50.0            |
| 1                                                   | 0                 | 95% GROS Approximate Gamma UCL | 1,093             | 0     | 0     | ND    | Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | DET>100            |
| 0                                                   | 0                 |                                |                   |       |       |       | Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                    |
| 0                                                   | 0                 | 95% KM (t) UCL                 | 2.06              | 0.00  | 0.00  | ND    | Antimony                                              | 0.55                                        | -                               | 31                          | --                               |                    |
| 1                                                   | 1                 | 95% KM (t) UCL                 | 2.937             | 1.74  | 1.74  | 1.74  | Arsenic                                               | 12                                          | 0.4                             | 0.68                        | 1.9                              | 1.74               |
| 0                                                   | 0                 | 95% Chebyshev (Mean, Sd) UCL   | 143.9             | 0.00  | 0.00  | ND    | Barium                                                | 840                                         | 15000                           | 15,000                      | 220,000                          |                    |
| 1                                                   | 1                 | 95% KM (t) UCL                 | 0.624             | 1.16  | 1.16  | 1.16  | Cadmium                                               | 0.54                                        | 78.00                           | 71                          | 350                              | 1.16               |
| 1                                                   | 1                 | 95% Adjusted Gamma UCL         | 35.99             | 17.90 | 17.90 | 17.90 | Chromium                                              | 240                                         | 120000(III) 0.30 (IV)           | 120000(III) 0.30 (IV)       | 6.3 (VI)                         | 17.9               |
| 1                                                   | 1                 | 95% KM (Chebyshev) UCL         | 56.57             | 28.70 | 28.70 | 28.70 | Copper                                                | 100                                         | 3100                            | 3,100                       | 47,000                           | 28.7               |
| 1                                                   | 1                 | KM H-UCL                       | 115.5             | 45.80 | 45.80 | 45.80 | Lead                                                  | 34                                          | 400                             | 400                         | 800                              | 45.8               |
| 0                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Mercury                                               | 0.11                                        | 23                              | 23                          | 350                              |                    |
| 0                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Selenium                                              | 1.5                                         | -                               | 390                         | --                               |                    |
| 0                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                    |
| 1                                                   | 1                 | 95% Student's-t UCL            | 173.8             | 92.50 | 92.50 | 92.50 | Zinc                                                  | 140                                         | -                               | 23,000                      | --                               | 92.5               |
| 0                                                   | 0                 |                                |                   |       |       |       | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                    |
| 1                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Anthracene                                            | 6.8                                         | 23000                           | 3600                        | 70,000                           | ND<0.335           |
| 1                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Acenaphthene                                          | 0.25                                        | 4700                            | -                           | --                               | ND<0.650           |
| 1                                                   | 0                 | 95% KM Approximate Gamma UCL   | 0.0307            | 0.00  | 0.00  | ND    | Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.0335          |
| 1                                                   | 0                 | KM H-UCL                       | 0.116             | 0.00  | 0.00  | ND    | Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.0335          |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 0.198             | 0.00  | 0.00  | ND    | Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0335          |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 0.175             | 0.00  | 0.00  | ND    | Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0750          |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 0.234             | 0.00  | 0.00  | ND    | Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | ND<0.0750          |
| 1                                                   | 0                 | KM H-UCL                       | 0.0598            | 0.00  | 0.00  | ND    | Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.0335          |
| 1                                                   | 0                 | KM H-UCL                       | 0.211             | 0.00  | 0.00  | ND    | Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.0335          |
| 1                                                   | 0                 | 95% KM Approximate Gamma UCL   | 0.0974            | 0.00  | 0.00  | ND    | Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0750          |
| 1                                                   | 0                 | KM H-UCL                       | 0.244             | 0.00  | 0.00  | ND    | Fluoranthene                                          | 10                                          | 2400                            | 2400                        | 30,000                           | ND<0.0750          |
| 1                                                   | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Fluorene                                              | 3.7                                         | 3100                            | 240                         | 47,000                           | ND<0.0750          |
| 1                                                   | 0                 | KM H-UCL                       | 0.106             | 0.00  | 0.00  | ND    | Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0750          |
| 1                                                   | 0                 | 95% KM Approximate Gamma UCL   | 0.229             | 0.00  | 0.00  | ND    | Napththalene                                          | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.335           |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 0.449             | 0.00  | 0.00  | ND    | Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | ND<0.0335          |
| 1                                                   | 0                 | 95% KM (Chebyshev) UCL         | 14.81             | 0.00  | 0.00  | ND    | Pyrene                                                | 10                                          | 1800                            | 1800                        | 23,000                           | ND<0.0335          |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

| Table 11: ODOT Street Sweeping Data for High Lava Plains |                   |                                |                   |       |       |       | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Bend                      |
|----------------------------------------------------------|-------------------|--------------------------------|-------------------|-------|-------|-------|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|---------------------------|
|                                                          |                   |                                |                   |       |       |       | Physiographic Province                                |                                             |                                 |                             |                                  | Hwy 99; MP 135 Unscreened |
|                                                          |                   |                                |                   |       |       |       |                                                       |                                             |                                 |                             |                                  | 4/13/2000                 |
|                                                          |                   |                                |                   |       |       |       | High Lava Plains                                      |                                             |                                 |                             |                                  |                           |
| Number samples                                           | Detectable levels | 95% UCL method                 | Statewide 90% UCL | high  | low   | mean  | Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                           |
| 1                                                        | 0                 | 95% KM (Chebyshev) UCL         | 8.416             | 0.00  | 0.00  | ND    | Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | ND<20.0                   |
| 1                                                        | 0                 | 95% KM Approximate Gamma UCL   | 86.07             | 0     | 0     | ND    | Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<50.0                   |
| 1                                                        | 0                 | 95% GROS Approximate Gamma UCL | 1,093             | 0     | 0     | ND    | Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | DET>100                   |
| 0                                                        | 0                 |                                |                   |       |       |       | Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                           |
| 0                                                        | 0                 | 95% KM (t) UCL                 | 2.06              | 0.00  | 0.00  | ND    | Antimony                                              | 0.35                                        | -                               | 31                          | --                               |                           |
| 1                                                        | 0                 | 95% KM (t) UCL                 | 2.937             | 0.00  | 0.00  | ND    | Arsenic                                               | 7.2                                         | 0.4                             | 0.68                        | 1.9                              | ND<0.500                  |
| 0                                                        | 0                 | 95% Chebyshev (Mean, Sd) UCL   | 143.9             | 0.00  | 0.00  | ND    | Barium                                                | 790                                         | 15000                           | 15,000                      | 220,000                          |                           |
| 1                                                        | 1                 | 95% KM (t) UCL                 | 0.624             | 0.778 | 0.78  | 0.78  | Cadmium                                               | 0.78                                        | 78.00                           | 71                          | 350                              | 0.778                     |
| 1                                                        | 1                 | 95% Adjusted Gamma UCL         | 35.99             | 10.00 | 10.00 | 10.00 | Chromium                                              | 140                                         | 120000(III) 0.30 (IV)           | 120000(III) 0.30 (IV)       | 6.3 (VI)                         | 10.00                     |
| 1                                                        | 1                 | 95% KM (Chebyshev) UCL         | 56.57             | 21.00 | 21.00 | 21.00 | Copper                                                | 62                                          | 3100                            | 3,100                       | 47,000                           | 21.00                     |
| 1                                                        | 1                 | KM H-UCL                       | 115.5             | 10.40 | 10.40 | 10.40 | Lead                                                  | 21                                          | 400                             | 400                         | 800                              | 10.40                     |
| 0                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Mercury                                               | 0.06                                        | 23                              | 23                          | 350                              |                           |
| 0                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Selenium                                              | 0.54                                        | -                               | 390                         | --                               |                           |
| 0                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                           |
| 1                                                        | 1                 | 95% Student's-t UCL            | 173.8             | 49.40 | 49.40 | 49.40 | Zinc                                                  | 140                                         | -                               | 23,000                      | --                               | 49.40                     |
| 0                                                        | 0                 |                                |                   |       |       |       | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                           |
| 1                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Anthracene                                            | 6.8                                         | 23000                           | 3600                        | 70,000                           | ND<0.335                  |
| 1                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Acenaphthene                                          | 0.25                                        | 4700                            | -                           | --                               | ND<0.650                  |
| 1                                                        | 0                 | 95% KM Approximate Gamma UCL   | 0.0307            | 0.00  | 0.00  | ND    | Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.0335                 |
| 1                                                        | 0                 | KM H-UCL                       | 0.116             | 0.00  | 0.00  | ND    | Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.0335                 |
| 1                                                        | 0                 | 95% KM (Chebyshev) UCL         | 0.198             | 0.00  | 0.00  | ND    | Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0335                 |
| 1                                                        | 0                 | 95% KM (Chebyshev) UCL         | 0.175             | 0.00  | 0.00  | ND    | Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.0750                 |
| 1                                                        | 1                 | 95% KM (Chebyshev) UCL         | 0.234             | 0.10  | 0.10  | 0.10  | Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | 0.10                      |
| 1                                                        | 0                 | KM H-UCL                       | 0.0598            | 0.00  | 0.00  | ND    | Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.0335                 |
| 1                                                        | 0                 | KM H-UCL                       | 0.211             | 0.00  | 0.00  | ND    | Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.0335                 |
| 1                                                        | 0                 | 95% KM Approximate Gamma UCL   | 0.0974            | 0.00  | 0.00  | ND    | Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.0750                 |
| 1                                                        | 0                 | KM H-UCL                       | 0.244             | 0.00  | 0.00  | ND    | Fluoranthene                                          | 10                                          | 2400                            | 2400                        | 30,000                           | ND<0.0750                 |
| 1                                                        | 0                 | NA                             | NA                | 0.00  | 0.00  | ND    | Fluorene                                              | 3.7                                         | 3100                            | 240                         | 47,000                           | ND<0.0750                 |
| 1                                                        | 1                 | KM H-UCL                       | 0.106             | 0.22  | 0.22  | 0.22  | Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | 0.22                      |
| 1                                                        | 0                 | 95% KM Approximate Gamma UCL   | 0.229             | 0.00  | 0.00  | ND    | Naphthalene                                           | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.335                  |
| 1                                                        | 1                 | 95% KM (Chebyshev) UCL         | 0.449             | 0.13  | 0.13  | 0.13  | Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | 0.13                      |
| 1                                                        | 1                 | 95% KM (Chebyshev) UCL         | 14.81             | 0.13  | 0.13  | 0.13  | Pyrene                                                | 10                                          | 1800                            | 1800                        | 23,000                           | 0.13                      |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

| Table 12: ODOT Street Sweeping Data for Klamath Basin |                   |                                |                   |          |        |          | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Central Point     | Central Point     | Region 3     | Region 3      |
|-------------------------------------------------------|-------------------|--------------------------------|-------------------|----------|--------|----------|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|-------------------|-------------------|--------------|---------------|
|                                                       |                   |                                |                   |          |        |          |                                                       |                                             |                                 |                             |                                  | SP-1              | SP-2              | Sweeping - 1 | Sweeping 2009 |
|                                                       |                   |                                |                   |          |        |          |                                                       |                                             |                                 |                             |                                  | 11/6/2002         | 11/6/2002         | 2/12/2009    | 6/16/2009     |
|                                                       |                   |                                |                   |          |        |          |                                                       |                                             |                                 |                             |                                  | Klamath Mountains | Klamath Mountains | Klamath      | Klamath       |
| Number samples                                        | Detectable levels | 95% UCL method                 | Statewide 90% UCL | high     | low    | mean     | Physiographic Province                                |                                             |                                 |                             |                                  |                   |                   |              |               |
|                                                       |                   |                                |                   |          |        |          | Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                   |                   |              |               |
| 4                                                     | 0                 | 95% KM (Chebyshev) UCL         | 8.416             | 0.00     | 0.00   | ND       | Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | DET>20.0          | ND<20.0           | ND<20.0      | ND<5.2        |
| 4                                                     | 2                 | 95% KM Approximate Gamma UCL   | 86.07             | 170.00   | 76.60  | 123.30   | Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<50.0           | ND<50.0           | 170          | 76.6          |
| 4                                                     | 4                 | 95% GROS Approximate Gamma UCL | 1,093             | 1,700.00 | 832.00 | 1,074.00 | Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | 886               | 832               | 1700         | 878           |
|                                                       |                   |                                |                   |          |        |          | Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                   |                   |              |               |
| 0                                                     | 0                 | 95% KM (t) UCL                 | 2.06              | 0.00     | 0.00   | ND       | Antimony                                              | 0.59                                        | -                               | 31                          | --                               |                   |                   |              |               |
| 2                                                     | 2                 | 95% KM (t) UCL                 | 2.937             | 4.00     | 1.06   | 2.53     | Arsenic                                               | 12                                          | 0.4                             | 0.68                        | 1.9                              |                   |                   | 1.06         | 4.00          |
| 2                                                     | 2                 | 95% Chebyshev (Mean, Sd) UCL   | 143.9             | 105.00   | 91.20  | 98.10    | Barium                                                | 630                                         | 15,000                          | 15,000                      | 220,000                          |                   |                   | 105          | 91            |
| 4                                                     | 1                 | 95% KM (t) UCL                 | 0.624             | 0.49     | 0.49   | 0.49     | Cadmium                                               | 0.52                                        | 78.00                           | 71                          | 350                              | ND<0.100          | ND<0.100          | 0.49         | ND<1.0        |
| 2                                                     | 2                 | 95% Adjusted Gamma UCL         | 35.99             | 144.00   | 134.00 | 139.00   | Chromium                                              | 890                                         | 120000 0.30                     | 120000(III) 0.30 (IV)       | 6.3 (VI)                         |                   |                   | 134          | 144           |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 56.57             | 0.00     | 0.00   | ND       | Copper                                                | 110                                         | 3,100                           | 3,100                       | 47,000                           | ND<0.100          | ND<0.100          |              |               |
| 4                                                     | 2                 | KM H-UCL                       | 115.5             | 26.50    | 5.74   | 16.12    | Lead                                                  | 36                                          | 400                             | 400                         | 800                              | ND<0.100          | ND<0.100          | 5.74         | 26.5          |
| 2                                                     | 0                 | NA                             | NA                | 0.00     | 0.00   | ND       | Mercury                                               | 0.17                                        | 23                              | 23                          | 350                              |                   |                   | ND<0.0848    | ND<0.10       |
| 2                                                     | 1                 | NA                             | NA                | 0.26     | 0.26   | 0.26     | Selenium                                              | 0.8                                         | -                               | 390                         | --                               |                   |                   | 0.261        | ND<1.0        |
| 2                                                     | 1                 | NA                             | NA                | 0.67     | 0.67   | 0.67     | Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                   |                   | 0.674        | ND<1.0        |
| 2                                                     | 2                 | 95% Student's-t UCL            | 173.8             | 2.29     | 0.72   | 1.50     | Zinc                                                  | 140                                         | -                               | 23,000                      | --                               | 0.716             | 2.29              |              |               |
|                                                       |                   |                                |                   |          |        |          | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                   |                   |              |               |
| 2                                                     | 0                 | NA                             | NA                | 0.00     | 0.00   | ND       | Anthracene                                            | 6.8                                         | 23,000                          | 3600                        | 70,000                           | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | NA                             | NA                | 0.00     | 0.00   | ND       | Acenaphthene                                          | 0.25                                        | 4,700                           | -                           | --                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM Approximate Gamma UCL   | 0.0307            | 0.00     | 0.00   | ND       | Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | KM H-UCL                       | 0.116             | 0.00     | 0.00   | ND       | Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 0.198             | 0.00     | 0.00   | ND       | Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 0.175             | 0.00     | 0.00   | ND       | Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 0.234             | 0.00     | 0.00   | ND       | Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | KM H-UCL                       | 0.0598            | 0.00     | 0.00   | ND       | Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | KM H-UCL                       | 0.211             | 0.00     | 0.00   | ND       | Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM Approximate Gamma UCL   | 0.0974            | 0.00     | 0.00   | ND       | Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | KM H-UCL                       | 0.244             | 0.00     | 0.00   | ND       | Fluoranthene                                          | 10                                          | 2,400                           | 2,400                       | 30,000                           | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | NA                             | NA                | 0.00     | 0.00   | ND       | Fluorene                                              | 3.7                                         | 3,100                           | 240                         | 47,000                           | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | KM H-UCL                       | 0.106             | 0.00     | 0.00   | ND       | Indeno[1,2,3-cd]pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 1                 | 95% KM Approximate Gamma UCL   | 0.229             | 2.80     | 2.80   | 2.80     | Napththalene                                          | 0.077                                       | 5.3                             | 2.0                         | 23                               | 2.800             | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 0.449             | 0.00     | 0.00   | ND       | Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | ND<0.335          | ND<0.067          |              |               |
| 2                                                     | 0                 | 95% KM (Chebyshev) UCL         | 14.81             | 0.00     | 0.00   | ND       | Pyrene                                                | 10                                          | 1,800                           | 1,800                       | 23,000                           | ND<0.335          | ND<0.067          |              |               |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

Table 13: ODOT Street Sweeping Data for South Willamette Valley

| Table 13: ODOT Street Sweeping Data for South Willamette Valley |                   |                                |                   |        |       |        | Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Newberg               | Sweet Home         | Chemawa          | Chemawa          | Laurel Hill Stockpile | Laurel Hill Stockpile | Laurel Hill Stockpile | Laurel Hill Stockpile | Ellensburg Quarry   |                  |                  |
|-----------------------------------------------------------------|-------------------|--------------------------------|-------------------|--------|-------|--------|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|-----------------------|--------------------|------------------|------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|------------------|------------------|
|                                                                 |                   |                                |                   |        |       |        |                                                       |                                             |                                 |                             |                                  | Bell Rd - unscreened  | Maint - unscreened | #1               | #2               | LHSWEEP-comp1         | LHSWEEP-comp2         | LHSWEEP-comp3         | LHSWEEP-discrete      | 22E-214-1_Processed |                  |                  |
| Number samples                                                  | Detectable levels | 95% UCL method                 | Statewide 90% UCL | high   | low   | mean   | Physiographic Province                                | Petroleum Hydrocarbons                      | Gasoline (GRO)                  | 31                          | 1,200                            | -                     | 20,000             | 4/11/2000        | 4/11/2000        | 3/23/2006             | 3/23/2006             | 5/31/2007             | 5/31/2007             | 5/31/2007           | 5/31/2007        | 11/3/2016        |
|                                                                 |                   |                                |                   |        |       |        |                                                       |                                             |                                 |                             |                                  |                       |                    | South Willamette | South Willamette | South Willamette      | South Willamette      | South Willamette      | South Willamette      | South Willamette    | South Willamette | South Willamette |
| 8                                                               | 1                 | 95% KM (Chebyshev) UCL         | 8.416             | 5.32   | 5.32  | 5.32   |                                                       |                                             |                                 |                             |                                  |                       |                    | ND<20.0          | ND<20.0          | ND<4.38               | 5.32                  | ND<4.03               | ND<4.54               | ND<4.02             | ND<4.55          |                  |
| 9                                                               | 2                 | 95% KM Approximate Gamma UCL   | 86.07             | 78     | 16    | 47.15  |                                                       |                                             | Diesel (DRO)                    | 1100                        | 1,200                            | -                     | 14,000             | ND<50.0          | ND<50.0          | ND<299                | ND<302                | 78.4                  | ND<65.4               | ND<67.0             | ND<69.5          |                  |
| 9                                                               | 7                 | 95% GROS Approximate Gamma UCL | 1,093             | 1,430  | 191   | 832.86 |                                                       |                                             | Oil (RRO)                       | --                          | 2,800                            | -                     | 36,000             | DET>100          | DET>100          | 1280                  | 1430                  | 779                   | 673                   | 700                 | 777              |                  |
| 0                                                               | 0                 |                                |                   |        |       |        | Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                       |                    |                  |                  |                       |                       |                       |                       |                     |                  |                  |
| 0                                                               | 0                 | 95% KM (t) UCL                 | 2.06              | 0.00   | 0.00  | ND     |                                                       |                                             | Antimony                        | 0.39                        | -                                | 31                    | --                 |                  |                  |                       |                       |                       |                       |                     |                  |                  |
| 9                                                               | 8                 | 95% KM (t) UCL                 | 2.937             | 5.60   | 2.21  | 3.54   |                                                       |                                             | Arsenic                         | 18                          | 0.4                              | 0.68                  | 1.9                | 3.45             | 2.21             | 2.42                  | 2.55                  | 3.59                  | 5.6                   | 4.83                | 3.66             |                  |
| 7                                                               | 7                 | 95% Chebyshev (Mean, Sd) UCL   | 143.9             | 132.00 | 14.70 | 90.87  |                                                       |                                             | Barium                          | 730                         | 15000                            | 15,000                | 220,000            |                  |                  | 104                   | 132                   | 91.1                  | 94.9                  | 113                 | 86.4             |                  |
| 13                                                              | 6                 | 95% KM (t) UCL                 | 0.624             | 0.84   | 0.28  | 0.52   |                                                       |                                             | Cadmium                         | 1.6                         | 78.00                            | 71                    | 350                | 0.821            | 0.837            | ND<0.570              | ND<0.600              | ND<0.544              | ND<0.543              | ND<0.506            | ND<0.542         | 0.386            |
| 13                                                              | 13                | 95% Adjusted Gamma UCL         | 35.99             | 42.10  | 4.03  | 25.55  |                                                       |                                             | Chromium                        | 100                         | 120000(III) 0.30 (IV)            | 120000(III) 0.30 (IV) | 6.3 (VI)           | 20.2             | 29.2             | 42.1                  | 20.9                  | 34.9                  | 17.7                  | 20                  | 31.4             | 30.4             |
| 9                                                               | 9                 | 95% KM (Chebyshev) UCL         | 56.57             | 62.50  | 12.60 | 40.33  |                                                       |                                             | Copper                          | 140                         | 3100                             | 3,100                 | 47,000             | 18.8             | 34.6             | 62.5                  | 40                    | 54.2                  | 54.3                  | 42.1                | 43.9             |                  |
| 13                                                              | 13                | KM H-UCL                       | 115.5             | 492    | 5.49  | 76.37  |                                                       |                                             | Lead                            | 28                          | 400                              | 400                   | 800                | 25.7             | 67               | 27.7                  | 26.6                  | 43.6                  | 43.5                  | 45.7                | 81.4             | 492              |
| 3                                                               | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Mercury                         | 0.07                        | 23                               | 23                    | 350                |                  |                  | ND<0.117              | ND<0.124              |                       |                       |                     |                  |                  |
| 1                                                               | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Selenium                        | 0.68                        | -                                | 390                   | --                 |                  |                  |                       |                       |                       |                       |                     |                  |                  |
| 1                                                               | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Silver                          | 2.6                         | 390                              | 390                   | 5800               |                  |                  |                       |                       |                       |                       |                     |                  |                  |
| 8                                                               | 8                 | 95% Student's-t UCL            | 173.8             | 165.00 | 64.60 | 128.09 |                                                       |                                             | Zinc                            | 200                         | -                                | 23,000                | --                 | 64.6             | 81.1             | 129                   | 165                   | 136                   | 163                   | 143                 | 143              |                  |
| 0                                                               | 0                 |                                |                   |        |       |        | Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                       |                    |                  |                  |                       |                       |                       |                       |                     |                  |                  |
| 10                                                              | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Anthracene                      | 6.8                         | 23000                            | 3600                  | 70,000             | ND<0.134         |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.049         |
| 10                                                              | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Acenaphthene                    | 0.25                        | 4700                             | -                     | --                 | ND<0.260         |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.049         |
| 10                                                              | 0                 | 95% KM Approximate Gamma UCL   | 0.0307            | 0.00   | 0.00  | ND     |                                                       |                                             | Acenaphthylene                  | 120                         | -                                | 18,000                | 350,000            | ND<0.0134        |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.049         |
| 10                                                              | 5                 | KM H-UCL                       | 0.116             | 0.40   | 0.06  | 0.13   |                                                       |                                             | Benzo(a)anthracene              | 0.73                        | 1.1                              | 1.1                   | 21                 | ND<0.0134        |                  | ND<0.0779             | 0.3970                | ND<0.0364             |                       |                     | 0.0726           | 0.0570           |
| 10                                                              | 6                 | 95% KM (Chebyshev) UCL         | 0.198             | 0.08   | 0.02  | 0.07   |                                                       |                                             | Benzo(a)pyrene                  | 0.11                        | 0.11                             | 0.11                  | 2.1                | 0.0202           |                  | ND<0.0779             | ND<0.330              | 0.0749                |                       |                     | 0.0789           | 0.0733           |
| 10                                                              | 6                 | 95% KM (Chebyshev) UCL         | 0.175             | 0.14   | 0.06  | 0.10   |                                                       |                                             | Benzo(b)fluoranthene            | 1.1                         | 1.1                              | 1.1                   | 21                 | ND<0.0300        |                  | ND<0.0779             | ND<0.330              | 0.0649                |                       |                     | 0.0633           | 0.1180           |
| 10                                                              | 6                 | 95% KM (Chebyshev) UCL         | 0.234             | 0.15   | 0.09  | 0.12   |                                                       |                                             | Benzo(g,h,i)perylene            | 25                          | -                                | -                     | --                 | ND<0.0300        |                  | 0.1350                | ND<0.330              | 0.0891                |                       |                     | 0.0989           | ND<0.0491        |
| 10                                                              | 3                 | KM H-UCL                       | 0.0598            | 0.16   | 0.05  | 0.08   |                                                       |                                             | Benzo(k)fluoranthene            | 11                          | 11                               | 15                    | 210                | ND<0.0134        |                  | ND<0.0779             | ND<0.330              | 0.0466                |                       |                     | 0.0465           | 0.1560           |
| 10                                                              | 7                 | KM H-UCL                       | 0.211             | 0.46   | 0.07  | 0.19   |                                                       |                                             | Chrysene                        | 3.1                         | 110                              | 110                   | 2100               | ND<0.0134        |                  | ND<0.0779             | 0.4190                | 0.4630                |                       |                     | 0.0869           | 0.1070           |
| 10                                                              | 0                 | 95% KM Approximate Gamma UCL   | 0.0974            | 0.00   | 0.00  | ND     |                                                       |                                             | Dibenz(a,h)anthracene           | 0.11                        | 0.11                             | 0.11                  | 2.1                | ND<0.0300        |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.0491        |
| 10                                                              | 7                 | KM H-UCL                       | 0.244             | 1.09   | 0.04  | 0.25   |                                                       |                                             | Fluoranthene                    | 10                          | 2400                             | 2400                  | 30,000             | ND<0.0300        |                  | 0.0934                | 1.0900                | 0.0372                |                       |                     | 0.1570           | 0.0991           |
| 10                                                              | 0                 | NA                             | NA                | 0.00   | 0.00  | ND     |                                                       |                                             | Fluorene                        | 3.7                         | 3100                             | 240                   | 47,000             | ND<0.0300        |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.0491        |
| 10                                                              | 5                 | KM H-UCL                       | 0.106             | 0.08   | 0.06  | 0.07   |                                                       |                                             | Indeno[1,2,3-cd]pyrene          | 1.1                         | 1.1                              | 1.1                   | 21                 | ND<0.0300        |                  | ND<0.0779             | ND<0.330              | 0.0592                |                       |                     | 0.0623           | 0.0827           |
| 10                                                              | 0                 | 95% KM Approximate Gamma UCL   | 0.229             | 0.00   | 0.00  | ND     |                                                       |                                             | Naphthalene                     | 0.077                       | 5.3                              | 2.0                   | 23                 | ND<0.134         |                  | ND<0.0779             | ND<0.330              | ND<0.0364             |                       |                     | ND<0.0369        | ND<0.098         |
| 10                                                              | 4                 | 95% KM (Chebyshev) UCL         | 0.449             | 0.70   | 0.05  | 0.22   |                                                       |                                             | Phenanthrene                    | 5.5                         | -                                | -                     | --                 | ND<0.0134        |                  | ND<0.0779             | 0.6960                | ND<0.0364             |                       |                     | 0.0732           | 0.0502           |
| 10                                                              | 7                 | 95% KM (Chebyshev) UCL         | 14.81             | 0.80   | 0.01  | 0.21   |                                                       |                                             | Pyrene                          | 10                          | 1800                             | 1800                  | 23,000             | ND<0.0134        |                  | 0.0958                | 0.8020                | ND<0.0364             |                       |                     | 0.1460           | 0.1390           |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

| Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Ellensburg Quarry   | Ellensburg Quarry   | Ellensburg Quarry   | Laurel Pit       |
|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|---------------------|---------------------|---------------------|------------------|
|                                                       |                                             |                                 |                             |                                  | 22E-214-2_Processed | IS-chem-1_Processed | IS-chem-2_Processed | Unscreened       |
|                                                       |                                             |                                 |                             |                                  | 11/3/2016           | 11/3/2016           | 11/3/2016           | 8/7/2008         |
| Physiographic Province                                |                                             |                                 |                             |                                  | South Willamette    | South Willamette    | South Willamette    | South Willamette |
| Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                     |                     |                     |                  |
| Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           |                     |                     |                     |                  |
| Diesel (DRO)                                          | 1100                                        | 1,200                           | -                           | 14,000                           |                     |                     |                     | 15.9             |
| Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           |                     |                     |                     | 191              |
| Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                     |                     |                     |                  |
| Antimony                                              | 0.39                                        | -                               | 31                          | --                               |                     |                     |                     |                  |
| Arsenic                                               | 18                                          | 0.4                             | 0.68                        | 1.9                              |                     |                     |                     | ND<0.510         |
| Barium                                                | 730                                         | 15000                           | 15,000                      | 220,000                          |                     |                     |                     | 14.7             |
| Cadmium                                               | 1.6                                         | 78.00                           | 71                          | 350                              | 0.331               | 0.46                | 0.276               | ND<0.510         |
| Chromium                                              | 100                                         | 120000(III) 0.30 (IV)           | 120000(III) 0.30 (IV)       | 6.3 (VI)                         | 30                  | 26.9                | 24.4                | 4.03             |
| Copper                                                | 140                                         | 3100                            | 3,100                       | 47,000                           |                     |                     |                     | 12.6             |
| Lead                                                  | 28                                          | 400                             | 400                         | 800                              | 40.9                | 33.4                | 59.8                | 5.49             |
| Mercury                                               | 0.07                                        | 23                              | 23                          | 350                              |                     |                     |                     | ND<0.0926        |
| Selenium                                              | 0.68                                        | -                               | 390                         | --                               |                     |                     |                     | ND<0.510         |
| Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                     |                     |                     | ND<0.510         |
| Zinc                                                  | 200                                         | -                               | 23,000                      | --                               |                     |                     |                     |                  |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                     |                     |                     |                  |
| Anthracene                                            | 6.8                                         | 23000                           | 3600                        | 70,000                           | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Acenaphthene                                          | 0.25                                        | 4700                            | -                           | --                               | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.049            | 0.0680              | 0.0664              | ND<0.0264        |
| Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.049            | 0.0794              | 0.0819              | ND<0.0264        |
| Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | 0.0622              | 0.1370              | 0.1390              | ND<0.0264        |
| Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | 0.1170              | 0.1460              | 0.1480              | ND<0.0264        |
| Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | 0.0671              | 0.1050              | 0.1060              | ND<0.0264        |
| Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Fluoranthene                                          | 10                                          | 2400                            | 2400                        | 30,000                           | ND<0.049            | 0.1370              | 0.1090              | ND<0.0264        |
| Fluorene                                              | 3.7                                         | 3100                            | 240                         | 47,000                           | ND<0.049            | ND<0.049            | ND<0.049            | ND<0.0264        |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.049            | 0.0809              | 0.0769              | ND<0.0264        |
| Naphthalene                                           | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.098            | ND<0.098            | ND<0.098            | ND<0.0264        |
| Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | ND<0.049            | 0.0689              | ND<0.049            | ND<0.0264        |
| Pyrene                                                | 10                                          | 1800                            | 1800                        | 23,000                           | 0.0064              | 0.1410              | 0.1330              | ND<0.0264        |

| Table 14: ODOT Street Sweeping Data for Portland Basin |                   |                        |                   |       |       |       | Analyte                | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Rocky Butte            | Rocky Butte | Rocky Butte | Rocky Butte | Rocky Butte | Rocky Butte    | Rocky Butte    | Rocky Butte    |                |                |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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|--------------------------------------------------------|-------------------|------------------------|-------------------|-------|-------|-------|------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|------------------------|-------------|-------------|-------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----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|                                                        |                   |                        |                   |       |       |       |                        |                                             |                                 |                             |                                  | 7/1/1998               | 11/13/1998  | 1/28/1999   | 3/10/1999   | 6/11/1999   | 9/21/1999      | 11/30/1999     | 2/1/2000       | 7/3/2001       |                |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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|                                                        |                   |                        |                   |       |       |       |                        |                                             |                                 |                             |                                  | Physiographic Province |             |             |             |             | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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| Number samples                                         | Detectable levels | 95% UCL method         | Statewide 90% UCL | high  | low   | mean  | Petroleum Hydrocarbons |                                             |                                 |                             |                                  |                        |             |             |             |             |                |                |                |                |                |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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|                                                        |                   |                        |                   |       |       |       | Gasoline (GRO)         | 31                                          | 1,200                           | -                           | 20,000                           |                        |             |             |             |             |                |                |                | ND             | ND             | ND             | ND             | ND             | ND             | ND | ND | ND | ND | ND | ND |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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| 42                                                     | 1                 | 95% KM (Chebyshev) UCL | 8.416             | 31.70 | 31.70 | 31.70 | Diesel (DRO)           | 1,100                                       | 1,200                           | -                           | 14,000                           | ND                     | ND          | ND          | ND          | ND          | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND 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| ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

Key:  
The 90% UCL is yellow highlighted for metals if the value exceeds CF limit for the province.

Other cells are highlighted for the highest exceedance.  
The cell is red highlighted if the value is greater than the CF limit.  
The cell is green highlighted if the value is greater than the Residential RBC.  
The cell is blue highlighted if the value exceeds Residential EPA RSL.  
The cell is orange highlighted if the value exceeds the Occupational RBC.

| Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Rocky Butte      | Rocky Butte      | Rocky Butte      | Rocky Butte      | Rocky Butte    | Rocky Butte    | Rocky Butte    | Rocky Butte    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    |                |                |
|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                                       |                                             |                                 |                             |                                  | South berm - old | North berm - new | South berm - old | North berm - new | N Road         | Rd South       | #1 Pile S      | #2 Pile S      | Unscreened     | Screened       | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 1 | Compost Cell 7 |
|                                                       |                                             |                                 |                             |                                  | 9/18/2001        | 9/18/2001        | 5/21/2002        | 5/21/2002        | 8/19/2004      | 8/19/2004      | 8/19/2004      | 8/19/2004      | 4/5/1999       | 4/5/1999       | 4/30/1999      | 6/21/1999      | 8/5/1999       | 11/30/1999     | 1/4/2000       | 4/30/1999      |                |                |
| Physiographic Province                                |                                             |                                 |                             |                                  | Portland Basin   | Portland Basin   | Portland Basin   | Portland Basin   | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin |                |                |
| Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | ND<200           | ND<20.0          | ND<4.00          | ND<4.0           | ND<4.0         | ND<4.0         | ND<4.0         | ND<4.0         | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<500           | ND<50.0          | ND<1000          | ND<500           | ND<1000        | ND<250         | ND<250         | ND<1000        | ND             | ND             | ND             | ND             | ND             | ND             | ND             | 221            |                |                |
| Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | 692              | 1340             | 1720             | 1130             | 1860           | 901            | 983            | 2370           | 2030           | 1060           | 469            |                | 442            | 637            | 430            | 1152           |                |                |
| Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Antimony                                              | 0.56                                        | -                               | 31                          | --                               |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Arsenic                                               | 8.8                                         | 0.43                            | 0.68                        | 1.9                              |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Barium                                                | 790                                         | 15000                           | 15,000                      | 220,000                          |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Cadmium                                               | 0.36                                        | 78                              | 71                          | 350                              | 0.528            | ND<0.5           | ND<0.769         | ND<0.901         | ND<2.5         | ND<17.5        | ND<1.82        | ND<1.64        | ND             | ND             | ND             | 0.669          | 1.1            | 1.22           | 0.658          | 0.734          |                |                |
| Chromium                                              | 76                                          | 120000(III)<br>0.30 (IV)        | 120000(III)<br>0.30 (IV)    | 6.3 (VI)                         |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Copper                                                | 34                                          | 3100                            | 3,100                       | 47,000                           | 73               | 55.3             | 34.7             | 33.6             | 127            | 141            | 325            | 60.7           | 29.7           | 63.4           | 41.4           | 4.68           | 50.1           | 30.8           | 23.1           | 34.9           |                |                |
| Lead                                                  | 27                                          | 400                             | 400                         | 800                              | 129              | 69.6             | 29.9             | 95.7             | 61.2           | 628            | 97             | 77.8           | 81.8           | 83.1           | 33.1           | 53.2           | 64.6           | 33.3           | 88.8           | 38.6           |                |                |
| Mercury                                               | 0.23                                        | 23                              | 23                          | 350                              |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Selenium                                              | 0.71                                        | -                               | 390                         | --                               |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Zinc                                                  | 180                                         | -                               | 23,000                      | --                               | 276              | 291              | 132              | 294              | 304            | 337            | 401            | 263            | 180            | 294            | 159            | 165            | 183            | 140            | 127            | 133            |                |                |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                  |                  |                  |                  |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Anthracene                                            | 6.8                                         | 23,000                          | 3600                        | 70,000                           | ND<0.067         | ND<0.168         | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Acenaphthene                                          | 0.25                                        | 4,700                           | -                           | --                               | ND<0.130         | ND<0.325         | ND<0.067         | ND<0.134         |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.0067        | 0.0222           | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | 0.0408           | 0.117            | ND<0.067         | 0.202            | 0.107          | ND<0.067       | ND<0.067       | ND<0.168       | ND             | ND             | ND             | ND             | ND             | ND             | 0.0399         | ND             |                |                |
| Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | 0.0666           | 0.191            | ND<0.067         | 0.289            | 0.129          | ND<0.134       | ND<0.067       | ND<0.335       | ND             | ND             | ND             | ND             | 0.0962         | 0.0892         | 0.076          | ND             |                |                |
| Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | 0.0522           | 0.131            | ND<0.067         | 0.278            | 0.137          | ND<0.134       | 0.0963         | ND<0.335       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | ND<0.015         | ND<0.0375        | 0.0757           | 0.278            |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | 0.0217           | 0.0691           | ND<0.067         | 0.222            | 0.0865         | ND<0.134       | ND<0.067       | ND<0.335       | ND             | ND             | ND             | ND             | ND             | ND             | 0.038          | ND             |                |                |
| Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | 0.0581           | 0.124            | ND<0.067         | 0.306            | 0.153          | 0.0975         | 0.073          | 0.172          | ND             | ND             | 0.318          | 0.103          | 0.19           | ND             | 0.0439         | ND             |                |                |
| Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.015         | ND<0.0375        | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.134       | ND<0.067       | ND<0.335       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Fluoranthene                                          | 10                                          | 2,400                           | 2400                        | 30,000                           | ND<0.015         | ND<0.0375        | ND<0.067         | 0.291            | 0.19           | 0.16           | 0.096          | 0.228          | ND             | ND             | ND             | ND             | 0.541          | ND             | 0.11           | ND             |                |                |
| Fluorene                                              | 3.7                                         | 3,100                           | 240                         | 47,000                           | ND<0.015         | ND<0.0375        | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.015         | ND<0.0375        | ND<0.067         | 0.207            | 0.112          | ND<0.134       | ND<0.067       | ND<0.335       | ND             | ND             | ND             | ND             | ND             | ND             | 0.147          | ND             |                |                |
| Napthalene                                            | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.067         | ND<0.168         | ND<0.067         | ND<0.134         | ND<0.067       | ND<0.067       | ND<0.067       | ND<0.168       | ND             | ND             | ND             | ND             | ND             | ND             | ND             | ND             |                |                |
| Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | 0.0416           | 0.125            | ND<0.067         | ND<0.134         |                |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Pyrene                                                | 10                                          | 1,800                           | 1800                        | 23,000                           | 0.0561           | 0.223            | ND<0.067         | 0.287            | 0.155          | 0.133          | 0.0754         | 0.2            | ND             | ND             | 0.423          | 0.1            | ND             | 0.123          | 0.187          | ND             |                |                |

| Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville      | Wilsonville     | Wilsonville     | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville    | Wilsonville             | Sandy Blvd           | Sandy Blvd           | Milwaukie         |
|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|----------------|----------------|----------------|----------------|------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|-------------------------|----------------------|----------------------|-------------------|
|                                                       |                                             |                                 |                             |                                  | Compost Cell 7 | Compost Cell 7 | Compost Cell 7 | Compost Cell 7 | Unscreened - Old | Unscreened - N1 | Unscreened - N2 | +1/4"          | -1/4"(sand)    | Fine           | 1/4"-10(sand)  | 3/4"(Gravel)   | Screened Sand Composite | SA - after screening | SB -before screening | Berm - unscreened |
|                                                       |                                             |                                 |                             |                                  | 6/21/1999      | 8/5/1999       | 11/30/1999     | 1/4/2000       | 8/20/2004        | 8/20/2004       | 8/20/2004       | 10/3/2007      | 10/3/2007      | 7/10/2008      | 7/10/2008      | 7/10/2008      | 2/11/2009               | 6/29/2001            | 6/29/2001            | 8/19/2004         |
| Physiographic Province                                |                                             |                                 |                             |                                  | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin   | Portland Basin  | Portland Basin  | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin | Portland Basin          | Portland Basin       | Portland Basin       | Portland Basin    |
| Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                |                |                |                |                  |                 |                 |                |                |                |                |                |                         |                      |                      |                   |
| Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | ND             | ND             | ND             | ND             | ND<4.0           | ND<4.0          | ND<4.0          |                |                | ND             | ND             | ND             |                         | ND<20.0              | ND<20.0              | ND<4.0            |
| Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND             | ND             | ND             | ND             | ND<1000          | ND<1000         | ND<1000         | ND<63.9        | ND<134         | <139           | <130           | <129           | 120                     | ND<50.0              | ND<50.0              | ND<1000           |
| Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | DET            | 715            | 662            | 634            | 1610             | 1420            | 2220            | 220            | 771            | 770            | 338            | <259           | 1500                    | 210                  | 165                  | 1540              |
| Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                |                |                |                |                  |                 |                 |                |                |                |                |                |                         |                      |                      |                   |
| Antimony                                              | 0.56                                        | -                               | 31                          | --                               |                |                |                |                |                  |                 |                 |                |                |                |                |                |                         |                      |                      |                   |
| Arsenic                                               | 8.8                                         | 0.43                            | 0.68                        | 1.9                              |                |                |                |                |                  |                 |                 |                |                | 2.02           | 1.01           | 1.88           |                         |                      |                      |                   |
| Barium                                                | 790                                         | 15000                           | 15,000                      | 220,000                          |                |                |                |                |                  |                 |                 |                |                | 167            | 62.5           | 114            | 125                     |                      |                      |                   |
| Cadmium                                               | 0.36                                        | 78                              | 71                          | 350                              | 0.713          | 1.1            | 1.22           | 0.989          | ND<2.50          | ND<2.50         | ND<2.50         |                |                | ND<0.534       | ND<0.535       | ND<0.521       | 0.9                     | ND<0.50              | ND<0.50              | ND<1.66           |
| Chromium                                              | 76                                          | 120000(III)<br>0.30 (IV)        | 120000(III)<br>0.30 (IV)    | 6.3 (VI)                         |                |                |                |                |                  |                 |                 |                |                | 52.5           | 6.76           | 13.3           | 17.4                    |                      |                      |                   |
| Copper                                                | 34                                          | 3100                            | 3,100                       | 47,000                           | 32.6           | 42.1           | 30.9           | 40.5           | 40               | 48              | 59.3            |                |                | 63.1           | 21             | 39.5           | 67.8                    | 34.7                 | 31.1                 | 41.7              |
| Lead                                                  | 27                                          | 400                             | 400                         | 800                              | 42.9           | 37.2           | 33.3           | 54.7           | 531              | 25              | 28.1            | 1.46           | 10.4           | 42.1           | 15.7           | 35.5           | 19.9                    | 36.6                 | 34                   | 219               |
| Mercury                                               | 0.23                                        | 23                              | 23                          | 350                              |                |                |                |                |                  |                 |                 |                |                | ND<0.0916      | ND<0.0839      | ND<0.0871      |                         |                      |                      |                   |
| Selenium                                              | 0.71                                        | -                               | 390                         | --                               |                |                |                |                |                  |                 |                 |                |                | ND<0.534       | ND<0.535       | ND<0.521       |                         |                      |                      |                   |
| Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                |                |                |                |                  |                 |                 |                |                | ND<0.534       | ND<0.535       | ND<0.521       |                         |                      |                      |                   |
| Zinc                                                  | 180                                         | -                               | 23,000                      | --                               | 162            | 159            | 170            | 193            | 152              | 185             | 145             |                |                |                |                |                | 111                     | 166                  | 132                  | 161               |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                |                |                |                |                  |                 |                 |                |                |                |                |                |                         |                      |                      |                   |
| Anthracene                                            | 6.8                                         | 23,000                          | 3600                        | 70,000                           | ND             | ND             | ND             | ND             | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.335             |                      | ND<0.100          |
| Acenaphthene                                          | 0.25                                        | 4,700                           | -                           | --                               |                |                |                |                |                  |                 |                 | ND<0.272       | ND<0.702       |                |                |                |                         | ND<0.360             |                      |                   |
| Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND             | ND             | ND             | ND             | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.0335            |                      | ND<0.100          |
| Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND             | ND             | ND             | 0.0561         | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0922         | ND<0.0344      | 0.0369         | ND<0.030                | 0.0628               |                      | ND<0.100          |
| Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND             | 0.0892         | ND             | 0.103          | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.116          | ND<0.0344      | 0.0467         | ND<0.030                | 0.0468               |                      | ND<0.100          |
| Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND             | ND             | ND             | 0.104          | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.128          | ND<0.0344      | 0.0554         | ND<0.030                | ND<0.075             |                      | 0.106             |
| Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               |                |                |                |                |                  |                 |                 | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                |                      |                      |                   |
| Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | ND             | ND             | ND             | 0.0511         | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0801         | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.0335            |                      | ND<0.100          |
| Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | 0.144          | 0.137          | ND             | 0.0615         | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.153          | 0.0378         | 0.0665         | ND<0.030                | 0.0468               |                      | ND<0.100          |
| Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND             | ND             | ND             | ND             | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.075             |                      | ND<0.100          |
| Fluoranthene                                          | 10                                          | 2,400                           | 2400                        | 30,000                           | 0.231          | ND             | ND             | 0.15           | 0.181            | 0.0744          | ND<0.134        | ND<0.272       | ND<0.702       | 0.187          | 0.0386         | 0.0761         | 0.038                   | ND<0.075             |                      | ND<0.100          |
| Fluorene                                              | 3.7                                         | 3,100                           | 240                         | 47,000                           | ND             | ND             | ND             | ND             | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.075             |                      | ND<0.100          |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND             | ND             | ND             | 0.155          | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | 0.0888         | ND<0.0344      | 0.0362         | ND<0.030                | ND<0.075             |                      | ND<0.100          |
| Napththalene                                          | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND             | ND             | ND             | ND             | ND<0.134         | ND<0.067        | ND<0.134        | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.335             |                      | ND<0.100          |
| Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               |                |                |                |                |                  |                 |                 | ND<0.272       | ND<0.702       | ND<0.037       | ND<0.0344      | ND<0.0345      | ND<0.030                | ND<0.0335            |                      |                   |
| Pyrene                                                | 10                                          | 1,800                           | 1800                        | 23,000                           | 0.118          | 0.133          | 0.118          | 0.204          | 0.165            | 0.0706          | ND<0.134        | ND<0.272       | ND<0.702       | 0.223          | 0.0496         | ND<0.0345      | 0.049                   | 0.0494               |                      | ND<0.100          |

| Analyte                                               | DEQ Clean Fill (CF) Screening Level (mg/kg) | Residential Generic RBC (mg/kg) | Residential EPA RSL (mg/kg) | Occupational Generic RBC (mg/kg) | Lawnfield      | Lawnfield                 | Lawnfield                 | N. Portland             | Hwy 30         | Holman             | Holman                  | Holman               | Carus (Hwy 213) | Canemah Stockpile | Canemah Stockpile | Canemah Stockpile | Prospect Stockpile      |
|-------------------------------------------------------|---------------------------------------------|---------------------------------|-----------------------------|----------------------------------|----------------|---------------------------|---------------------------|-------------------------|----------------|--------------------|-------------------------|----------------------|-----------------|-------------------|-------------------|-------------------|-------------------------|
|                                                       |                                             |                                 |                             |                                  | sweeping pile  | Pile 2 - composite #13-18 | Pile 2 - composite #18-22 | screened sand composite | unscreened     | pre-test composite | Screened Sand Composite | Unscreened Composite | sweep 0-12in    | Pile #1 Composite | Pile #2 Composite | Pile #3 Composite | Screened Sand Composite |
|                                                       |                                             |                                 |                             |                                  | 10/18/2001     | 9/18/2012                 | 9/18/2012                 | 2/5/2009                | 2/5/2009       | 4/6/2000           | 2/5/2009                | 5/1/2009             | 4/23/2014       | 8/13/2020         | 8/13/2020         | 8/13/2020         | 2/5/2009                |
| Physiographic Province                                |                                             |                                 |                             |                                  | Portland Basin | Portland Basin            | Portland Basin            | Portland Basin          | Portland Basin | Portland Basin     | Portland Basin          | Portland Basin       | Portland Basin  | Portland Basin    | Portland Basin    | Portland Basin    | Portland Basin          |
| Petroleum Hydrocarbons                                |                                             |                                 |                             |                                  |                |                           |                           |                         |                |                    |                         |                      |                 |                   |                   |                   |                         |
| Gasoline (GRO)                                        | 31                                          | 1,200                           | -                           | 20,000                           | 31.70          | ND<5.1                    | ND<4.8                    |                         |                | ND<20.0            |                         |                      |                 |                   |                   |                   |                         |
| Diesel (DRO)                                          | 1,100                                       | 1,200                           | -                           | 14,000                           | ND<50.0        | 63                        | 16                        | 680                     | 120            | ND<50.0            |                         | 159                  |                 | ND<448            | ND<435            | ND<25             | 75                      |
| Oil (RRO)                                             | --                                          | 2,800                           | -                           | 36,000                           | 1730           | 530                       | 140                       | 2100                    | 730            | DET>100            |                         | 1740                 |                 | 1530              | 1310              | 204               | 410                     |
| Total Metals - EPA 6020 - mg/kg                       |                                             |                                 |                             |                                  |                |                           |                           |                         |                |                    |                         |                      |                 |                   |                   |                   |                         |
| Antimony                                              | 0.56                                        | -                               | 31                          | --                               |                |                           |                           |                         |                |                    |                         |                      |                 | 1.58              | 1.99              | ND<1.3            |                         |
| Arsenic                                               | 8.8                                         | 0.43                            | 0.68                        | 1.9                              |                |                           |                           |                         |                |                    |                         |                      |                 | 2.65              | 2.9               | 3.44              |                         |
| Barium                                                | 790                                         | 15000                           | 15,000                      | 220,000                          |                |                           |                           | 302                     | 156            |                    | 62.7                    | 106                  |                 | 118               | 123               | 114               | 78                      |
| Cadmium                                               | 0.36                                        | 78                              | 71                          | 350                              | ND<2.50        | ND<1.1                    | ND<1.1                    | 0.084                   | 0.67           | 1.29               | 0.55                    | 1.2                  | ND<0.62         | 0.271             | 0.403             | ND<0.261          | 0.68                    |
| Chromium                                              | 76                                          | 120000(III) 0.30 (IV)           | 120000(III) 0.30 (IV)       | 6.3 (VI)                         |                | 41                        | 26                        | 11.2                    | 23.9           |                    | 3.4                     | 19.2                 |                 | 33.2              | 38.6              | 27.4              | 3.8                     |
| Copper                                                | 34                                          | 3100                            | 3,100                       | 47,000                           | 39.7           |                           |                           | 45.6                    | 23.6           | 50.7               | 15.3                    | 34.3                 | 30              | 55.6              | 56.8              | 25.7              | 15.7                    |
| Lead                                                  | 27                                          | 400                             | 400                         | 800                              | 60.6           | 74                        | 20                        | 13.5                    | 86.7           | 72.4               | 4.9                     | 13.9                 | 75              | 24.6              | 29.9              | 11.8              | 5                       |
| Mercury                                               | 0.23                                        | 23                              | 23                          | 350                              |                |                           |                           |                         |                |                    |                         |                      |                 | ND<0.091          | ND<0.0976         | ND<0.104          |                         |
| Selenium                                              | 0.71                                        | -                               | 390                         | --                               |                |                           |                           |                         |                |                    |                         |                      |                 | ND<1.14           | ND<1.22           | ND<1.3            |                         |
| Silver                                                | 2.6                                         | 390                             | 390                         | 5800                             |                |                           |                           |                         |                |                    |                         |                      |                 | ND<0.541          | ND<0.244          | ND<0.261          |                         |
| Zinc                                                  | 180                                         | -                               | 23,000                      | --                               | 234            |                           |                           | 60.3                    | 130            | 264                | 60.3                    | 109                  | 120             | 236               | 267               | 99.3              | 59.6                    |
| Polynuclear Aromatic Hydrocarbons - EPA 8270D - mg/kg |                                             |                                 |                             |                                  |                |                           |                           |                         |                |                    |                         |                      |                 |                   |                   |                   |                         |
| Anthracene                                            | 6.8                                         | 23,000                          | 3600                        | 70,000                           | ND<0.067       | ND<0.031                  | ND<0.015                  | ND<0.029                | ND<0.028       | ND<2.010           | ND<0.028                | ND<0.155             | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Acenaphthene                                          | 0.25                                        | 4,700                           | -                           | --                               | ND<0.130       | ND<0.031                  | ND<0.015                  |                         |                | ND<3.900           |                         |                      | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         |                         |
| Acenaphthylene                                        | 120                                         | -                               | 18,000                      | 350,000                          | ND<0.0067      | 0.028                     | 0.019                     | ND<0.029                | ND<0.028       | 0.311              | ND<0.028                | ND<0.155             |                 | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Benzo(a)anthracene                                    | 0.73                                        | 1.1                             | 1.1                         | 21                               | ND<0.0268      | 0.96                      | 0.14                      | ND<0.029                | ND<0.028       | 1.33               | ND<0.028                | ND<0.155             | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Benzo(a)pyrene                                        | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | 0.0915         | 0.55                      | 0.13                      | ND<0.029                | ND<0.028       | 2.16               | ND<0.028                | 0.169                | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Benzo(b)fluoranthene                                  | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.015       | 0.5                       | 0.11                      | ND<0.029                | ND<0.028       | 1.36               | ND<0.028                | ND<0.155             | ND<0.15         | 0.109             | 0.117             | ND<0.0111         | ND<0.028                |
| Benzo(g,h,i)perylene                                  | 25                                          | -                               | -                           | --                               | 0.0741         | 0.26                      | 0.086                     | ND<0.029                | ND<0.028       | 1.81               | ND<0.028                | 0.228                | 0.18            | 0.163             | 0.13              | 0.0162            | ND<0.028                |
| Benzo(k)fluoranthene                                  | 11                                          | 11                              | 15                          | 210                              | 0.0259         | 0.51                      | 0.11                      | ND<0.029                | ND<0.028       | 0.82               | ND<0.028                | ND<0.155             | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Chrysene                                              | 3.1                                         | 110                             | 110                         | 2100                             | ND<0.0067      | 0.99                      | 0.16                      | ND<0.029                | 0.05           | 1.96               | ND<0.028                | 0.162                | ND<0.15         | 0.106             | ND<0.104          | ND<0.0111         | ND<0.028                |
| Dibenz(a,h)anthracene                                 | 0.11                                        | 0.11                            | 0.11                        | 2.1                              | ND<0.015       | 0.077                     | 0.067                     | ND<0.029                | ND<0.028       | 1.24               | ND<0.028                | 0.179                | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Fluoranthene                                          | 10                                          | 2,400                           | 2400                        | 30,000                           | 0.191          | 2.2                       | 0.21                      | 0.075                   | 0.046          | 5.35               | 0.059                   | 0.157                | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Fluorene                                              | 3.7                                         | 3,100                           | 240                         | 47,000                           | ND<0.015       | ND<0.031                  | ND<0.015                  | ND<0.029                | ND<0.028       | ND<0.0450          | ND<0.028                | ND<0.155             | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Indeno(1,2,3-cd)pyrene                                | 1.1                                         | 1.1                             | 1.1                         | 21                               | ND<0.015       | 0.23                      | 0.073                     | ND<0.029                | ND<0.028       | 1.84               | ND<0.028                | 0.157                | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Naphthalene                                           | 0.077                                       | 5.3                             | 2.0                         | 23                               | ND<0.067       | ND<0.031                  | ND<0.015                  | 0.78                    | ND<0.028       | ND<2.010           | 0.044                   | 0.266                | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Phenanthrene                                          | 5.5                                         | -                               | -                           | --                               | 0.07           | 0.6                       | 0.046                     | 0.056                   | ND<0.028       | 4.37               | 0.033                   | ND<0.155             | ND<0.15         | ND<0.103          | ND<0.104          | ND<0.0111         | ND<0.028                |
| Pyrene                                                | 10                                          | 1,800                           | 1800                        | 23,000                           | 0.134          | 2                         | 0.24                      | 0.12                    | 0.069          | 5.89               | 0.088                   | 0.231                | ND<0.15         | 0.127             | ND<0.104          | 0.0117            | 0.039                   |