APPENDIX A

Summary of Correspondence with DEQ

Oregon
Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region
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January 15, 2010

Kelly Madalinski
Port of Portland
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RE: DEQ Request for Residual Risk Assessment and Data Requirements for Completion of Uplands and Source Control Site Characterization. Willamette Cove, ECSI 2066

Kelly:

This letter was presented to the Port of Portland and Metro in draft form on September 28, 2009. Two field meetings and six office meetings have been held to discuss the contents of this letter. This updated January 15, 2010 letter reflects the outcomes of these meetings.

DEQ has completed an appraisal of site documents including recent deliverables and project communications. This review included the *Upland Soil Removal Action Report* (December 2008) documenting soil removal in the central parcel of the site, and the *Riverbank Soil Sampling Addendum* (October 2008) discussing riverbank soil sampling for polychlorinated biphenyls (PCBs) where the central and western parcels meet. DEQ has determined from our review, which included a reappraisal of the 2007 *Baseline Risk Assessment, Willamette Cove Upland Facility* (BRA), that a number of tasks remain at the Site in order for DEQ to complete close out of the uplands portion, and make a source control decision for the near-shore areas.

For the Port of Portland and Metro to complete a Source Control Evaluation (SCE), additional investigation is necessary in shoreline areas of the site. DEQ is in general agreement with the proposed sampling locations and analyte lists attached to this letter in draft form as Figure 1 and accompanying Table, both prepared by the Port of Portland for a meeting on December 15, 2009.

In addition, in order to complete final remedy selection for the uplands portion of the site, a Residual Risk Assessment (RRA) should be performed incorporating the following:

1. Results of the June 2008 upland removal action
2. Results of additional 2008 riverbank PCB sampling
3. Results of Lower Willamette Group (LWG) and any other beach sampling at the site
4. Updated plans for site reuse as a green space or parkland
5. Comments and data requests specified in this letter

Project data not yet presented to DEQ may alter the scope (e.g. sampling locations and analyte requirements) of the work requested in this letter. DEQ is aware of a Willamette Cove beach

sampling effort in 2007. DEQ requested submittal of data and findings from this 2007 work in January 2010.

DEQ comments in this letter will be used to guide RRA and SCE work. The results of the RRA will determine if a Focused Feasibility Study (FFS) is needed to address residual contamination in upland soil.

A Sampling and Analysis Plan (SAP) to address Source Control data gaps and concepts stated in this letter should be submitted to DEQ for review in February 2010. The results of additional investigation, as specified in the SAP, will facilitate completion of a SCE and Source Control Decision for the site.

DEQ is requesting additional site characterization work to evaluate potential contaminant sources at Willamette Cove for the following reasons:

- To adequately characterize the site in light of reuse as a public park, greenspace and observed beach and shoreline use.
- The requested efforts will reduce uncertainty about whether the source(s) of Willamette River contamination are from in-water, riverbank, or upland sources at the Willamette Cove site.
- To evaluate if upland sources are present at Willamette Cove that may account for the highly elevated contaminants found in adjacent Willamette River sediment, fish tissue, shellfish tissue, and surface water. This data is requested in response to EPA-designated AOPC #13 (May 2009) adjacent to the entire Willamette Cove site and the EPA-designated PCB Hot Spot (August 2009) in the cove adjacent to the eastern parcel.
- To further evaluate erodible soils adjacent to areas of known in-river contamination.
- To further evaluate erodible soils and beach materials at frequently used beach areas.
- DEQ recognizes that a sunken steel barge adjacent to the Central Parcel and other possible sunken equipment, and previous overwater activities may be active contamination sources to the river system at Willamette Cove. However, evaluation of in-river contaminant sources is beyond the scope of the additional uplands site characterization work.

ADDITIONAL SAMPLING AND DATA REQUESTS

DEQ has identified the following data gaps in the upland data set to be addressed prior to completion of the Residual Risk Assessment and Source Control Evaluation. These data gaps focus on erodible soils and are presented on a contaminant-by-contaminant basis with specific recommendations. DEQ is in general agreement with the proposed sampling locations in draft Figure 1 and analyte lists presented in the draft Table, both prepared by the Port of Portland.

Metals

- Metals analyses required for this work should be performed using Priority 13 Metals (ICP) by EPA Method 6010 B / 7471 A / 7000's. Analysis of mercury is important to adequately understand this site. If the analytical suite from previous shoreline soil samples did not include mercury, or the quantitation limits were elevated, Priority 13 Metals analyses will be required in the current phase of work.

Butyl tins

- No analysis has been performed for butyl tins for the Willamette Cove uplands. A five-point composite of river sediment adjacent to the Central Parcel produced 187 ppb tri butyl tin (TBT) from the area of the former dry docks (DEQ Site Assessment file 12/1998). Additional TBT was found in river sediment adjacent to the Willamette Cove site during LWG Round 2 and 3 data collection.
- Although timing of active ship yard history does not coincide with the use of TBT, upland portions of yard were active for maritime trades during the time of TBT use and may have resulted in release of TBT to uplands soils.
- Data from erodible soil and upland soil samples from the approach road to the dry dock wharf in the central parcel are needed to evaluate possible TBT sources.
- Please propose sampling and analysis of soil samples for butyl tins at points generally indicated on draft Figure 1 and accompanying Table. However, additional sampling coverage will be required in the area of the former wharf road. To provide greater aerial coverage, samples may be collected as composites. The final sampling and analysis plan will be determined in DEQ review and comments on a forthcoming SAP.

Polycyclic Aromatic Hydrocarbons (PAHs)

- In the Baseline Risk Assessment, PAHs in soil of the western parcel and western central parcel have been determined to be a human health risk.
- PAH data in the uplands areas of the site is adequate to characterize residual contaminants and risk, however additional soil sampling for PAHs in riverbank areas is required to evaluate possible PAH contributions to the river.
- Please propose sampling and analysis of soil samples for PAHs at points generally indicated on draft Figure 1 and accompanying Table. To provide greater aerial coverage, samples may be collected as composites. The final sampling and analysis program will be determined in DEQ review and comments on a forthcoming SAP.

Petroleum Observations at Shoreline

- DEQ remains concerned about the presence of petroleum observed at the shoreline in the eastern and eastern central parcels of the Willamette Cove site. This petroleum appears to be present in both the residual and mobile phases during low stage river conditions. DEQ requires further sampling and analysis of shoreline petroleum to determine its nature and extent, and consideration of Source Control Measures required for remediation or management.
- The petroleum product sample collected during shoreline remediation work in 2004 at the former cooperage over-water log debarking machinery did not detect PCB Aroclors,

however, the detection limits for PCBs were elevated (2000 to 4000 ppb for individual Aroclors) and are not useful in comparison against Joint Source Control Strategy Screening Tables. It is noted that 2004 remediation work did not identify an upland source for the petroleum-contaminated sand removed from the shoreline.

- The DEQ, Port of Portland, and Metro have met to discuss how this aspect of the work will proceed. As discussed, it is the expectation of DEQ that the final investigation design will include:
    1. Mapping of affected beach areas to determine the lateral and vertical extents of petroleum contamination using basic field tools. This work will not extend into the river proper. DEQ understands that the petroleum contamination observed on the beaches likely extends below river level and will ultimately be addressed as part of the Portland Harbor in-water remedy.
    2. Collect samples of obviously contaminated beach materials and analyze for contaminants of interest including PCBs, metals, PAHs, pesticides, VOCs, and dioxins/furans in addition to petroleum characterization.
    3. Determine the presence or absence of upland pathways to shoreline seeps using trenches, direct push drilling or hand auguring or other methods useful to evaluate and sample capillary soils and groundwater. Perform confirmation sampling and analysis of capillary zone soils and groundwater for the COIs as found in obviously contaminated beach sediment samples.
    4. DEQ personnel request being in field during performance of this work. This work should be performed during low stage river conditions

Pesticides

- One uplands soil sample detected DDT at 0.057 ppm (SS-38, 0-0.5 feet) along the eastern Willamette Cove property margin. A composite sample of eastern parcel erodible soil is needed to determine if pesticides in uplands soils are affecting the river.
- Organochlorine pesticides are detected at relatively high concentrations (370 ppb) in subsurface horizons of Willamette Cove river sediment. Lindane is listed by the EPA as a secondary Contaminant of Concern in AOPC #13.
- Please propose sampling and analysis of soil samples for pesticides at points generally indicated on draft Figure 1 and accompanying Table. To provide greater aerial coverage, samples may be collected as composites. The final sampling and analysis program will be determined in DEQ review and comments on a forthcoming SAP.

PCBs

- PCBs are elevated in Willamette Cove sediments, fish tissue, shellfish tissue, and surface water adjacent to the site and are of ongoing concern to the DEQ. Existing upland data are insufficient to rule out an upland source to the river due to limited characterization of erodible soils and shoreline petroleum observations. Previous uplands characterization work focused on locations where industrial activities would indicate a propensity for PCB releases in soil. The current work requested focuses on Willamette Cove erodible soils and shoreline petroleum observations adjacent to in-water PCB findings.

- To provide greater better aerial coverage, erodible soil samples may be collected as composites. Please ensure that the analytical lab utilizes appropriately low detection limits to evaluate data appropriate for a JSCS screening evaluation. Laboratory detection limit for comparison to Portland Harbor JSCS SLVs should be less than 50 ppb for soil/sediments and less than 0.05 ppb for water. Additional laboratory cleanup methods may be required to obtain adequately low detection limits from petroleum-rich samples.
- Additional analyses for PCBs should include both total PCBs and individual Aroclors.
- LWG data appears to indicate that an active source of PCB (associated with PAHs) contamination is present in the Willamette River at Willamette Cove. LWG water quality findings at Willamette Cove are among the highest PCB concentrations found within Portland Harbor. In-water and upland sources for these PCBs are both possible. The DEQ will continue to work closely with the Port to determine the source of PCBs to the Willamette River.
- Please propose sampling and analysis of erodible soil and shoreline oil samples for PCBs at points generally indicated on draft Figure 1 and accompanying Table. To provide greater aerial coverage, samples may be collected as composites. The final sampling and analysis program will be determined in DEQ review and comments on the forthcoming SAP.

Dioxins and Furans

- No uplands sampling and analysis has been performed for dioxins or furans at the Willamette Cove site, although dioxin/furans have been detected at elevated concentrations in adjacent river sediments and are often co-located with PCBs. DEQ believes these contaminants may be associated with past site operations. Polychlorinated Dibenzodioxin (PCDD) is listed by the EPA as a secondary Contaminant of Concern in AOPC #13.
- DEQ is requesting characterization of dioxin and furans in selected erodible riverbank soils, and in petroleum contaminated beach soils. A dioxin or furan source at the site may or may not be collocated with areas of previous PCB detections. Petroleum contamination on site beaches should be considered a potentially separate source for PCBs, dioxins, and furans apart from upland or erodable soil areas.
- Please propose sampling and analysis of soil samples for dioxins and furans at points generally indicated on draft Figure 1 and accompanying Table. The final sampling and analysis program will be determined in DEQ review and comments on a forthcoming SAP.
- DEQ anticipates additional discussion with the Port of Portland and Metro on dioxin and furan sampling, expected background concentrations, media to be sampled, and interpretation of results.

GENERAL COMMENTS ON BASELINE RISK ASSESSMENT

In our reanalysis of the BRA, DEQ has determined that parts of the risk assessment should be reconsidered given our updated understanding of future use scenarios, continued upland

investigation, upland remediation, and findings of LWG investigations. The following comments should be addressed in a Residual Risk Assessment.

In both the human and ecological risk assessments, exposure at the site was considered as one unit. However, there is a high degree of uncertainty in the single exposure unit assumption. At Willamette Cove, exposure is more localized and focused on specific areas due to the site's proximity to the river. Beaches at Willamette Cove are used for recreation: fishing, boating, and picnicking, as well as transient camps (cooking fires, large tents, clothing, and lean-to structures). Ecological receptors, such as small mammals and birds, also likely use smaller areas than the entire 27 acre site. Historically, the site was not used as a single unit. Several industrial operations used different portions of the site, leading to varied distribution of multiple contaminants. Assessment of localized areas in the Residual Risk Assessment will help reduce this uncertainty. The Residual Risk Assessment should include:

- Beach Areas: Please include LWG and Port of Portland beach and erodible soils data in the Residual Risk Assessment to determine if intensively used areas pose an unacceptable risk to human or ecological receptors.
- Upland Areas: Assess localized areas for risk to birds and mammals with small home ranges expected to be less than the whole site (e.g. use 3 upland exposure units corresponding to the three parcels). Please include a screening assessment for both birds and mammals in the RRA. DEQ and the Port should work together to agree upon parameters to be used in determining appropriate exposure units.
- Future Use: In the RRA, consider future exposure risk for site for planned use as a greenway or park. Future exposure risk evaluation should include plants and invertebrates.
- Site Cleanup: The RRA should evaluate the effect of 2008 remedial excavation work in the Central Parcel on ecological and human health risk.

If the RRA identifies area(s) of unacceptable risk, a Contaminated Media Management Plan or Focused Feasibility Study may be needed.

Specific Comments on Baseline Risk Assessment

Section 2.5. In the BRA, beach sediments between Ordinary Low Water (OLW) and Ordinary High Water (OHW) were excluded from consideration for human and ecological risk to upland receptors. Assessment of risk from Willamette Cove beaches is deferred to Source Control Evaluation work or the Portland Harbor RI/FS risk assessment process. However, many human and ecological receptors at Willamette Cove use the beaches between the OLW and OHW, making evaluation of the beaches pertinent to evaluation of the uplands receptor pathway in addition to the SCE. Please make risk evaluation of the Willamette Cove beaches a focus of the RRA.

Section 2.7.4. For Ecological Level II screening, the whole site is used as one exposure unit. In the Level III analysis, only the Central Parcel data is analyzed and presented as a worst case

scenario for avian receptors. However, mammals also screened-in for similar COIs. Please present any residual risk for both birds and mammals, including localized risk assessment for the other parcels. PAHs need to be assessed as a group using EPA's Ecological Soil Screening Levels (Eco SSLs) for high and low molecular weight PAHs. For any future Level III analysis, a 100% insectivore diet should be used for the small home range bird in the RRA (e.g. robin).

Section 2.7.5 Screening out contaminants of interest where they occurred in less of 5% of the samples should consider areas of localized exposure as separate exposure units.

Section 3.7, second full paragraph. Text of the BRA does not include evaluation of beach sediments, yet states that the beach/river trespasser scenario has been added as a potential human risk pathway.

The sampling data requested in this letter should provide additional information to further assess the beach/river trespasser risk scenario in the RRA.

Section 3.7.1 states that beach exposure will be evaluated separately. The LWG has performed a limited beach assessment. Please include a beach exposure scenario in the RRA and include any additional beach sampling data.

Section 3.8.3. Soil sampling data from 0 to 15 feet is used to characterize risk for the recreational and trespasser site use scenarios. Limiting use of near-surface soil sample data to (0 to 1 foot) will provide a more accurate evaluation of risk to recreational and trespassing users of the site.

Section 5.4.3.2. DEQ will require sampling beneath Eastern Parcel foundation slabs following their removal.

Appendix C-2a. Aroclors 1248 and 1254 were detected at one location (0 to 0.5 feet) at concentrations greater than the RBC. However, they were not screened in because they were detected in less than 5% of the samples. Aroclor 1260 was screened in. Please include an evaluation of total PCBs, or the sum of all detected Aroclors, in the RRA.

Portland Harbor AOPC #13 And Willamette Cove Hot Spot For PCBS:
The recently designated Area of Potential Concern (AOPC) list for Portland Harbor includes the Willamette River area adjacent to the Willamette Cove site as AOPC 13. Contaminants of concern used to define this AOPC include PCBs, benzo(a)pyrene, dioxin (PCDD), Lindane (pesticide), and aquatic toxicity based on fish bioassay results. Given past uses of the site and sediment findings in AOPC #13, these contaminants will become Contaminants of Concern in the source control evaluation for the site.

The Hot Spot mapped by EPA for Willamette Cove (within AOPC #13) adjacent to the Eastern Parcel is defined based on PCBs (>300 ppb).

DEQ-DC1

Next Steps

- Port of Portland to prepare a Sampling and Analysis Plan to address upland and source control data gaps identified by DEQ in this letter (SAP submittal requested during February 2010).
- Provide an outline of the RRA for DEQ Review, including a proposal for revised exposure units to be used in the analysis (Port of Portland).
- DEQ, the Port of Portland, and Metro will continue to meet as needed to facilitate project progress.

DEQ appreciates the Port of Portland's and Metro's willingness to complete upland sampling and source control evaluation work to address the data gaps identified by DEQ. We look forward to discussing the contents of this letter with you soon. Please do not hesitate to call me with questions.

Sincerely,

Kenneth Thiessen, C.E.G.
Project Manager, NWR Cleanup Section
(503) 229-6015

Attachments: Draft Figure 1 (as presented at December 15, 2009 project meeting)
Draft Table (as presented at December 15, 2009 project meeting)

Cc: Keith Johnson, DEQ NWR
Dan Hafley, DEQ NWR
Jennifer Peterson, DEQ NWR
Jim McKenna, Port of Portland
Katy Weil, Metro
Amanda Spencer, Ash Creek Associates
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Kristine Koch, EPA Region 10
ECSI# 2066

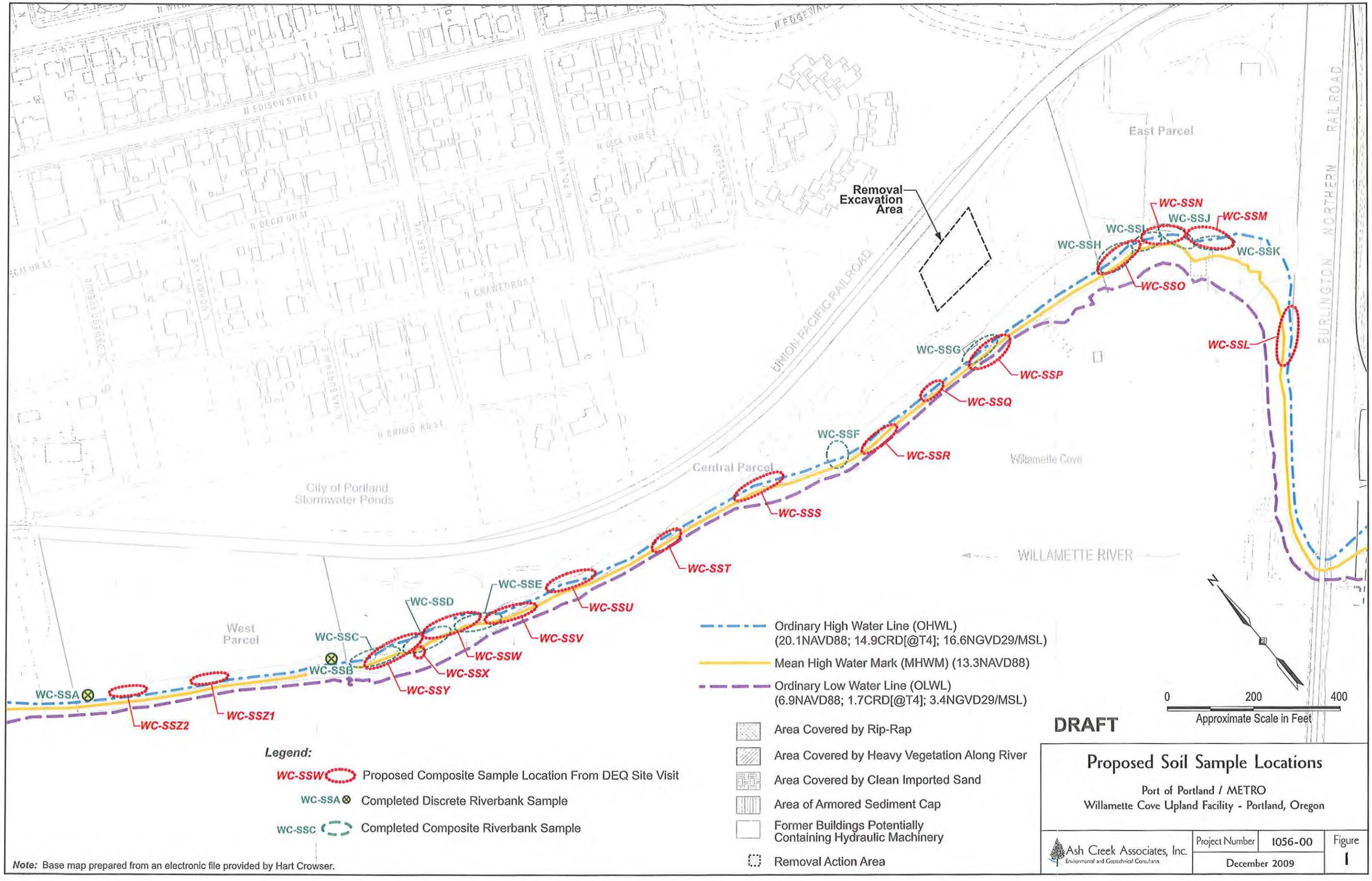
DEQ-DC1

Rationale for Erodible Riverbank Sampling
Willamette Cove Upland Facility

Location See Fig. 1	Analytical	Rationale
WC-SSZ2	PCB, PAHs, MET	• DEQ location A: Not able to observe during site walk; assume there is erodible soil above Mean High (MH) water. • Area used as log farm until early 1970s and then filled; upland soil did not indicate significant presence of PAHs but in-water BAP in nearby sediments. • PCBs not found in upland soil, but grab groundwater sample from RI contained low PCBs and PCBs detected in downstream in-water location.
WC-SSZ1	PCB, PAHs, MET	• DEQ location B: Not able to observe during site walk; assume there is erodible soil above MH water. • Area used as log farm until early 1970s and then filled; upland soil did not indicate significant presence of PAHs but in-water BAP in nearby sediments. • PCBs not found in upland soil, but grab groundwater sample from RI contained low PCBs and PCBs detected in downstream in-water location.
WC-SSY	PAHs[1], PCB	• DEQ location D. • Previous riverbank sampling was conducted at this location and samples analyzed for PAHs due to presence of PAHs in adjacent upland soil. • There is no upland source of PCBs and no overbank activities in this area. • There is no in-water indication of this area being a PCB source. • PCB data to be collected to provide further data on general quality of riverbank soil.
WC-SSX	PCB, PAHs, MET[1]	• DEQ location C (slag). • Slag was previously sampled for metals (mercury nondetect at <0.100 mg/kg). • No indication that this area is a PCB source area to the river.
WC-SSW	PAHs[1], PCB	• DEQ location E. • Previous riverbank sampling was conducted at this location and samples analyzed for PAHs due to presence of PAHs in adjacent upland soil. • There is no upland source of PCBs and no overbank activities in this area. • There is no in-water indication of this area being a PCB source. • PCB data to be collected to provide further data on general quality of riverbank soil.
WC-SSV	PAHs[1], PCB, MET	• GPS location X; bench sampling location below MH. • Provide data to characterize general quality of the bank in this area; no upland or river sources targeting location.
WC-SSU	PAHs, PCB, TBT	• GPS location Y/Y2; erodible soil above MH observed. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SST	PAHs, PCB, TBT, MET	• DEQ location F; bench sampling location below MH. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SSS	TBT, PAH, PCB, MET	• GPS location Z/Z2; erodible soil above MH observed. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SSR	PCB, TBT, PAH, MET	• GPS location G1/G2; bench sampling location below MH. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SSQ	TBT, PAH, PCB, MET	• DEQ location H; bench sampling location below MH. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SSP[3]	TBT, PAH, PCB, MET	• GPS location H2/J2/J ; bench sampling location below MH. • Sample to characterize general quality of riverbank soil; no upland source of COI present.
WC-SSO	PCBs[1]; PAH, MET, DIOX?	• DEQ location P; Erodible riverbank soil above MH. • This part of the riverbank was previously sampled for PCBs. • Additional samples to be collected for PAH and MET analysis. • DEQ requested dioxin sampling in this location. Port/Metro currently evaluating the request.

Location See Fig. 1	Analytical	Rationale
WC-SSN	PCBs[1]; PAH, MET, DIOX?	• Erodible riverbank soil above MH; consistent with DEQ location Q. • This part of the riverbank was previously sampled for PCBs. • Additional samples to be collected for PAH and MET analysis. • DEQ requested dioxin sampling in this location. Port/Metro currently evaluating the request.
WC-SSM	PCBs[1]; PAH, MET[1]	• Erodible riverbank soil above MH; consistent with DEQ location R. • This part of the riverbank was previously sampled for PCBs and metals (mercury nondetect at <0.0703 mg/kg). • Additional samples to be collected for PAH analysis.
WC-SSL[3]	PAH, MET, PCB, PEST	• DEQ location T. • Need to verify erodible soil is on Metro property prior to sampling.

Notes:
1. Performed during previous riverbank sampling program or Remedial Investigation (RI) and will not be analyzed under this sampling effort.
2. All samples proposed to be 4-point composites unless otherwise noted.
3. One or two composite samples will be collected at this location as determined by field observations at the time of sampling.



N EDISON STREET
N DECATUR ST
N CRAWFORD ST
N BRADFORD ST
N EDGEWAY
N POLK AVE
N TYLER AVE
N MOHAWK AVE
N VAN BUREN AVE
N OSWEGO AVENUE
UNION PACIFIC RAILROAD
BURLINGTON NORTHERN RAILROAD
East Parcel
Central Parcel
West Parcel
Willamette Cove
City of Portland Stormwater Ponds
WILLAMETTE RIVER
Removal Excavation Area
WC-SSA
WC-SSB
WC-SSC
WC-SSD
WC-SSE
WC-SSF
WC-SSG
WC-SSH
WC-SSI
WC-SSJ
WC-SSK
WC-SSL
WC-SSM
WC-SSN
WC-SSO
WC-SSP
WC-SSQ
WC-SSR
WC-SSS
WC-SST
WC-SSU
WC-SSV
WC-SSW
WC-SSX
WC-SSY
WC-SSZ1
WC-SSZ2
N
0
200
400
Approximate Scale in Feet
DRAFT
Ordinary High Water Line (OHWL) (20.1NAVD88; 14.9CRD[@T4]; 16.6NGVD29/MSL)
Mean High Water Mark (MHWM) (13.3NAVD88)
Ordinary Low Water Line (OLWL) (6.9NAVD88; 1.7CRD[@T4]; 3.4NGVD29/MSL)
Area Covered by Rip-Rap
Area Covered by Heavy Vegetation Along River
Area Covered by Clean Imported Sand
Area of Armored Sediment Cap
Former Buildings Potentially Containing Hydraulic Machinery
Removal Action Area
Legend:
WC-SSW Proposed Composite Sample Location From DEQ Site Visit
WC-SSA Completed Discrete Riverbank Sample
WC-SSC Completed Composite Riverbank Sample
Note: Base map prepared from an electronic file provided by Hart Crowser.
Proposed Soil Sample Locations
Port of Portland / METRO
Willamette Cove Upland Facility - Portland, Oregon
Ash Creek Associates, Inc.
Environmental and Geotechnical Consultants
Project Number 1056-00
December 2009
Figure 1

Oregon

Dr. John A. Kitzhaber, M.D., Governor

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December 20, 2011

Dwight Leisle, PE
Port of Portland
7300 NE Airport Way
Portland, OR 97218

RE: DEQ Response to Proposed Approach for Willamette Cove Upland Facility Residual Risk Assessment, dated November 28, 2011
ECSI # 2066

Dear Mr. Leisle,

DEQ has reviewed a letter prepared on your behalf by Mark Lewis of Formation Environmental, entitled *Proposed Approach for Willamette Cove Upland Facility Residual Risk Assessment*. DEQ has the following comments on the letter that will require a written response prior to approval.

General comments:

Screening out COIs: DEQ does not recommend screening out contaminants of interest (COIs) by using a frequency of detection analysis for each exposure unit. The upland database for this site consists of a mixture of different analytes at different locations. The lack of consistent characterization is one of the uncertainties outlined in previous risk assessments. Using frequency of detection screening will further complicate this evaluation and instead should be limited to the identification of contaminant detections that are believed to be in error and not supported by other lines of evidence, such as detections in other media (sediment, soil, water, or biota) at the site.

Exposure Units: Please clarify which samples will be included in the residual risk assessment. To facilitate DEQ review of the residual risk assessment, a table should be submitted showing all samples (including sample depth) proposed for inclusion in the different exposure units. The ecological risk assessment should use soil data from 0-3ft. consistent with the previous ecological risk assessment dated June 2006. This same definition of surface soil should be used for the human health risk assessment for recreational, trespasser and construction worker scenarios. This will make the exposure horizons similar between the two risk assessments and incorporates the most relevant surface soil samples, which were only collected to 1.5 to 2 ft. bgs.

Wharf Road Sampling Decision Units: The size and data quality objectives for the decision units should be clear in the document. Averaging of the three incremental samples may be appropriate for some mobile receptors, but it is not appropriate for invertebrates, plants and source control evaluations.

Trespasser Assumptions: The trespasser assumptions used in the BRA may not be appropriate given our current understanding of the site and its use. Please reconsider exposure duration, frequency, etc. for site trespassers.

PCBs in the Risk Assessment: Please present total PCBs as well as dioxin TEQ, PCB TEQ, and total TEQ in the risk assessment, where applicable.

Development of Exposure Point Concentrations: Please provide an approach on how the Port will develop reasonable exposure point concentrations for specific such as the inner cove.

Inner Cove Beach Area: DEQ suggests that the Port use ½ the surface soil /sediment detection limits and the maximum PCB concentration of 208,000 mg/kg (Aroclor 1254, trench 4, 8 foot depth), to represent current and future exposure risk in the inner cove beach area. DEQ believes that PCB contamination at the inner cove beach may represent a complete pathway to the river (PCB findings in: surface water column, surficial cove sediments, biota tissue, storm event water sampling). Risk evaluation of the cove will be an important aspect of the RRA. This risk representation will likely also be required by the Oregon Health Authority when they conduct their public health assessment of the inner cove beach.

Please do not hesitate to call me with questions at (503) 229-6015.

Sincerely,

Kenneth Thiessen
DEQ NW Region

Distribution:

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Keith Johnson, DEQ NWR Manager
Dan Hafley, DEQ NWQ
Mike Poulsen, DEQ NWQ
Jennifer Peterson, DEQ NWR
Katy Weil, Metro
Kristine Koch, EPA
Rich Muza, EPA
ECSI# 2066

February 3, 2012

Ken Thiessen
Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201

RE: Response to DEQ December 20, 2011 Letter, Willamette Cove Upland Facility Residual Risk Assessment

Dear Ken:

This letter was prepared in response to the DEQ letter from Ken Thiessen to Dwight Leisle, Port of Portland on December 20, 2011 regarding the Residual Risk Assessment (RRA) for the Willamette Cove Upland Facility. The responses below were prepared by Formation Environmental on behalf of the Port of Portland. It is our intent that these responses, combined with the attached tables and figures are sufficient for the Port to begin preparation of the RRA, and no other planning documents (e.g., work plans) are needed.

The original DEQ comments from the December 20 letter are presented below, along with the Port's response. In some cases, the responses cite tables and/or figures which are attached. Please review the below and attached, and let us know if you would like further discussion on these issues.

<u>Screening Out COIs</u>

DEQ Comment: *DEQ does not recommend screening out contaminants of interest (COIs) by using a frequency of detection analysis for each exposure unit. The upland database for this site consists of a mixture of different analytes at different locations. The lack of consistent characterization is one of the uncertainties outlined in previous risk assessments. Using frequency of detection screening will further complicate this evaluation and instead should be limited to the identification of contaminant detections that are believed to be in error and not supported by other lines of evidence, such as detections in other media (sediment, soil, water, or biota) at the site.*

Response: To address this recommendation, the Port will provide a new screen which will show results that are independent of detection frequency. The analysis

will also show chemicals that are observed at a detection frequency that is less than five percent, and provide an evaluation of potential impacts on risk assessment conclusions. We believe that this approach is consistent with the specific direction provided in the DEQ December 20, 2011 memorandum, and DEQ risk assessment guidance on HHRA (2010) and ERAs (Level II guidance 2001).

Exposure Units

DEQ Comment: *Please clarify which samples will be included in the residual risk assessment. To facilitate DEQ review of the residual risk assessment, a table should be submitted showing all samples (including sample depth) proposed for inclusion in the different exposure units. The ecological risk assessment should use soil data from 0-3ft. consistent with the previous ecological risk assessment dated June 2006. This same definition of surface soil should be used for the human health risk assessment for recreational, trespasser and construction worker scenarios. This will make the exposure horizons similar between the two risk assessments and incorporates the most relevant surface soil samples, which were only collected to 1.5 to 2 ft. bgs.*

Response: Exposure units were re-defined for the RRA based on comments in the December 20, 2011 and January 15, 2010 DEQ memoranda. Specifically:

1. For both the HHRA and the ERA, the site will be divided into exposure units corresponding to the West, Central and East parcels (Figure 1). Each exposure unit will extend riverward to the Ordinary Line of Low Water (OLLW). Soil samples with depth intervals beginning within three feet of the surface, and extending no deeper than 4 feet below ground surface (bgs) will be included in the data used to calculate exposure point concentrations. Sampling locations with more than one sample within this depth range will be represented by an average of the samples from the location.
2. Beach exposure units were identified in two areas of the site (Figure 1).
3. Wharf Road Decision units were included as discussed (Figure 1) (Also see next comment).
4. Tables 1 through 5, and Figures 2 through 6 list the samples and sampling locations identified for each exposure unit.

As the Port has noted in past communications, this division of the site may not be consistent with DEQ guidance, especially for bird and mammals, the populations of which are unlikely to use the various areas (e.g., the parcels) of the site differently. In addition, extension of the risk assessment to the OLLW is not consistent with the definition of the Upland Facility Boundary in the Voluntary Cleanup Agreement (mean high water).

Wharf Road Samples

DEQ Comment: *The size and data quality objectives for the decision units should be clear in the document. Averaging of the three incremental samples may be appropriate*

for some mobile receptors, but it is not appropriate for invertebrates, plants and source control evaluations.

Response: The Wharf Road decision units were developed based on direction from DEQ during fall 2011, and are shown on Figure 4. The Port assumed DEQ's data quality objectives for these units. As agreed, each unit will be sampled using an Incremental Sampling approach as described in the materials supplied at the November 2, 2011 meeting with DEQ. Data use from the samples will be as follows:

- HHRA – The EPC for the Trespasser, Recreational, and Construction scenarios will be the average of the three (composite) samples.
- ERA – The EPC for birds and mammals will be the average of the three (composite) samples. For plants and invertebrates, individual results for the three units will be used.

<u>Trespasser Assumptions</u>

DEQ Comment*: The trespasser assumptions used in the BRA may not be appropriate given our current understanding of the site and its use. Please reconsider exposure duration, frequency, etc. for site trespassers.*

Response: The previous exposure frequency for this scenario was 2 days per week, year-round (104 days/year), for a two-year exposure duration. There is a wide range of exposure frequency and duration that have been used for similar scenarios in Portland Harbor and the vicinity. For the Arkema site, the Trespasser scenario included a reasonable maximum exposure (RME) with an exposure frequency of 70 days per year, and an exposure duration of 10 years (Integral 2008). For the Portland Harbor Superfund Site (PHSS), the Transient exposure scenario included an exposure duration of 350 days per year, and exposure duration of 2 years (LWG 2011).

The PHSS scenario reflects nearly unrestricted access and continuous occupation by transients for up to two years at any given site. Generally, day-use at Willamette Cove includes bikers, runners, and walkers that pass through on established roads and trails, and do not engage in activities that would result in intimate exposure to site soils (dermal contact, ingestion). Other day-use includes occasional use of beach areas. The Portland Police Department patrols the site once per week. Metro also patrols once per week (usually Sundays), and twice per week during certain times of year. Metro also responds immediately when they receive reports of trespassers. Metro estimates that either Portland Police Department officers or Metro patrol personnel are onsite 6 hours per week. With this level of control, the PHSS Transient exposure parameters do not seem to be applicable to the Willamette Cove Upland Facility. The Port proposes to revise the Trespasser scenario for the upland as follows:

- Exposure Frequency: 208 days per year (approximately 4 days per week)
- Exposure Duration: 2 years

This recommendation is intended to reflect the PHSS approach, but adjusted to reflect site-specific observations for Willamette Cove; specifically the lower exposure frequency that would be associated with the limited control exerted by Metro.

PCBs in the Risk Assessment

DEQ Comment*: Please present total PCBs as well as dioxin TEQ, PCB TEQ, and total TEQ in the risk assessment, where applicable.*

Response: Where available, exposure and risk will be presented for the chemical data requested in the comment. As you know, data on dioxin and PCB congeners are not available for all sampling locations. In fact, we have dioxin/furan TEQ data only for the Central Parcel, from the Wharf Road area.

Where they are available, the risk assessment will present results for TEQs. Note that we do not anticipate attempting to calculate TEQs for Aroclors, because of the potentially large variation in the congener content among samples identified as specific Aroclors.

Development of Exposure Point Concentrations

DEQ Comment: *Please provide an approach on how the Port will develop reasonable exposure point concentrations for specific such as the inner cove.*

Response: Exposure point concentrations will be calculated consistently with DEQ risk assessment guidance for the three parcels. For the smaller beach areas, the samples available may not be adequate for calculating the UCL90. In these cases, the exposure associated with the maximum concentration will be used, but we will also provide discussion on the applicability and representativeness of such maxima to the risk analysis.

Inner Cove Beach Area

DEQ Comment: *DEQ suggests that the Port use 1/2, the surface soil/sediment detection limits and the maximum PCB concentration of 208,000 mg/kg (Aroclor 1254, trench 4, 8 foot depth), to represent current and future exposure risk in the inner cove beach area. DEQ believes that PCB contamination at the inner cove beach may represent a complete pathway to the river (PCB findings in: surface water column, surficial cove sediments, biota tissue, storm event water sampling). Risk evaluation of the cove will be an important aspect of the RRA. This risk representation will likely also be required by the Oregon Health Authority when they conduct their public health assessment of the inner cove beach.*

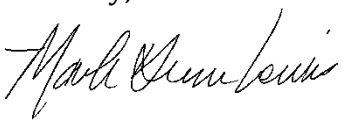
Response: Note that the maximum PCB concentration for subsurface soils is 208,000 ug/Kg (208 mg/Kg).

The comment requests that we use subsurface samples from the 2010 trench sampling to represent surface exposures. The request is based on the assumption that these data are the best representation of surface soils that are available for the inner cove beach, because co-located surface samples are not available from these locations. The comment also suggests that we use ½ of the detection limit for the non-detect samples, along with the detected results to calculate the EPC.

However, data are available from 10 discrete (i.e., not composites) samples that are within the surface soil depth interval suggested by DEQ for this site (i.e., 0-3 feet bgs), and for which PCB data are available. This includes any sample that has all or a portion of the depth interval sampled between 0 and 3 feet bgs, and the deepest part of the interval at 4 feet bgs or shallower. There are also four composite samples that fit the depth criteria, including the sample collected for the PHSS HHRA specifically to assess beach exposure. These samples seem to be more representative of surface exposures than the deep subsurface samples from the 2010 trench sampling. Table 5 shows sampling locations with Aroclor data. The Port recommends using the Table 5 data to represent surface exposure in the Inner Cove exposure unit.

Please provide a response by March 5, 2012 so that we can move forward with Wharf Road sampling and preparation of the RRA. Please don't hesitate to call Dwight Leisle (503.415.6325) or me (303.442.0267) if you have any questions. Thank you.

Sincerely,



Mark C. Dunn Lewis, PhD
Formation Environmental

Encl: Maps and tables

cc:
Mike Poulsen, DEQ NWQ
Jennifer Peterson, DEQ NWQ
Katy Weil, Metro
Dwight Leisle, Port of Portland
Michael Pickering, Ash Creek Associates, Inc.
Amanda Spencer, Ash Creek Associates, Inc.

Tables

Table 1. West Parcel Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan_Homolog	Dioxins_Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-1	B-1/S-2	Discrete	2	4	5/8/2001							X			X				
B-2	B-2/S-1	Discrete	0	2	5/10/2001							X			X				
	B-2/S-2	Discrete	2	4	5/10/2001						X		X	X		X		X	X
B-6	B-6/S-1	Discrete	0	2	5/9/2001										X				
B-7	B-7/S-1	Discrete	0	2	5/9/2001										X				
B-8	B-8/S-2	Discrete	2	4	5/10/2001								X		X				
SS-1	SS-1	Discrete	0	0.5	1/17/2002								X						
SS-2	SS-2	Discrete	0	0.5	1/17/2002								X						
SS-3	SS-3	Discrete	0	0.5	1/17/2002								X						
SSA	WC-SSA	Discrete	0	0.5	12/21/2005	X													
SSB	WC-SSB	Discrete	0	0.5	12/21/2005	X													
TP-16	TP-16/S-1	Discrete	0	0.5	4/17/2001							X			X				
TP-17	TP-17/S-1	Discrete	0	0.5	4/17/2001							X			X				
	TP-17/S-2	Discrete	1.5	2	4/17/2001						X		X	X	X	X		X	X
TP-18	TP-18/S-1	Discrete	0	0.5	4/18/2001										X				
TP-19	TP-19/S-2	Discrete	1.5	2	4/18/2001								X		X				
TP-2	TP-2	Discrete	0	4	10/20/1995								X					X	X
TP-20	TP-20/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-21	TP-21/S-2	Discrete	1.5	2	4/17/2001								X		X	X	X	X	X
TP-3	TP-3	Discrete	0	3.8	10/19/1995	X						X	X					X	X

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Table 2. Central Parcel Exposure Unit Surface Soil Samples- Residual Risk Assessment

			Sample Depth			Analytes Groups Evaluated													
Location	Sample	Sample Type	Miniumum (ft)	Maximum (ft)	Sample Date	Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-12	B-12/S-1	Discrete	0	2	5/14/2001							X							
B-16	B-16/S-1	Discrete	0	2	5/7/2001							X	X		X				
B-17	B-17/S-1	Discrete	0	2	5/8/2001							X							
B-18	B-18/S-1	Discrete	0	2	5/7/2001							X		X					
B-20	B-20/S-2	Discrete	2	4	5/7/2001										X				
HA-6	HA-6/S-1	Discrete	0	0.5	5/18/2001	X							X		X	X	X	X	X
	HA-6/S-3	Discrete	1	2	5/18/2001										X				
SS-10	SS-10	Discrete	0	0.5	1/17/2002								X		X				
SS-11	SS-11	Discrete	0	0.5	1/17/2002								X						
SS-12	SS-12	Discrete	0	0.5	1/17/2002							X							
SS-13	SS-13	Discrete	0	0.5	1/17/2002							X	X						
SS-14	SS-14	Discrete	0	0.5	1/17/2002							X	X						
SS-15	SS-15	Discrete	0	0.5	1/17/2002							X	X						
SS-16	SS-16	Discrete	0	0.5	1/17/2002								X						
SS-17	SS-17	Discrete	0	0.5	1/17/2002							X	X						
SS-18	SS-18	Discrete	0	0.5	1/17/2002							X	X						
SS-19	SS-19	Discrete	0	0.5	1/17/2002							X							
SS-21	SS-21	Discrete	0	0.5	1/18/2002	X													
SS-22	SS-22	Discrete	0	0.5	1/18/2002	X													
SS-23	SS-23	Discrete	0	0.5	1/17/2002								X						
SS-24	SS-24	Discrete	0	0.5	1/18/2002							X							
SS-25	SS-25	Discrete	0	0.5	1/18/2002	X													
SS-26	SS-26	Discrete	0	0.5	1/18/2002							X							
SS-27	SS-27	Discrete	0	0.5	1/18/2002							X							
SS-28	SS-28	Discrete	0	0.5	1/17/2002								X						
SS-29	SS-29	Discrete	0	0.5	1/18/2002							X							
SS-30	SS-30	Discrete	0	0.5	1/18/2002							X							
SS-31	SS-31	Discrete	0	0.5	1/18/2002							X							
SS-4	SS-4	Discrete	0	0.5	1/17/2002								X						
SS-8	SS-8	Discrete	0	0.5	1/17/2002								X		X				
SS-9	SS-9	Discrete	0	0.5	1/17/2002								X		X				
SSC	WC-SSC	Composite	0	0.5	12/21/2005								X						
SSF	WC-SSF	Composite	0	0.5	12/21/2005	X													
SSG	WC-SSG	Composite	0	0.5	12/21/2005	X													
TP-10	TP-10	Discrete	0	2.8	10/19/1995							X							
TP-22	TP-22/S-1	Discrete	0	0.5	4/17/2001	X						X	X		X	X	X	X	X
TP-23	TP-23/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-24	TP-24/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-25	TP-25/S-1	Discrete	0	0.5	4/17/2001							X	X		X				
	TP-25/S-2	Discrete	1.5	2	4/17/2001							X							
TP-26	TP-26/S-1	Discrete	0	0.5	4/17/2001							X			X				
	TP-26/S-2	Discrete	1.5	2	4/17/2001								X					X	X
TP-27	TP-27/S-1	Discrete	0	0.5	4/17/2001							X	X	X	X				
	TP-27/S-2	Discrete	1.5	2	4/17/2001										X				
TP-28	TP-28/S-1	Discrete	0	0.5	4/17/2001										X				
TP-29	TP-29/S-1	Discrete	0	0.5	4/18/2001	X						X	X	X	X				
TP-31	TP-31/S-1	Discrete	0	0.5	4/16/2001	X													
	TP-31/S-2	Discrete	1.5	2	4/16/2001							X	X					X	X
TP-33	TP-33/S-1	Discrete	0	0.5	4/16/2001							X	X		X				
TP-34	TP-34/S-1	Discrete	0	0.5	4/16/2001							X	X		X				
	TP-34/S-2	Discrete	1.5	2	4/16/2001							X			X				
TP-6	TP-6	Discrete	0	3	10/19/1995							X							
TP-7	TP-7	Discrete	0	0.5	10/19/1995	X						X							
TP-8	TP-8	Discrete	0	4	10/19/1995							X							
WCP-1	WCP-1 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-1 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-2	WCP-2 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-2 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-3	WCP-3 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-3 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-4	WCP-4 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-4 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-5	WCP-5 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-5 (1.5)	Discrete	1	1.5	10/30/2007							X							

Table 2. Central Parcel Exposure Unit Surface Soil Samples- Residual Risk Assessment

			Sample Depth			Analytes Groups Evaluated													
Location	Sample	Sample Type	Miniumum (ft)	Maximum (ft)	Sample Date	Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
WCP-6	WCP-6 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-6 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-7	WCP-7 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-7 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-8	WCP-8 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-8 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-9	WCP-9 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-9 (1.5)	Discrete	1	1.5	10/30/2007							X							
SSH-D	WC-SSH-D	Discrete	0	0.5	12/27/2007	X													
SSH-E	WC-SSH-E	Discrete	0	0.5	12/27/2007	X													
SSH-F	WC-SSH-F	Discrete	0	0.5	12/27/2007	X													
WC-SSP (Comp)	WC-SSP (Comp)-1	Composite	0	0.5	10/4/2010	X						X	X						
	WC-SSP (Comp)-2	Composite	2	2.5	10/4/2010							X	X						
WC-SSP-1	WC-SSP-1-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SSP-1-2	Discrete	2	2.5	10/4/2010							X	X						
WC-SSP-3	WC-SSP-3-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SSP-3-2	Discrete	2	2.5	10/4/2010							X	X						
WC-SSQ	WC-SSQ(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSR	WC-SSR(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSS	WC-SSS(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSS-1a	WC-SSS-1a	Discrete	0	0.5	10/1/2010							X							
WC-SSS-1b	WC-SSS-1b	Discrete	0	0.5	10/1/2010							X							
WC-SSS-2a	WC-SSS-2a	Discrete	0	0.5	10/1/2010							X							
WC-SSS-2b	WC-SSS-2b	Discrete	0	0.5	10/1/2010							X							
WC-SST (Comp)	WC-SST(Comp)-1	Composite	0	0.5	10/4/2010	X						X	X						
	WC-SST-(Comp)-2	Composite	1.5	2	10/4/2010							X	X						
WC-SST-1	WC-SST-1-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SST-1-2	Discrete	1.5	2	10/4/2010							X							
WC-SST-2	WC-SST-2-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SST-2-2	Discrete	1.5	2	10/4/2010							X							
WC-SSU	WC-SSU(Composite)	Composite	0	0.5	10/1/2010	X							X						
WC-SSW	WC-SSW(Composite)	Composite	0	0.5	10/4/2010	X													
WC-SSY	WC-SSY(Composite)	Composite	0	0.5	10/4/2010	X													
Wharf Road Area																			
DL-1	DL-1	Discrete	1	1.5	9/17/2007							X	X		X				
DL-2	DL-2	Discrete	1	1.5	9/17/2007							X	X		X				
DL-3	DL-3	Discrete	1	1.5	9/17/2007							X	X		X				
WC-1	WC-1 Surface	Discrete	0.3	0.8	10/1/2010			X	X			X							
WC-1/2/3	WC-1/2/3	Composite	0.25	0.8	10/1/2010	X		X	X			X	X		X				
WC-2	WC-2 Surface	Discrete	0.25	0.75	10/1/2010			X	X			X							
WC-3	WC-3 Surface	Discrete	0.25	0.75	10/1/2010			X	X			X							
Wharf Beach -1	Wharf Beach -1	Discrete	1	1.5	9/27/2010	X		X	X			X	X		X			X	X

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Soil samples from areas excavated during the 2008 upland removal action are not included

See also: samples listed for W. Central Parcel Beach Exposure Area.

Table 3. East Parcel Exposure Unit Surface Soil Samples - Residual Risk Assessment

			Sample Depth			Analytes Groups Evaluated													
Location	Sample	Sample Type	Minimum (ft)	Maximum (ft)	Sample Date	Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-21	B-21/S-1	Discrete	0	4	5/7/2001						X		X	X	X	X		X	X
B-22	B-22/S-1	Discrete	0	2	5/15/2001										X				
B-23	B-23/S-1	Discrete	0	2	5/15/2001							X							
B-24	B-24/S-1	Discrete	0	4	5/17/2001										X				
B-25	B-25/S-2	Discrete	2	4	5/7/2001										X				
B-26	B-26/S-1	Discrete	0	2	5/11/2001								X	X	X				
B-27	B-27/S-1	Discrete	0	2	5/11/2001							X		X					
	B-27/S-2	Discrete	2	4	5/11/2001								X					X	X
B-28	B-28/S-1	Discrete	0.5	1	5/17/2001								X		X				
B-29	B-29/S-1	Discrete	0	4	5/17/2001										X				
B-30	B-30/S-1	Discrete	0	4	5/17/2001										X				
SR3	SR3	Discrete	0	0.2	10/4/1991		X					X	X			X		X	
SR4	SR4	Discrete	0	0.2	10/4/1991		X					X	X			X		X	
SS-32	SS-32	Discrete	0	0.5	1/17/2002								X						
SS-36	SS-36	Discrete	0	0.5	1/18/2002									X					
SS-37	SS-37	Discrete	0	0.5	1/18/2002									X					
SS-38	SS-38	Discrete	0	0.5	1/18/2002									X					
SSH	WC-SSH	Composite	0	0.5	12/21/2005	X													
SSH-1	WC-SSH-1	Discrete	0	0.5	12/21/2005	X													
SSH-2	WC-SSH-2	Discrete	0	0.5	12/21/2005	X													
SSH-G	WC-SSH-G	Discrete	0	0.5	12/27/2007	X													
SSH-H	WC-SSH-H	Discrete	0	0.5	12/27/2007	X													
SSH-SHS2	WC-SSH-SHS2	Discrete	2.5	3	4/21/2008	X													
SSK	WC-SSK	Composite	0	0.5	12/21/2005	X						X							
TP-11	TP-11	Discrete	0	3	10/19/1995								X					X	X
TP-15	TP-15	Discrete	0	4	10/19/1995											X			
TP-35	TP-35/S-1	Discrete	0	0.5	4/16/2001								X		X				
TP-36	TP-36/S-1	Discrete	0	0.5	4/16/2001						X	X			X	X			
TP-37	TP-37/S-1	Discrete	0	0.5	4/16/2001	X							X		X				
TP-38	TP-38/S-1	Discrete	0	0.5	4/16/2001						X					X			
	TP-38/S-2	Discrete	1.5	2	4/16/2001	X							X		X	X	X	X	X
TP-39	TP-39/S-2	Discrete	1.5	2	4/16/2001	X					X		X	X	X	X			
TP-40	TP-40/S-1	Discrete	0	0.5	4/16/2001						X				X	X			
WC-SSN	WC-SSN Composite	Composite	0	0.5	9/30/2010							X	X						
WC-SSO	WC-SSO Composite	Composite	0	0.5	9/30/2010							X	X						
WC-SSO-1	WC-SSO-1	Discrete	0	0.5	9/30/2010							X							
WC-SSO-2	WC-SSO-2	Discrete	0	0.5	9/30/2010							X							
WC-SSO-3	WC-SSO-3	Discrete	0	0.5	9/30/2010							X							
WC-SSO-4	WC-SSO-4	Discrete	0	0.5	9/30/2010							X							

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

See also: samples listed for East Parcel Inner Cove Beach Exposure Area.

Table 4. West Central Parcel Beach Exposure Unit Surface Soil Samples - Residual Risk Assessment

			Sample Depth			Analytes Groups Evaluated													
Location	**Sample**	**Sample Type**	**Minimum (ft)**	**Maximum (ft)**	**Sample Date**	**Aroclors**	**Conventionals**	**Dioxin_Furan _Homolog**	**Dioxins_ Furans**	**Grainsize**	**Herbicides**	**Metals**	**PAHs**	**Pesticides**	**Petroleum**	**Phenols**	**Phthalates**	**SVOCs**	**VOCs**
HA-5	HA-5/S-1	Discrete	0	0.5	4/18/2001							X			X				
SS-5	SS-5	Discrete	0	0.5	1/17/2002							X							
SS-6	SS-6	Discrete	0	0.5	1/17/2002							X							
SS-7	SS-7	Discrete	0	0.5	1/17/2002							X							
SSD	WC-SSD	Composite	0	0.5	12/21/2005								X						
SSE	WC-SSE	Composite	0	0.5	12/21/2005								X						
SSE-1	WC-SSE-1	Discrete	0	0.5	12/21/2005								X						
SSE-2	WC-SSE-2	Discrete	0	0.5	12/21/2005								X						
SSE-3	WC-SSE-3	Discrete	0	0.5	12/21/2005								X						
SSE-4	WC-SSE-4	Discrete	0	0.5	12/21/2005								X						
WC-SSV-1	WC-SSV-1-1	Discrete	0	0.5	10/4/2010	X						X							
	WC-SSV-1-2	Discrete	1.5	2	10/4/2010							X							
WC-SSX	WC-SSX(Composite)	Composite	0	0.5	10/4/2010	X							X						

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

W. Central Beach EU is within the Central Parcel

Table 5. Inner Cove Beach Exposure Unit Surface Soil Samples - Residual Risk Assessment

		Sample Depth			Analytes Groups Evaluated														
Location	**Sample**	**Sample Type**	**Minimum (ft0**	**Maximum (ft)**	**Sample Date**	**Aroclors**	**Conventionals**	**Dioxin_Furan _Homolog**	**Dioxins_ Furans**	**Grainsize**	**Herbicides**	**Metals**	**PAHs**	**Pesticides**	**Petroleum**	**Phenols**	**Phthalates**	**SVOCs**	**VOCs**
06B022	LWG0106B022SDS015C00	Composite	0	0.5	10/10/2002	X	X			X	X	X	X	X		X	X	X	
Beach Cove-1	Beach Cove-1	Discrete	1	1.5	9/27/2010	X						X	X		X			X	X
Beach Cove-2	Beach Cove-2	Discrete	1	1.5	9/27/2010	X						X	X		X			X	X
EX-1	EX-1	Discrete	3	3	10/28/2004										X				
EX-2	EX-2	Discrete	3	3	10/28/2004										X				
EX-4	EX-4	Discrete	3	3	10/28/2004										X				
EX-5	EX-5	Discrete	3	3	10/28/2004										X				
HA-10	HA-10/S-2	Discrete	0.5	1	5/17/2001								X		X				
HA-11	HA-11/S-1	Discrete	0	0.5	5/17/2001										X				
HA-7	HA-7/S-2	Discrete	0.5	1	5/17/2001							X			X				
HA-8	HA-8/S-1	Discrete	0	0.5	5/18/2001								X						
	HA-8/S-4	Discrete	2	3	5/18/2001										X				
HA-9	HA-9/S-1	Discrete	0	0.5	5/18/2001										X				
SS-33	SS-33	Discrete	0	0.5	1/18/2002							X							
SS-34	SS-34	Discrete	0	0.5	1/18/2002							X							
SS-35	SS-35	Discrete	0	0.5	1/18/2002							X							
SSH-3	WC-SSH-3	Discrete	0	0.5	12/21/2005	X													
SSH-4	WC-SSH-4	Discrete	0	0.5	12/21/2005	X													
SSH-A	WC-SSH-A	Discrete	0	0.5	12/27/2007	X													
SSH-B	WC-SSH-B	Discrete	0	0.5	12/27/2007	X													
SSH-C	WC-SSH-C	Discrete	0	0.5	12/27/2007	X													
SSH-SHS1	WC-SSH-SHS1	Discrete	2.5	3	4/21/2008	X													
SSI	WC-SSI	Composite	0	0.5	12/21/2005	X													
SSJ	WC-SSJ	Composite	0	0.5	12/21/2005	X													
TP-41	TP-41/S-1	Discrete	3	3	10/28/2004								X		X				
TP-42	TP-42/S-1	Discrete	3	3	10/28/2004								X		X				
TP-43	TP-43	Discrete	3	3	10/28/2004	X						X	X						
	TP-43/S-1	Discrete	3	3	10/28/2004								X		X				
WC-SSL-1	WC-SSL-1 Composite	Composite	0	0.5	9/28/2010	X						X	X						
WC-SSL-1-1	WC-SSL-1-1	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-2	WC-SSL-1-2	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-3	WC-SSL-1-3	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-4	WC-SSL-1-4	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-2	WC-SSL-2 Composite	Composite	0	0.5	9/30/2010	X						X	X						
WC-SSL-2-1	WC-SSL-2-1	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-2	WC-SSL-2-2	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-3	WC-SSL-2-3	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-4	WC-SSL-2-4	Discrete	0	0.5	9/30/2010							X							
WC-SSM	WC-SSM Composite	Composite	0	0.5	9/30/2010								X						

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Inner Cover Beach EU is within the Eastern Parcel

Figures

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG1_WCRRA_SITE.MXD

Legend

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

- Proposed Incremental Sample Decision Units
- McCormick and Baxter Cap
- Upland Removal Excavation Area
- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Map notes:
- Refer to memo for description of exposure units.
- Upland Facility Boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL=Ordinary Low Water Line; MHWM=Mean High Water Mark
- Aerial photography: 2009

N

0 200 400 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 1

EXPOSURE UNITS

DATE: FEB 02, 2012

BY: RCR | FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG2_WCRRA_WESTP.MXD

Legend

- Surface soil samples - West Parcel EU
- Discrete samples indicated by:
- Composite samples indicated by:
- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 50 100 Feet

WILLAMETTE COVE UPLAND FACILITY
RESIDUAL RISK ASSESSMENT

FIGURE 2

WEST PARCEL SURFACE SOIL SAMPLING LOCATIONS

DATE: FEB 02, 2012
BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG3_WCRRA_CENTPDOWN.MXD

Legend

- Surface soil samples - Central Parcel EU
- Discrete samples indicated by: ♦
- Composite samples indicated by: +
- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 100 200 Feet

WILLAMETTE COVE UPLAND FACILITY
RESIDUAL RISK ASSESSMENT

FIGURE 3

CENTRAL PARCEL (DOWNSTREAM PORTION) SURFACE SOIL SAMPLING LOCATIONS

DATE: FEB 02, 2012
BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG4_WCRRA_CENTPUP.MXD

Legend

- Surface soil samples - Central Parcel EU
- Proposed Incremental Sample Decision Unit
- Upland Removal Excavation Area
- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Discrete samples indicated by:

Composite samples indicated by:

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 50 100 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 4

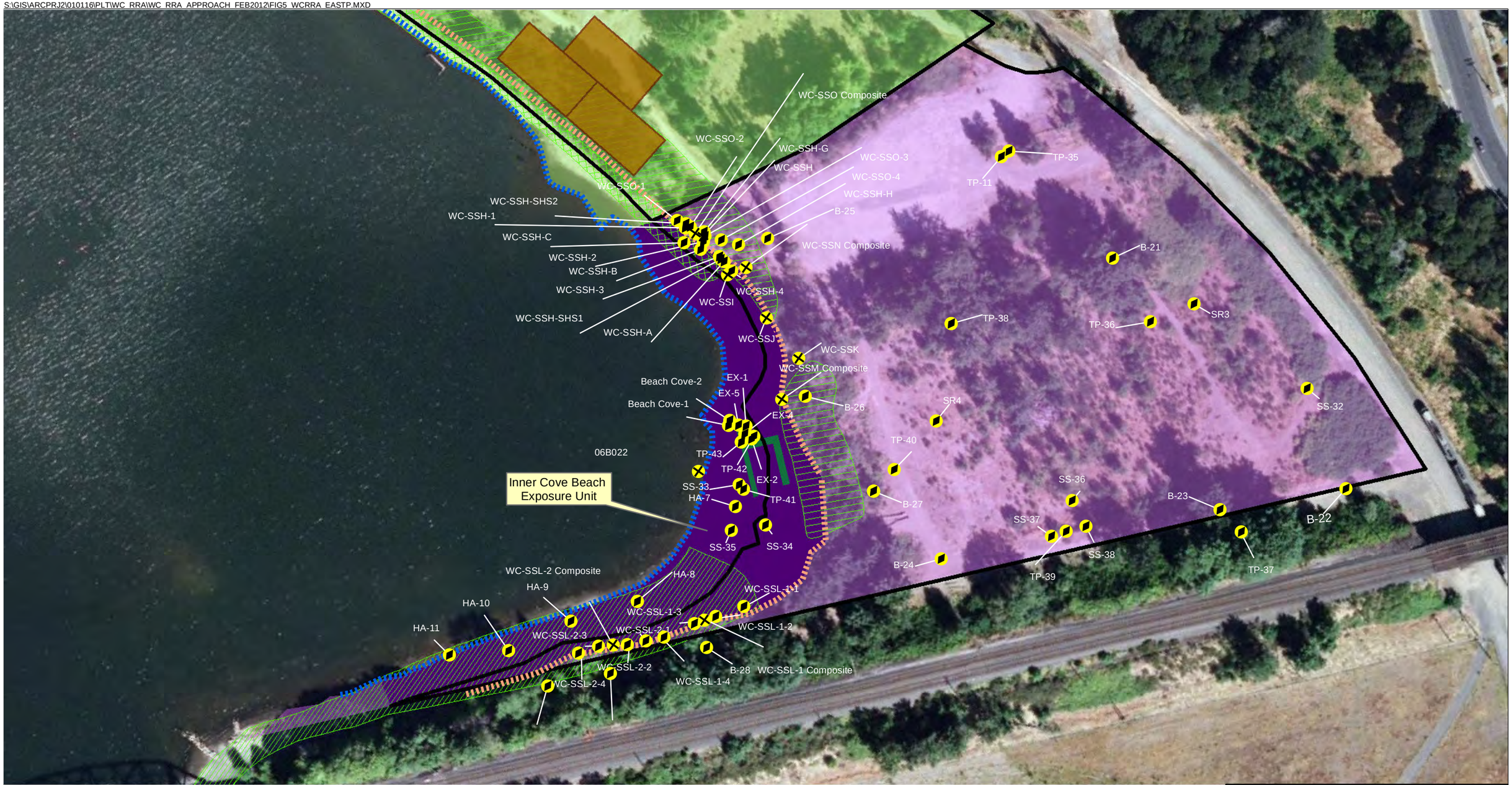
CENTRAL PARCEL (UPSTREAM PORTION) SURFACE SOIL SAMPLING LOCATIONS

DATE: FEB 02, 2012

BY: RCR | FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG5_WCRRA_EASTP.MXD



Legend

- Surface soil samples - East Parcel EU
- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)
- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Discrete samples indicated by: ♦

Composite samples indicated by: +

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 100 200 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 5

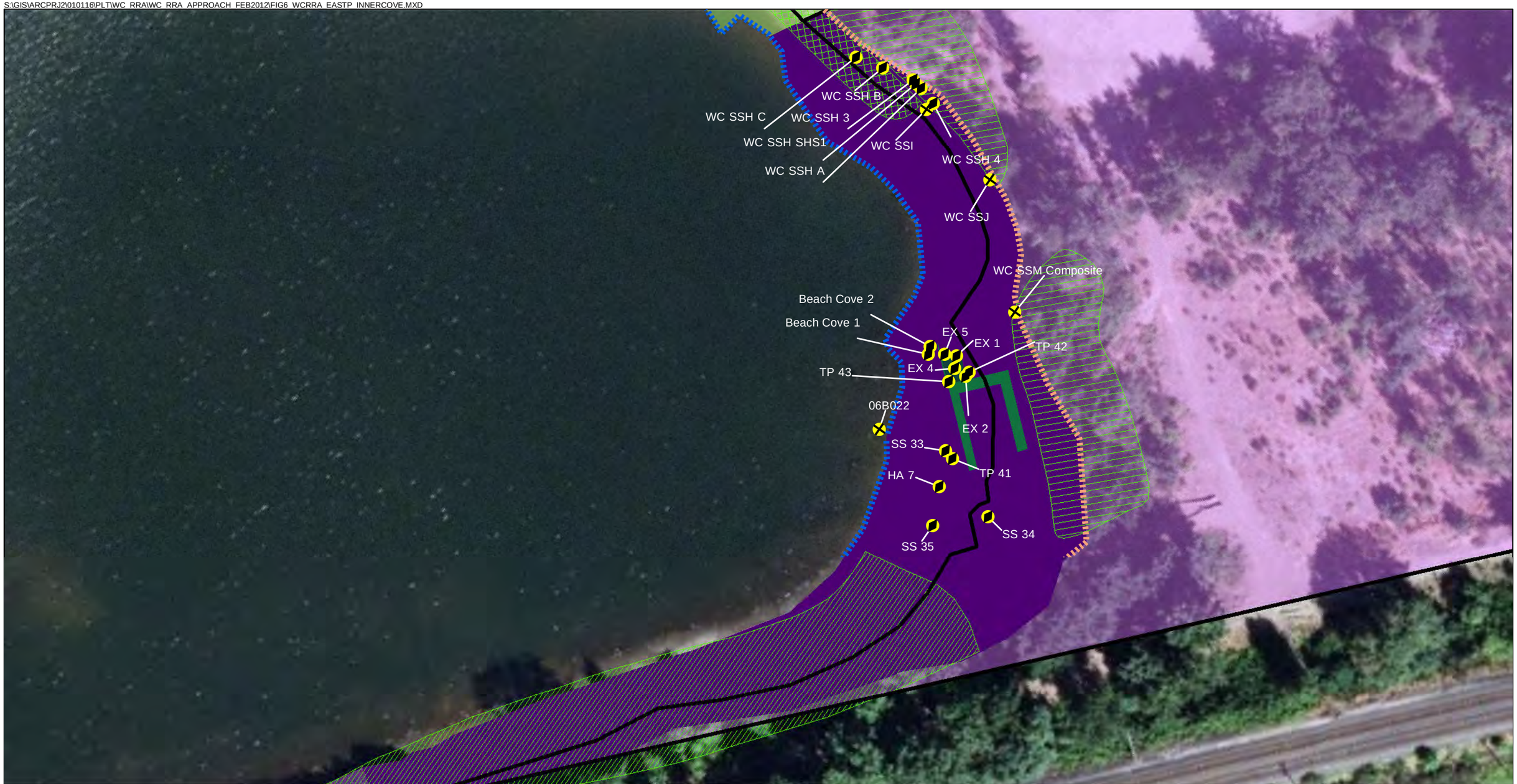
EAST PARCEL SURFACE SOIL SAMPLING LOCATIONS

DATE: FEB 01, 2012

BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_FEB2012\FIG6_WCRRA_EASTP_INNERCOVE.MXD



Legend

- Surface soil samples - Inner Cove Beach EU

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Discrete samples indicated by: ♦

Composite samples indicated by: +

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Exposure Unit
- Central Parcel Exposure Unit
- East Parcel Exposure Unit
- W. Central Parcel Beach Exposure Unit
- Inner Cove Beach Exposure Unit

- OHWL (20.1NAVD88)
- OLWL (6.9NAVD88)

Riverbank Conditions

- Area Covered by Rip-Rap
- Area Covered by Heavy Vegetation Along River
- Area of Armored Sediment Cap

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 25 50 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 6

EAST PARCEL (INNER COVE) SURFACE SOIL SAMPLING LOCATIONS

DATE: FEB 02, 2012

BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

DEQ-DC1

Oregon

Dr. John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, # 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-5471
TTY 711

March 16, 2012

Dwight Leisle, PE
Port of Portland
7300 NE Airport Way
Portland, OR 97218

RE: Resubmission and corrected response letter:
Comments on February 3, 2012 letter entitled: *Response to DEQ December 20, 2011 Letter Willamette Cove Upland Facility Residual Risk Assessment*, ECSI # 2066

Dear Mr. Leisle,
Please replace this DEQ letter with the correct date: March 2, 2012 and discard the previous letter with the incorrect date: February 2, 2012.

We discussed the content of the letter today, and in response to our conversation, I have made an additional change to this letter. The following text has been added to the *Wharf Road Samples Section* on page 2: "DEQ acknowledges that the river-slope portion of the incremental sampling decision units is partially armored with rocks. Sampling may be less than optimal in this area."

Please do not hesitate to call me with questions at (503) 229-6015.

Sincerely,

Kenneth Thiessen
NW Region Cleanup

Cc: Mark Lewis, Formation Environmental
Michael Pickering, Ash Creek Associates, Inc.
Keith Johnson, DEQ NWR Manager
Dan Hafley, DEQ NWR
Mike Poulsen, DEQ NWR
Jennifer Peterson, DEQ NWR
Katy Weil, Metro
Kristine Koch, EPA
Rich Muza, EPA
ECSI# 2066

Oregon

Dr. John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, # 400
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(503) 229-5263
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TTY 711

March 2, 2012

Dwight Leisle, PE
Port of Portland
7300 NE Airport Way
Portland, OR 97218

RE: Comments on February 3, 2012 letter entitled: *Response to DEQ December 20, 2011 Letter Willamette Cove Upland Facility Residual Risk Assessment*, ECSI # 2066

Dear Mr. Leisle,

DEQ has reviewed the February 3, 2012 letter prepared on your behalf by Mark Lewis of Formation Environmental, entitled *Response to DEQ December 20, 2011 Letter Willamette Cove Upland Facility Residual Risk Assessment*. DEQ has the following comments on the letter that will require a written response prior to approval.

General Comments:

Screening Out COIs: The main body of the risk assessment should be conducted without removing contaminants of interest (COIs) on the basis of frequency of detection. Frequency of detection screening should be limited to contaminant detections that are believed to be erroneous and not supported by other lines of evidence. Discussion of the results or risk estimates derived from infrequently detected chemicals can be discussed in the uncertainty section of the residual risk assessment.

Inner Cove Beach Area: The Oregon Environmental Health Assessment Program, Office of Environmental Public Health, is preparing a Health Consultation for contaminants found at Willamette Cove. DEQ anticipates reviewing this document in March 2012.

The inner cove beach is indicated as an area of unacceptable risk in the Lower Willamette Group (LWG) baseline ecological risk assessment report to shorebirds for Total PCBs (HQ of 20) and copper. Please acknowledge this finding in the Residual Risk Assessment.

Specific Comments:

Exposure Units: Upland samples collected at different soil depth intervals should not be averaged at a given sample location, but treated as independent data points for developing exposure point concentrations.

The current proposal for inclusion of samples in the upland exposure unit is inconsistent across the site. For example, in the wharf road area beach samples are included in the upland exposure unit, while in the inner cove upland samples are included in the beach exposure unit. The mean high water line should be used as the boundary to define upland exposure units. Any sample generally at or above mean high water should be included in the upland exposure unit. These samples are representative of upland soil and it is reasonable that human and ecological receptors (using upland exposure scenarios) would be exposed to these soils. Please modify the tables as follows:

Table 2, Central Parcel Exposure Unit Surface Soil Samples: Samples WC-SSV-1-1, WC-SSV-1-2, WC-SSX Comp., WC-SSD, WC-SSE-1, WC-SSE-2, WC-SSE-3, WC-SSE-4, WC-SSE Comp., SS-6 and SS-5 should be added to the upland exposure unit. Wharf road beach samples DL-1, DL-2, DL-3 and Wharf Beach-1 should be removed from the upland exposure unit (Table 2) and added to Table 5 (Inner Cove Beach Exposure Unit). The beach areas are feature-specific and do not necessarily fall within upland exposure units.

Table 3, East Parcel Exposure Unit Surface Soil Samples: Samples WC-SSH-3, WC-SSH-4, WC-SSH-A, WC-SSH-B, WC-SSH-C, WC-SSH-SHS1, WC-SSI, WC-SSJ, WC-SSL-1 Comp, WC-SSL-1-1, WC-SSL-1-2, WC-SSL-1-3, WC-SSL-1-4, WC-SSL-2 Comp, WC-SSL-2-1, WC-SSL-2-2, WC-SSL-2-3, WC-SSL-2-4 and WC-SSM Comp should be added to the upland exposure unit.

Table 4, West Central Parcel Beach Exposure Unit Surface Soil Samples: Please add LWG samples 6B026 and B14 (LWG 2011) to the beach exposure unit.

Table 5, Inner Cove Beach Exposure Area: HA-8, HA-9, HA-10 and HA-11 should be removed entirely since they are under the McCormick and Baxter Sediment Cap. Beach sample B15 (LWG 2011) should be added to the inner cove beach exposure unit. Where only dioxin-like PCBs were analyzed, please present associated PCB TEQ data in the risk assessment compared to 2,3,7,8-TCDD risk levels. Total TEQ (sum of dioxin TEQ and PCB TEQ) should also be presented where both analyses are available.

Wharf Road Samples: The proposed incremental sample decision units should be shifted such that the riverward side of the units is at the mean high water line. DEQ acknowledges that the river-slope portion of the incremental sampling decision units is partially armored with rocks. Sampling may be less than optimal in this area.

Trespasser Assumptions: We concur with your suggestion to revise the transient trespasser exposure frequency assumption from 104 days/year to 208 days/year. However, we do not agree that site use by nearby local residents (including cyclists, runners, dog walkers, and beach users) results in minimal exposure. Also, weekly patrols are unlikely to deter regular site use by local residents. In addition to the transient scenario, include a scenario for regular recreational (trespasser) use. The exposure frequency of 104 days/year is adequate. For regular recreational

DEQ-DC1

users, use the default residential exposure duration assumption of 30 years (6 years as a child, 24 years as an adult).

Inner Cove Beach Area: In order to address the uncertainty of exposure point concentrations in the inner cover, exposure point concentrations should be derived in two ways and the risk ranges presented in the risk assessment:

1. Using Table 5 with the above comments.
2. The use of Table 5 data in conjunction with the trench samples representing 0 to 4 and 8 foot depths. Since surface data were not collected in these trench locations, the deeper data should be used to fill this data gap.

Please do not hesitate to call me with questions at (503) 229-6015.

Sincerely,

Kenneth Thiessen
NW Region Cleanup

Cc: Mark Lewis, Formation Environmental
Michael Pickering, Ash Creek Associates, Inc.
Keith Johnson, DEQ NWR Manager
Dan Hafley, DEQ NWR
Mike Poulsen, DEQ NWR
Jennifer Peterson, DEQ NWR
Katy Weil, Metro
Kristine Koch, EPA
Rich Muza, EPA
ECSI# 2066

DEQ-DC1

June 20, 2012

Ken Thiessen
Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201

RE: Response to DEQ March 2, 2012 Letter, Willamette Cove Upland Facility Residual Risk Assessment

Dear Ken:

This letter was prepared in response to your letter to Dwight Leisle, Port of Portland on March 2, 2012 regarding the Residual Risk Assessment (RRA) for the Willamette Cove Upland Facility. The original DEQ comments from the March 2 letter are presented below, along with the Port's response, which includes subsequent discussions with DEQ. The responses below were prepared by Formation Environmental on behalf of the Port of Portland. We assume that these responses, combined with the attached tables and figures are sufficient for the Port to begin preparation of the RRA, and no other planning documents (e.g., work plans) are needed. The Port will also proceed with submittal of a revised work plan for sampling the former Wharf Road, as agreed to in the responses below.

Screening Out COIs

1. DEQ Comment: *The main body of the risk assessment should be conducted without removing contaminants of interest (COIs) on the basis of frequency of detection. Frequency of detection screening should be limited to contaminant detections that are believed to be erroneous and not supported by other lines of evidence. Discussion of the results or risk estimates derived from infrequently detected chemicals can be discussed in the uncertainty section of the residual risk assessment.*

Response: The Port will provide a new screen which will show results that are independent of detection frequency and will include the new screen in the main body of the risk assessment document.

Inner Cove Beach Area:

2. DEQ Comment: *The Oregon Environmental Health Assessment Program, Office of Environmental Public Health, is preparing a Health Consultation for contaminants found at Willamette Cove. DEQ anticipates reviewing this document in March 2012.*

Response: The Health Consultation will be reviewed and incorporated as supplemental information for the Residual Risk Assessment.

3. DEQ Comment: *The inner cove beach is indicated as an area of unacceptable risk in the Lower Willamette Group (LWG) baseline ecological risk assessment* [BERA] *report to shorebirds for Total PCBs (HQ of 20) and copper. Please acknowledge this finding in the Residual Risk Assessment.*

Response:
The shorebird receptor will be acknowledged in the RRA. Note however, that the specific results from the Portland Harbor (PH) BERA that DEQ cites in the comment include in-water sediment and invertebrate tissue collected from offshore. Inclusion of these pathways in assessment for the Willamette Cove Upland Facility is inconsistent with previous instructions from DEQ. (*See discussion below on scope of the risk assessments*).

The Port will also cite the results of the PH Remedial Investigation/Feasibility Study (PH RI/FS) for the Human Health Risk Assessment (HHRA) for both beach units. The pathways included in the beach exposure scenario for the PH RI/FS HHRA are more consistent with previous instructions from DEQ for the Willamette Cove Upland Facility.

The Port and Metro acknowledge DEQ's concern that risk analysis be completed for the beach units at the Willamette Cove site, and have tried to be responsive by attempting to address these concerns in proposed changes to the risk assessment. However, assessment of risk for the beaches appears to be outside the scope of the Voluntary Agreement for the Willamette Cove Upland Facility (i.e., they are below the mean high water mark [MHWM]). Both beaches were explicitly addressed in the PH RI/FS. The Port and Metro recognize that further investigation and analysis of risks for the inner cove area below the MHWM may be necessary during the design of the in-water remedy for the Willamette Cove Sediment Management Area. The Port and Metro agree to include these units in the RRA document, but wish to make the distinction between them and the areas explicitly identified in the Voluntary Agreement for the Willamette Cove Upland Facility.

Note: An "in-water" data point is included on Figure 3 and Table 4 and is intended to represent the Central Beach Exposure Unit. This "in-water" location is labeled LW2-B015. Although this point plots "in the water" based on coordinates in the LWG database, this sample is a "Round 2a beach sediment composite" from 2004 and corresponds to the sampling area called "Beach Area B14", which was specifically added to the RRA dataset at the request of DEQ in the letter dated Feb 2, 2012 (See also Comment #5 below.) .

Exposure Units

4. DEQ Comment: *Upland samples collected at different soil depth intervals should not be averaged at a given sample location, but treated as independent data points for developing exposure point concentrations.*

Response: DEQ's request to treat multiple samples from the same location as independent data points is likely an inappropriate statistical procedure since that process would "double-count" data from sampling locations, which invalidates assumptions of independence required as the basis for statistical evaluations such as 90 percent upper-confidence level calculations.

The Port and Metro understand that the DEQ comment comes from the DEQ Human Health Risk Assessment Guidance dated October 2010 (page 14) and that data should be treated in a way that best represents the EPC being evaluated. The Port/Metro proposal is therefore as follows: Data listed as having the same sampling location ID and are from sampling depths that fall within the depth intervals specified in the risk assessment will be treated as one location and averaged for calculating exposure point concentrations (EPCs). For example, if 3 separate samples are available from one location (i.e., have the same location ID), and all three samples are from depths less than 3 feet below ground surface (bgs), the three will be averaged for estimating EPCs. Such averaging would not include samples from the same location, but from depths outside the target interval for the risk assessment (e.g., for this example, deeper than 3 feet bgs). If data are labeled as having separate location IDs, then data will be treated as independent observations.

DEQ has instructed the Port to include the Trench 3/4 and Trench 4B in surface soil results. This sample is from the bottom of a sampling trench that was dug to assess the potential for subsurface transport of contaminants. Since the sample is from 8 feet bgs, it does not represent surface exposures. However, no surface samples are available the area of Trench 4, DEQ wants the location represented in exposure calculations. Samples from Trench 3/4 and Trench 4B will be included in the surface exposure calculations, with uncertainties discussed as appropriate.

5. DEQ Comment: *The current proposal for inclusion of samples in the upland exposure unit is inconsistent across the site. For example, in the wharf road area beach samples are included in the upland exposure unit, while in the inner cove upland samples are included in the beach exposure unit. The mean high water line should be used as the boundary to define upland exposure units. Any sample generally at or above mean high water should be included in the upland exposure unit. These samples are representative of upland soil and it is reasonable that human and ecological receptors (using upland exposure scenarios) would be exposed to these soils. Please modify the tables as follows:*

Table 2, Central Parcel Exposure Unit Surface Soil Samples: Samples WC-SSV-1-1, WC-SSV-1-2, WC-SSX Comp., WC-SSD, WC-SSE-1, WC-SSE-2, WC-SSE-3, WC-SSE-4, WC-SSE Comp., SS-6 and SS-5 should be added to the upland exposure unit. Wharf Road beach samples DL-1, DL-2, DL-3 and Wharf Beach-1 should be removed from the upland exposure unit (Table 2) and added to Table 5 (Inner Cove Beach Exposure Unit). The beach areas are feature-specific and do not necessarily fall within upland exposure units.

Table 3, East Parcel Exposure Unit Surface Soil Samples: Samples WC-SSH-3, WC-SSH-4, WC-SSH-A, WC-SSH-B, WC-SSH-C, WC-SSH-SHSI, WC-SSI, WC-SSJ, WC-SSL-1 Comp., WC-SSL-1-1, WC-SSL-1-2, WC-SSL-1-3, WC-SSL-1-4, WC-SSL-2 Comp., WC-SSL-2-1, WC-SSL-2-2, WC-SSL-2-3, WC-SSL-2-4 and WC-SSM Comp. should be added to the upland exposure unit.

Table 4, West Central Parcel Beach Exposure Unit Surface Soil Samples: Please add LWG samples 6B026 and B14 (LWG 2011) to the beach exposure unit.

Table 5, Inner Cove Beach Exposure Area: HA-8, HA-9, HA-1O and HA-11 should be removed entirely since they are under the McCormick and Baxter Sediment Cap. Beach sample B15 (LWG 2011) should be added to the inner cove beach exposure unit. Where only dioxin-like PCBs were analyzed, please present associated PCB TEQ data in the risk assessment compared to 2,3,7,8-TCDD risk levels. Total TEQ (sum of dioxin TEQ and PCB TEQ) should also be presented where both analyses are available.

Response: The specific changes cited in the DEQ comment above can be accommodated. New data tables and maps, as requested by DEQ, are attached to this response letter. However, for the record, we disagree that the sampling location assignments as presented in the proposal for the RRA were inconsistent. The intent of the Port's initial proposal was to accommodate the DEQ concerns that we cited in the response to Comment #3 above. Despite the apparent inconsistencies with the Voluntary Agreement, the Port attempted to address this concern in two ways. First, to address concerns that the area below the MHWM would be excluded from risk assessment for upland receptors, we proposed to extend the Upland Parcel exposure units to the ordinary line of low water (OLLW). Second, to make sure that

all 'beach' areas were included in the Beach exposure units, we identified sampling locations that appeared to be in sandy beach areas, based on examination of aerial photos. This approach resulted in overlap of the Beach and Upland exposure units in some areas, but allowed us to incorporate all data available from beach areas.

Please note that the "Beach sample B15" referenced by DEQ is a sampling *area* and the corresponding sample, 06B022, was already included in Table 5 (Inner Cove Beach Exposure Area). Additionally, DEQ references "sample B14" which is also a beach sampling *area* in the West Central Parcel Beach Exposure Unit. The corresponding sample for this location is B015 and both this location and location 06B026 were added to Table 4.

[*The following additional comments and requests submitted from DEQ will be made in figures and tables:*

It appears from the figures that some available sampling points on the two sandy beaches and the lower wharf road area have been omitted.

<u>Central Parcel Beach:</u> Sample points SS-5, SS6, SSH-D, WC SSE comp, WCSSE 1through4 and WC-SSX should be retained in the central parcel beach exposure unit (in addition to inclusion in the upland exposure unit).

<u>Inner Cove Beach:</u> Please remove WC-SSM, SSH-B and SSH-C from the beach exposure unit. These samples better represent the East Parcel Upland Exposure Unit. WC SSH-D should be also removed as this sample is represented in the Central Parcel Upland / Beach exposure units.]

<u>Wharf Road Samples</u>

6. DEQ Comment: *The proposed incremental sample decision units should be shifted such that the riverward side of the units is at the mean high water line.*

Response: This shift would result in large portions of the two most riverward sampling units being on the rip-rap covered areas of the riverbank. Collecting surface soil samples in this area will be difficult to impracticable and potentially unsafe (due to the thickness of the rip-rap and the steepness of the slope). In addition, the potential for exposure in such areas seems to be fundamentally different than surface soils in flatter, more accessible areas uphill of the rip-rap. The rip-rap covers the soils and the presence of the rip-rap would reduce or prevent the level of contact assumed in the exposure scenarios. Exclusion of the rip-rapped areas would be consistent with the Interstate Technology Regulatory Council guidance (2012). Therefore, the Port proposes that the riverward edge of the MIS

sampling units be at the upland edge of the rip-rapped slope, and the sampling unit be configured to cover the area of concern for the dioxins.

The lower margin of the decision units will begin at the approximate MHWM. Additional details will be provided in the revised surface sampling letter for the Wharf Road area.

Trespasser Assumptions

7. DEQ Comment*: We concur with your suggestion to revise the transient trespasser exposure frequency assumption from 104 days/year to 208 days/year. However, we do not agree that site use by nearby local residents (including cyclists, runners, dog walkers, and beach users) results in minimal exposure. Also, weekly patrols are unlikely to deter regular site use by local residents. In addition to the transient scenario, include a scenario for regular recreational (trespasser) use. The exposure frequency of 104 days/year is adequate. For regular recreational users, use the default residential exposure duration assumption of 30 years (6 years as a child, 24 years as an adult).*

Response: An exposure scenario will be added to accommodate assessment of Recreational Trespasser with an exposure frequency of 104 days/year, exposure duration of 30 years (6 years as a child, 24 years as an adult).

Inner Cove Beach Area

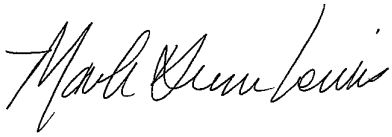
8. DEQ Comment*: In order to address the uncertainty of exposure point concentrations in the inner cove, exposure point concentrations should be derived in two ways and the risk ranges presented in the risk assessment:*

1. Using Table 5 with the above comments.
2. The use of Table 5 data in conjunction with the trench samples representing 0 to 4 and 8 foot depths. Since surface data were not collected in these trench locations, the deeper data should be used to fill this data gap.

Response: The subsurface samples cited in the comment will be included in the RRA for the Inner Cove Beach Exposure unit, as directed. The risk characterization will identify the uncertainty associated with this assumption, as well as other assumptions adopted for the RRA.

We look forward to implementing the RRA once the additional Wharf Road sampling has been completed. We will plan to meet with DEQ following receipt of the new Wharf Road data set prior to preparation of the RRA. Please don't hesitate to contact me (303.447.0267) or Dwight Leisle (503.415.6325) at the Port of Portland if you have any questions. Thank you.

Sincerely,



Mark C. Dunn Lewis, PhD
Formation Environmental

Encl: Maps and tables

cc:
Mike Poulsen, DEQ NWQ
Jennifer Peterson, DEQ NWQ
Katy Weil, Metro
Dwight Leisle, Port of Portland
Michael Pickering, Ash Creek Associates, Inc.
Amanda Spencer, Ash Creek Associates, Inc.

TABLES

Table 1. West Parcel Upland Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-1	B-1/S-2	Discrete	2	4	5/8/2001							X			X				
B-2	B-2/S-1	Discrete	0	2	5/10/2001							X			X				
	B-2/S-2	Discrete	2	4	5/10/2001						X		X	X		X		X	X
B-6	B-6/S-1	Discrete	0	2	5/9/2001										X				
B-7	B-7/S-1	Discrete	0	2	5/9/2001										X				
B-8	B-8/S-2	Discrete	2	4	5/10/2001								X		X				
SS-1	SS-1	Discrete	0	0.5	1/17/2002								X						
SS-2	SS-2	Discrete	0	0.5	1/17/2002								X						
SS-3	SS-3	Discrete	0	0.5	1/17/2002								X						
SSA	WC-SSA	Discrete	0	0.5	12/21/2005	X													
SSB	WC-SSB	Discrete	0	0.5	12/21/2005	X													
TP-16	TP-16/S-1	Discrete	0	0.5	4/17/2001							X			X				
TP-17	TP-17/S-1	Discrete	0	0.5	4/17/2001							X			X				
	TP-17/S-2	Discrete	1.5	2	4/17/2001						X		X	X	X	X		X	X
TP-18	TP-18/S-1	Discrete	0	0.5	4/18/2001										X				
TP-19	TP-19/S-2	Discrete	1.5	2	4/18/2001								X		X				
TP-2	TP-2	Discrete	0	4	10/20/1995								X					X	X
TP-20	TP-20/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-21	TP-21/S-2	Discrete	1.5	2	4/17/2001								X		X	X	X	X	X
TP-3	TP-3	Discrete	0	3.8	10/19/1995	X						X	X					X	X

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Table 2. Central Parcel Upland Exposure Unit Surface Soil Samples- Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Miniumum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-12	B-12/S-1	Discrete	0	2	5/14/2001							X							
B-16	B-16/S-1	Discrete	0	2	5/7/2001							X	X		X				
B-17	B-17/S-1	Discrete	0	2	5/8/2001							X							
B-18	B-18/S-1	Discrete	0	2	5/7/2001							X		X					
B-20	B-20/S-2	Discrete	2	4	5/7/2001										X				
HA-6	HA-6/S-1	Discrete	0	0.5	5/18/2001	X							X		X	X	X	X	X
	HA-6/S-3	Discrete	1	2	5/18/2001										X				
SS-5 [a]	SS-5	Discrete	0	0.5	1/17/2002							X							
SS-6 [a]	SS-6	Discrete	0	0.5	1/17/2002							X							
SS-10	SS-10	Discrete	0	0.5	1/17/2002								X		X				
SS-11	SS-11	Discrete	0	0.5	1/17/2002								X						
SS-12	SS-12	Discrete	0	0.5	1/17/2002							X							
SS-13	SS-13	Discrete	0	0.5	1/17/2002							X	X						
SS-14	SS-14	Discrete	0	0.5	1/17/2002							X	X						
SS-15	SS-15	Discrete	0	0.5	1/17/2002							X	X						
SS-16	SS-16	Discrete	0	0.5	1/17/2002								X						
SS-17	SS-17	Discrete	0	0.5	1/17/2002							X	X						
SS-18	SS-18	Discrete	0	0.5	1/17/2002							X	X						
SS-19	SS-19	Discrete	0	0.5	1/17/2002							X							
SS-23	SS-23	Discrete	0	0.5	1/17/2002								X						
SS-24	SS-24	Discrete	0	0.5	1/18/2002							X							
SS-26	SS-26	Discrete	0	0.5	1/18/2002							X							
SS-27	SS-27	Discrete	0	0.5	1/18/2002							X							
SS-28	SS-28	Discrete	0	0.5	1/17/2002								X						
SS-29	SS-29	Discrete	0	0.5	1/18/2002							X							
SS-30	SS-30	Discrete	0	0.5	1/18/2002							X							
SS-31	SS-31	Discrete	0	0.5	1/18/2002							X							
SS-4	SS-4	Discrete	0	0.5	1/17/2002								X						
SS-8	SS-8	Discrete	0	0.5	1/17/2002								X		X				
SS-9	SS-9	Discrete	0	0.5	1/17/2002								X		X				
TP-10	TP-10	Discrete	0	2.8	10/19/1995							X							
TP-22	TP-22/S-1	Discrete	0	0.5	4/17/2001	X						X	X		X	X	X	X	X
TP-23	TP-23/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-24	TP-24/S-1	Discrete	0	0.5	4/17/2001								X		X				
TP-25	TP-25/S-1	Discrete	0	0.5	4/17/2001							X	X		X				
	TP-25/S-2	Discrete	1.5	2	4/17/2001							X							
TP-26	TP-26/S-1	Discrete	0	0.5	4/17/2001							X			X				
	TP-26/S-2	Discrete	1.5	2	4/17/2001								X					X	X
TP-27	TP-27/S-1	Discrete	0	0.5	4/17/2001							X	X	X	X				
	TP-27/S-2	Discrete	1.5	2	4/17/2001										X				
TP-28	TP-28/S-1	Discrete	0	0.5	4/17/2001										X				
TP-29	TP-29/S-1	Discrete	0	0.5	4/18/2001	X						X	X	X	X				
TP-31	TP-31/S-2	Discrete	1.5	2	4/16/2001							X	X					X	X
TP-33	TP-33/S-1	Discrete	0	0.5	4/16/2001							X	X		X				
TP-34	TP-34/S-1	Discrete	0	0.5	4/16/2001							X	X		X				
	TP-34/S-2	Discrete	1.5	2	4/16/2001							X			X				
TP-6	TP-6	Discrete	0	3	10/19/1995							X							
TP-7	TP-7	Discrete	0	0.5	10/19/1995	X						X							
TP-8	TP-8	Discrete	0	4	10/19/1995							X							
SSC	WC-SSC	Composite	0	0.5	12/21/2005								X						
SSD	WC-SSD	Composite	0	0.5	12/21/2005								X						
SSE [a]	WC-SSE	Composite	0	0.5	12/21/2005								X						
SSE-1 [a]	WC-SSE-1	Discrete	0	0.5	12/21/2005								X						
SSE-2 [a]	WC-SSE-2	Discrete	0	0.5	12/21/2005								X						
SSE-3 [a]	WC-SSE-3	Discrete	0	0.5	12/21/2005								X						
SSE-4 [a]	WC-SSE-4	Discrete	0	0.5	12/21/2005								X						
SSF	WC-SSF	Composite	0	0.5	12/21/2005	X													
SSG	WC-SSG	Composite	0	0.5	12/21/2005	X													

Table 2. Central Parcel Upland Exposure Unit Surface Soil Samples- Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Miniumum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
SSH-D [a]	WC-SSH-D	Discrete	0	0.5	12/27/2007	X													
SSH-E	WC-SSH-E	Discrete	0	0.5	12/27/2007	X													
SSH-F	WC-SSH-F	Discrete	0	0.5	12/27/2007	X													
WCP-1	WCP-1 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-1 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-2	WCP-2 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-2 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-3	WCP-3 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-3 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-4	WCP-4 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-4 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-5	WCP-5 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-5 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-6	WCP-6 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-6 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-7	WCP-7 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-7 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-8	WCP-8 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-8 (1.5)	Discrete	1	1.5	10/30/2007							X							
WCP-9	WCP-9 (1.0)	Discrete	0.5	1	10/30/2007							X							
	WCP-9 (1.5)	Discrete	1	1.5	10/30/2007							X							
WC-SSP (Comp)	WC-SSP (Comp)-1	Composite	0	0.5	10/4/2010	X						X	X						
	WC-SSP (Comp)-2	Composite	2	2.5	10/4/2010							X	X						
WC-SSP-1	WC-SSP-1-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SSP-1-2	Discrete	2	2.5	10/4/2010							X	X						
WC-SSP-3	WC-SSP-3-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SSP-3-2	Discrete	2	2.5	10/4/2010							X	X						
WC-SSQ	WC-SSQ(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSR	WC-SSR(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSS	WC-SSS(Composite)	Composite	0	0.5	10/1/2010	X						X	X						
WC-SSS-1a	WC-SSS-1a	Discrete	0	0.5	10/1/2010							X							
WC-SSS-1b	WC-SSS-1b	Discrete	0	0.5	10/1/2010							X							
WC-SSS-2a	WC-SSS-2a	Discrete	0	0.5	10/1/2010							X							
WC-SSS-2b	WC-SSS-2b	Discrete	0	0.5	10/1/2010							X							
WC-SST (Comp)	WC-SST(Comp)-1	Composite	0	0.5	10/4/2010	X						X	X						
	WC-SST-(Comp)-2	Composite	1.5	2	10/4/2010							X	X						
WC-SST-1	WC-SST-1-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SST-1-2	Discrete	1.5	2	10/4/2010							X							
WC-SST-2	WC-SST-2-1	Discrete	0	0.5	10/4/2010							X	X						
	WC-SST-2-2	Discrete	1.5	2	10/4/2010							X							
WC-SSU	WC-SSU(Composite)	Composite	0	0.5	10/1/2010	X							X						
WC-SSV-1	WC-SSV-1-1	Discrete	0	0.5	10/4/2010	X						X							
	WC-SSV-1-2	Discrete	1.5	2	10/4/2010							X							
WC-SSW	WC-SSW(Composite)	Composite	0	0.5	10/4/2010	X													
WC-SSX [a]	WC-SSX(Composite)	Composite	0	0.5	10/4/2010	X							X						
WC-SSY	WC-SSY(Composite)	Composite	0	0.5	10/4/2010	X													
Wharf Road Area																			
WC-1	WC-1 Surface	Discrete	0.3	0.8	10/1/2010			X	X			X							
WC-1/2/3	WC-1/2/3	Composite	0.25	0.8	10/1/2010	X		X	X			X	X		X				
WC-2	WC-2 Surface	Discrete	0.25	0.75	10/1/2010			X	X			X							
WC-3	WC-3 Surface	Discrete	0.25	0.75	10/1/2010			X	X			X							

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Soil samples from areas excavated during the 2008 upland removal action are not included.

a - These samples will also be evaluated as part of the Central Beach Exposure Unit.

Table 3. East Parcel Upland Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
B-21	B-21/S-1	Discrete	0	4	5/7/2001						X		X	X	X	X		X	X
B-22	B-22/S-1	Discrete	0	2	5/15/2001										X				
B-23	B-23/S-1	Discrete	0	2	5/15/2001							X							
B-24	B-24/S-1	Discrete	0	4	5/17/2001										X				
B-25	B-25/S-2	Discrete	2	4	5/7/2001										X				
B-26	B-26/S-1	Discrete	0	2	5/11/2001								X	X	X				
B-27	B-27/S-1	Discrete	0	2	5/11/2001							X		X					
	B-27/S-2	Discrete	2	4	5/11/2001								X					X	X
B-28	B-28/S-1	Discrete	0.5	1	5/17/2001								X		X				
B-29	B-29/S-1	Discrete	0	4	5/17/2001										X				
B-30	B-30/S-1	Discrete	0	4	5/17/2001										X				
SR3	SR3	Discrete	0	0.2	10/4/1991		X					X	X			X		X	
SR4	SR4	Discrete	0	0.2	10/4/1991		X					X	X			X		X	
SS-32	SS-32	Discrete	0	0.5	1/17/2002								X						
SS-34 [a]	SS-34	Discrete	0	0.5	1/18/2002							X							
SS-36	SS-36	Discrete	0	0.5	1/18/2002									X					
SS-37	SS-37	Discrete	0	0.5	1/18/2002									X					
SS-38	SS-38	Discrete	0	0.5	1/18/2002									X					
SSH	WC-SSH	Composite	0	0.5	12/21/2005	X													
SSH-1	WC-SSH-1	Discrete	0	0.5	12/21/2005	X													
SSH-2	WC-SSH-2	Discrete	0	0.5	12/21/2005	X													
SSH-3	WC-SSH-3	Discrete	0	0.5	12/21/2005	X													
SSH-4	WC-SSH-4	Discrete	0	0.5	12/21/2005	X													
SSH-A	WC-SSH-A	Discrete	0	0.5	12/27/2007	X													
SSH-B	WC-SSH-B	Discrete	0	0.5	12/27/2007	X													
SSH-C	WC-SSH-C	Discrete	0	0.5	12/27/2007	X													
SSH-G	WC-SSH-G	Discrete	0	0.5	12/27/2007	X													
SSH-H	WC-SSH-H	Discrete	0	0.5	12/27/2007	X													
SSH-SHS1	WC-SSH-SHS1	Discrete	2.5	3	4/21/2008	X													
SSH-SHS2	WC-SSH-SHS2	Discrete	2.5	3	4/21/2008	X													
SSI	WC-SSI	Composite	0	0.5	12/21/2005	X													
SSJ	WC-SSJ	Composite	0	0.5	12/21/2005	X													
SSK	WC-SSK	Composite	0	0.5	12/21/2005	X						X							
TP-11	TP-11	Discrete	0	3	10/19/1995								X					X	X
TP-15	TP-15	Discrete	0	4	10/19/1995											X			
TP-35	TP-35/S-1	Discrete	0	0.5	4/16/2001								X		X				
TP-36	TP-36/S-1	Discrete	0	0.5	4/16/2001						X	X			X	X			
TP-37	TP-37/S-1	Discrete	0	0.5	4/16/2001	X							X		X				
TP-38	TP-38/S-1	Discrete	0	0.5	4/16/2001						X					X			
	TP-38/S-2	Discrete	1.5	2	4/16/2001	X							X		X	X	X	X	X
TP-39	TP-39/S-2	Discrete	1.5	2	4/16/2001	X					X		X	X	X	X			
TP-40	TP-40/S-1	Discrete	0	0.5	4/16/2001						X				X	X			
WC-SSL-1	WC-SSL-1 Composite	Composite	0	0.5	9/28/2010	X						X	X						
WC-SSL-1-1	WC-SSL-1-1	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-2	WC-SSL-1-2	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-3	WC-SSL-1-3	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-1-4	WC-SSL-1-4	Discrete	0	0.5	9/28/2010							X	X						
WC-SSL-2	WC-SSL-2 Composite	Composite	0	0.5	9/30/2010	X						X	X						
WC-SSL-2-1	WC-SSL-2-1	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-2	WC-SSL-2-2	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-3	WC-SSL-2-3	Discrete	0	0.5	9/30/2010							X							
WC-SSL-2-4	WC-SSL-2-4	Discrete	0	0.5	9/30/2010							X							
WC-SSM	WC-SSM Composite	Composite	0	0.5	9/30/2010								X						
WC-SSN	WC-SSN Composite	Composite	0	0.5	9/30/2010							X	X						
WC-SSO	WC-SSO Composite	Composite	0	0.5	9/30/2010							X	X						
WC-SSO-1	WC-SSO-1	Discrete	0	0.5	9/30/2010							X							

Table 3. East Parcel Upland Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan_ Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
WC-SSO-2	WC-SSO-2	Discrete	0	0.5	9/30/2010							X							
WC-SSO-3	WC-SSO-3	Discrete	0	0.5	9/30/2010							X							
WC-SSO-4	WC-SSO-4	Discrete	0	0.5	9/30/2010							X							
Trench 3 [a]	Trench 3	Discrete	8	8.5	9/28/2010	X													
Trench 3/4 [a]	Trench 3/4	Composite	8	8.5	9/29/2010	X						X	X		X			X	X
Trench 1/2 [a]	Trench 1/2	Composite	8	8.5	9/28/2010	X						X	X		X			X	X

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Three trench samples deeper than 4 feet are also included.

a - These samples will also be evaluated as part of the Inner Cove Beach Exposure Unit.

Table 4. Central Beach Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Type	Sample Depth		Sample Date	Analytes Groups Evaluated													
			Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan _Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
06B026	06B026	Composite	0	0.5	10/4/2002	X	X			X	X	X	X	X		X	X	X	
B015[a]	LW2-B015	Composite	0	0.5	7/26/2004	X	X	X	X	X		X	X	X	X	X	X	X	
HA-5	HA-5/S-1	Discrete	0	0.5	4/18/2001							X			X				
SS-7	SS-7	Discrete	0	0.5	1/17/2002							X							
SS-5 [b]	SS-5	Discrete	0	0.5	1/17/2002							X							
SS-6 [b]	SS-6	Discrete	0	0.5	1/17/2002							X							
SSE [b]	WC-SSE	Composite	0	0.5	12/21/2005								X						
SSE-1 [b]	WC-SSE-1	Discrete	0	0.5	12/21/2005								X						
SSE-2 [b]	WC-SSE-2	Discrete	0	0.5	12/21/2005								X						
SSE-3 [b]	WC-SSE-3	Discrete	0	0.5	12/21/2005								X						
SSE-4 [b]	WC-SSE-4	Discrete	0	0.5	12/21/2005								X						
SSH-D [b]	WC-SSH-D	Discrete	0	0.5	12/27/2007	X													
WC-SSX [b]	WC-SSX(Composite)	Composite	0	0.5	10/4/2010	X							X						

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

a - Sample was collected from LWG Beach sampling area B14.

b - These samples will also be evaluated as part of the Central Parcel Upland Exposure Unit.

Table 5. Inner Cove Beach Exposure Unit Surface Soil Samples - Residual Risk Assessment

Location	Sample	Sample Depth			Sample Date	Analytes Groups Evaluated													
		Sample Type	Minimum (ft)	Maximum (ft)		Aroclors	Conventionals	Dioxin_Furan _Homolog	Dioxins_ Furans	Grainsize	Herbicides	Metals	PAHs	Pesticides	Petroleum	Phenols	Phthalates	SVOCs	VOCs
06B022[a]	LWG0106B022SDS015C00	Composite	0	0.5	10/10/2002	X	X			X	X	X	X	X		X	X	X	
Beach Cove-1	Beach Cove-1	Discrete	1	1.5	9/27/2010	X						X	X		X			X	X
Beach Cove-2	Beach Cove-2	Discrete	1	1.5	9/27/2010	X						X	X		X			X	X
DL-1	DL-1	Discrete	1	1.5	9/17/2007							X	X		X				
DL-2	DL-2	Discrete	1	1.5	9/17/2007							X	X		X				
DL-3	DL-3	Discrete	1	1.5	9/17/2007							X	X		X				
EX-1	EX-1	Discrete	3	3	10/28/2004										X				
EX-2	EX-2	Discrete	3	3	10/28/2004										X				
EX-4	EX-4	Discrete	3	3	10/28/2004										X				
EX-5	EX-5	Discrete	3	3	10/28/2004										X				
HA-7	HA-7/S-2	Discrete	0.5	1	5/17/2001							X			X				
SS-33	SS-33	Discrete	0	0.5	1/18/2002							X							
SS-34 [b]	SS-34	Discrete	0	0.5	1/18/2002							X							
SS-35	SS-35	Discrete	0	0.5	1/18/2002							X							
TP-41	TP-41/S-1	Discrete	3	3	10/28/2004								X		X				
TP-42	TP-42/S-1	Discrete	3	3	10/28/2004								X		X				
TP-43	TP-43/S-1	Discrete	3	3	10/28/2004								X		X				
Wharf Beach -1	Wharf Beach -1	Discrete	1	1.5	9/27/2010	X		X	X			X	X		X			X	X
Trench 1/2 [b]	Trench 1/2	Composite	8	8.5	9/28/2010	X						X	X		X			X	X
Trench 3 [b]	Trench 3	Discrete	8	8.5	9/28/2010	X													
Trench 3/4 [b]	Trench 3/4	Composite	8	8.5	9/29/2010	X						X	X		X			X	X
Trench 4A	Trench 4A	Discrete	8	8.5	9/29/2010	X													
Trench 4B	Trench 4B	Discrete	8	8.5	9/29/2010	X													

Notes:

Surface soil samples have depth intervals that start within 3 feet of the surface, but don't extend deeper than 4 feet.

Five trench samples deeper than 4 feet are also included.

a - Sample was collected from LWG Beach sampling area B15.

b - These samples will also be evaluated as part of the East Parcel Upland Exposure Unit.

FIGURES

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG1_WCRRA_SITE_REV2.MXD

Legend

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- Central Beach Exposure Unit

- Proposed Incremental Sample Decision Units
- McCormick and Baxter Cap
- Upland Removal Excavation Area
- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Map notes:
- Refer to memo for description of exposure units.
- Upland Facility Boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL=Ordinary Low Water Line; MHWM=Mean High Water Mark
- Aerial photography: 2009

N

0 200 400 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 1

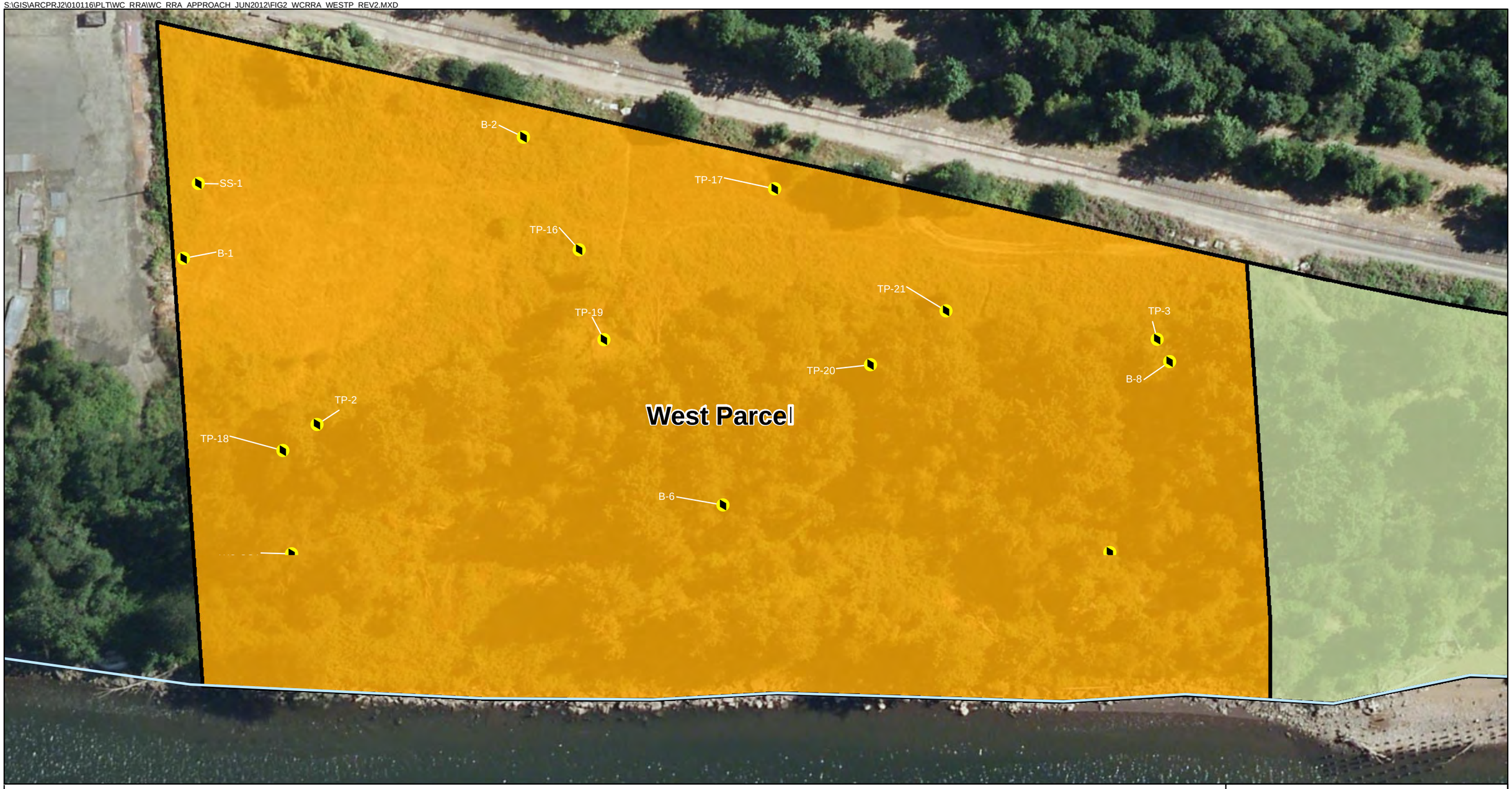
EXPOSURE UNITS

DATE: JUN 15, 2012

BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG2_WCRRA_WESTP_REV2.MXD



Legend

- Surface soil samples
- Discrete samples indicated by:
- Composite samples indicated by:
- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- W. Central Parcel Beach Exposure Unit
- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 50 100 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 2

WEST PARCEL SURFACE SOIL SAMPLING LOCATIONS

DATE: JUN 15, 2012

BY: RCR | FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG3_WCRRA_CENTPDOWN_REV2.MXD

Legend

- Surface soil samples - Upland Exposure Unit
- Surface soil samples - Beach Exposure Unit

Discrete samples indicated by: ♦

Composite samples indicated by: +

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- Central Beach Exposure Unit

- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 100 200 Feet

WILLAMETTE COVE UPLAND FACILITY

RESIDUAL RISK ASSESSMENT

FIGURE 3

CENTRAL PARCEL AREA (DOWNSTREAM PORTION) SURFACE SOIL SAMPLING LOCATIONS

DATE: JUN 15, 2012

BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG4_WCRRA_CENTPUP_REV2.MXD

Legend

- Surface soil samples
- Proposed Incremental Sample Decision Unit
- Upland Removal Excavation Area

Discrete samples indicated by: ♦

Composite samples indicated by: +

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- Central Beach Exposure Unit

- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 50 100 Feet

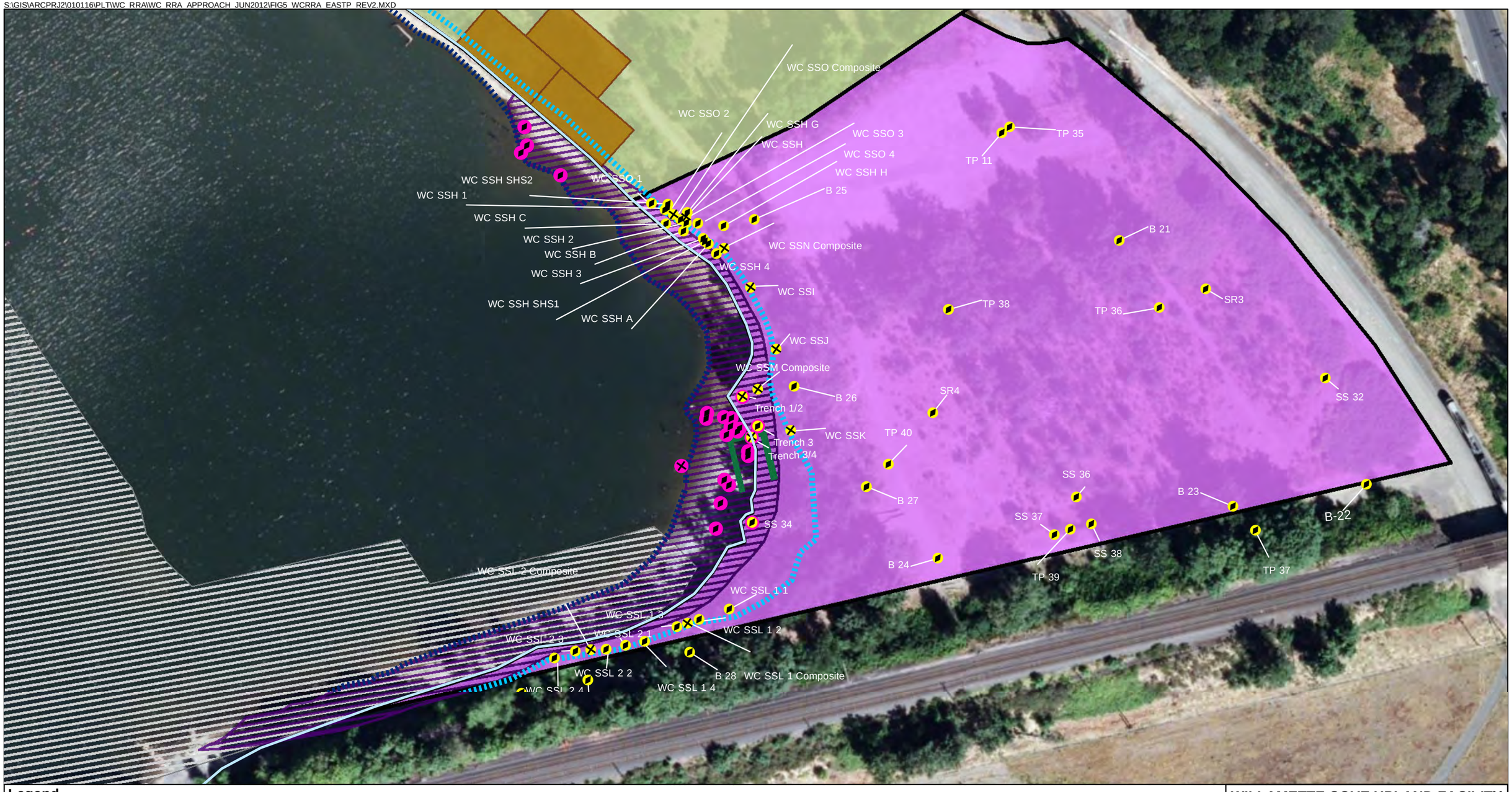
WILLAMETTE COVE UPLAND FACILITY
RESIDUAL RISK ASSESSMENT

FIGURE 4
CENTRAL PARCEL AREA (UPSTREAM PORTION) SURFACE SOIL SAMPLING LOCATIONS

DATE: JUN 15, 2012
BY: RCR
FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG5_WCRRA_EASTP_REV2.MXD



Legend

- Surface soil (and trench) samples - Upland Exposure Unit
- Surface soil (and trench) samples - Beach Exposure Unit

Refer to Figure 6 for more details.

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Discrete samples indicated by: ♦ Composite samples indicated by: +

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- Central Beach Exposure Unit

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)
- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)
- McCormick and Baxter Cap
- Proposed Incremental Sample Decision Unit

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 100 200 Feet

WILLAMETTE COVE UPLAND FACILITY
RESIDUAL RISK ASSESSMENT

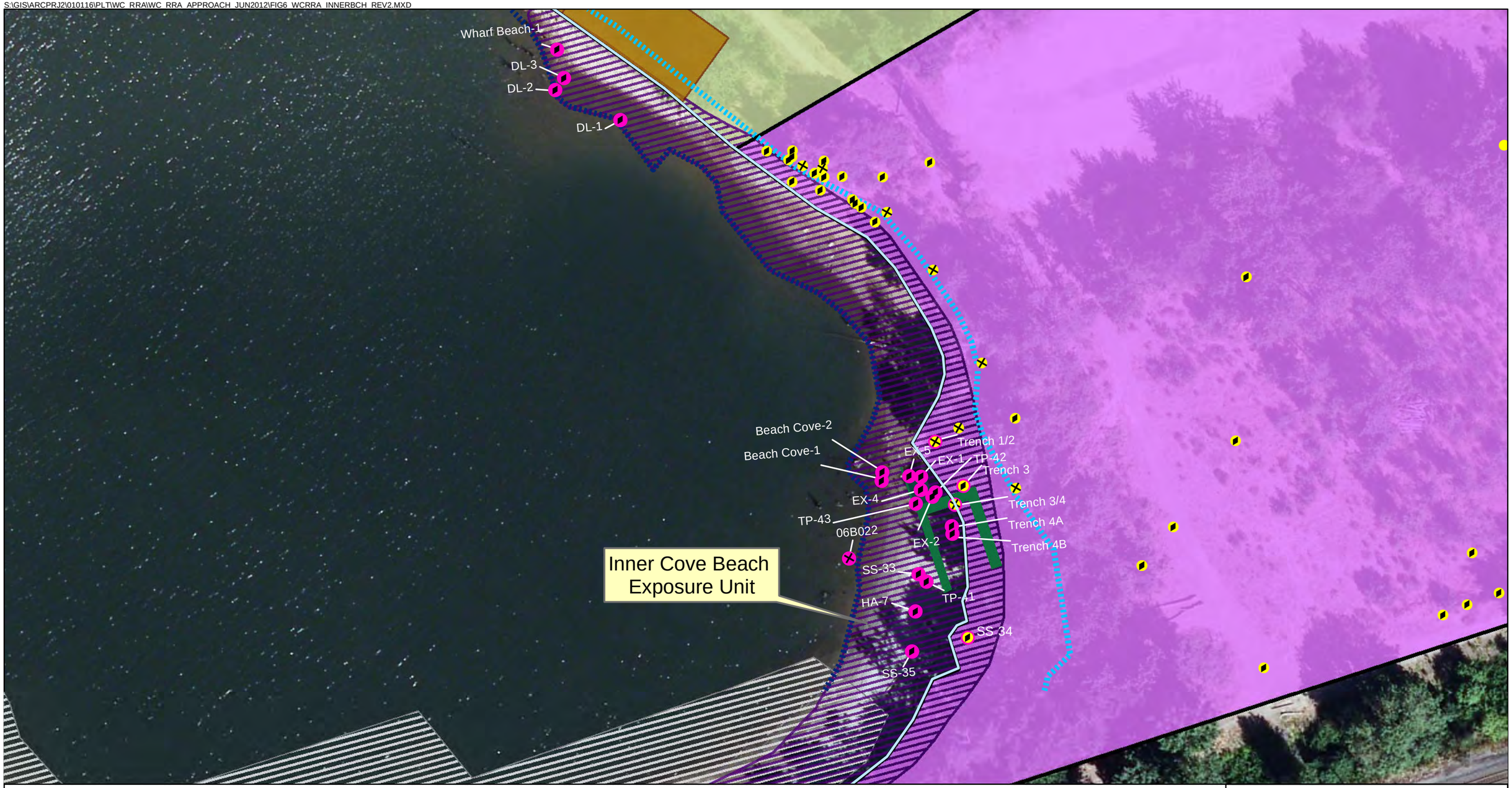
FIGURE 5

EAST PARCEL AREA SURFACE SOIL SAMPLING LOCATIONS

DATE: JUN 19, 2012
BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010116\PLT\WC_RRA\WC_RRA_APPROACH_JUN2012\FIG6_WCRRA_INNERBCH_REV2.MXD



Legend

- Surface soil (and trench) samples - Upland Exposure Unit
  Refer to Figure 5 for more details.
- Surface soil (and trench) samples - Beach Exposure Unit

Beach Removal Action Features (2004)

- Concrete structure/wooden beam
- Removal Action Excavation

Discrete samples indicated by: ♦ Composite samples indicated by: +

Exposure Units

- West Parcel Upland Exposure Unit
- Central Parcel Upland Exposure Unit
- East Parcel Upland Exposure Unit
- Inner Cove Beach Exposure Unit
- Central Beach Exposure Unit

- Willamette Cove Upland Facility Boundary (MHWM - 13.3NAVD88)
- OHWL (20.1NAVD88)
- MHWM (13.3NAVD88)
- OLWL (6.9NAVD88)
- McCormick and Baxter Cap
- Proposed Incremental Sample Decision Unit

Map notes:
- Refer to memo/tables for a description and summary of the soil samples within each exposure unit.
- Sampling locations obtained from materials provided by Ash Creek Associates.
- Upland Facility boundary is based on Voluntary Cleanup Agreement with Oregon, DEQ 2000.
- OHWL = Ordinary High Water Line; OLWL = Ordinary Low Water Line; MHWM = Mean High Water Mark
- Aerial photography: 2009

N

0 25 50 Feet

WILLAMETTE COVE UPLAND FACILITY
RESIDUAL RISK ASSESSMENT

FIGURE 6

INNER COVE BEACH SURFACE SOIL SAMPLING LOCATIONS

DATE: JUN 19, 2012
BY: RCR FOR: MCL

FORMATION ENVIRONMENTAL

Oregon

Dr. John A. Kitzhaber, M.D., Governor

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(503) 229-5263
FAX (503) 229-5471
TTY 711

July 5, 2012

Dwight Leisle, PE
Port of Portland
7300 NE Airport Way
Portland, OR 97218

RE: DEQ Approval of Willamette Cove Upland Facility Residual Risk Assessment, final planning letter dated June 20, 2012. ECSI # 2066

Dear Mr. Leisle,

Thank you for your responses to DEQ's comments that we sent to you via email on May 31, 2012.

DEQ approves the *Residual Risk Assessment* planning letter dated June 20, 2012, prepared on your behalf by Mark Lewis of Formation Environmental. Please inform DEQ of your schedule to perform final Wharf Road fieldwork. Following receipt of these field data, DEQ agrees with your suggestion, that a project team meeting prior to preparation of the Residual Risk Assessment may be helpful.

Please do not hesitate to call me with questions at (503) 229-6015.

Sincerely,

Kenneth Thiessen
NW Region Cleanup

Cc: Mark Lewis, Formation Environmental
Michael Pickering, Ash Creek Associates, Inc.
Keith Johnson, DEQ NWR Manager
Dan Hafley, DEQ NWR
Mike Poulsen, DEQ NWR
Jennifer Peterson, DEQ NWR
Katy Weil, Metro
Kristine Koch, EPA
Rich Muza, EPA
ECSI# 2066

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July 19, 2013

Dwight Leisle, PE
Port of Portland
7300 NE Airport Way
Portland, OR 97218

RE: Draft Residual Human Health and Ecological Risk Residual Assessments
Willamette Cove Upland Facility. ECSI# 2066

Dear Mr. Leisle:

Oregon Department of Environmental Quality (DEQ) staff reviewed the following documents submitted on your behalf by Formation Environmental, LLC. for the Willamette Cove site located in Portland, Oregon:

- *Residual Human Health Risk Assessment* (RHHRA), dated February 2013; and
- *Residual Ecological Risk Assessment* (RERA), dated February 2013.

Acknowledging the limitations associated with the site data set, the reports in general did a good job of evaluating risk associated with contamination remaining in the beaches, riverbank, and uplands portion of the Willamette Cove site.

The RHHRA concludes that excess risk is present at all upland exposure units (West, Central, and East Parcel; Inner Cove; Wharf Road; and Central Beach) for one or more human receptors. Excess risk is associated with metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and dioxin/furans.

In the RERA, excess risk is identified in the Central Parcel, East Parcel, and Inner Cove Beach, but considerable uncertainty is identified for all but the Central Parcel regarding risk to ecological receptors. Risk "drivers" include metals, PCBs and dioxins/furans. The report concludes by indicating that the pending feasibility study be used to determine whether remediation or other protective measures are necessary for ecological receptors.

We have a number of technical comments on both the RHHRA and RERA that are included as an attachment to this letter. These comments have a bearing on the magnitude and extent of risk, in particular (but not solely) for ecological receptors.

There is one additional item that needs to be addressed. From our project meeting on October 3, 2012, it was our understanding that the residual risk documents would include a substantive discussion of the uncertainty associated with the lack of dioxin/furan data for the upland portion of the site. Based on the detection of dioxins/furans in sediment adjacent to the site, in riverbank soil and in the Wharf Road area (commonly associated with other site contaminants such as metals) and the nature of industrial activity that occurred upland, DEQ believes that significant

concentrations of dioxins/furans may be present in upland soil. An absence of sampling data delineating boundaries on the extent of this contamination may result in a significant under-representation of risk to human and terrestrial ecological receptors. There appear to be two options for addressing this issue: a) assume that levels of dioxins/furans detected in the Wharf Road decision unit data are representative of the whole Central Parcel; or b) collect additional upland samples to evaluate dioxin levels in upland soil (as previously requested by DEQ). We prefer the latter, and recommend the collection of three to four incremental sampling comprising the entirety of the site uplands for dioxin analysis. This work could be completed as a pre-FS measure, but it is more logical to complete the work now and include the results in final RRA documents.

Regarding finalization of the RRA documents, we would prefer the preparation of revised/final human health and ecological reports addressing our comments before moving into the site Feasibility Study (FS). Alternately, revised risk tables, conclusions, and an uncertainty analysis could be presented as an addendum to the submitted reports.

In conjunction with these tasks, the Port could still begin the preparation of a Feasibility Study for the uplands, understanding that the additional information about the extent of dioxin/furan contamination would need to be reflected in later drafts of this document.

We would be happy to meet with you to discuss the comments outlined above, with the goal of moving forward with the upland FS as expeditiously as possible. In the meantime, we will complete our review of the *Source Control Evaluation* submitted in March of this year.

Sincerely,

Kenneth Thiessen, Hydrogeologist
DEQ Northwest Region Cleanup

Attachment

Distribution:
Mark Lewis, Formation Environmental, LLC
Michael Pickering, Apex Co. LLC
Keith Johnson, Mgr. DEQ NWR
Mike Poulsen, DEQ NWR
Dan Hafley, DEQ NWQ
Jennifer Peterson, DEQ NWR
Katy Weil, Metro
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ECSI# 2066

DEQ Comments on: *Ecological Risk Assessment, Residual Risk Assessment, Willamette Cove Upland Facility*, Prepared for Ash Creek Associates and the Port of Portland by Formation Environmental, February 2013

General Comments to be considered

1. The document is well written and organized and provides an excellent assessment of ecological risks.
2. An uncertainty section is missing from the document and is needed to provide a description and analysis of the key uncertainties and risk analyses.
3. The risk assessment focus is on plants, invertebrates and small home range birds and mammals. For bioaccumulatives such as PCBs, dioxins and furans, and mercury, impacts to upper trophic level receptors should be discussed.

General Conclusions to be considered and carried forward into FS as appropriate

1. Central Parcel: Hot spot levels of mercury, copper and lead across multiple ecological receptors (plants, invertebrates, birds and mammals) are widely distributed in riverbank and upland soil in the Central Parcel. Significant concentrations above risk levels are also present for zinc, antimony, chromium and nickel. Hot spot levels of dioxins and furans occur in the limited upland soil sampled in the Central Parcel. The extent of this risk has not been defined, but based on several lines of evidence dioxins and furans may be present in other upland soil areas. In addition to metals, the Central Parcel's beach area and uplands are elevated in PAHs. Slag is present in this area.

2. Eastern Parcel: Hot spot levels of lead and copper are found beach areas in the Inner Cove adjacent to the Eastern parcel and the beach, riverbank and upland soil adjacent to the railroad embankment. Significant concentrations above risk levels are also present for zinc, chromium, antimony, nickel and high molecular weight PAHs. PCBs are present at hot spot levels in the Eastern Parcel inner cove seep area and are above risk levels in upland and riverbank soil. However, the upland soil (adjacent to the Central Parcel) and the Inner Cove Seep appear to be from two different sources based on location and Aroclor composition. The extent of PCBs above risk levels in seep, riverbank soil and upland soil has not been fully characterized and the extent of risk levels has not been defined.

3. Western Parcel: Characterization on the Western Parcel is limited – only 5 samples for most analytes are available from the upland railroad area. No samples were taken to characterize riverbank soil. This area exceeds risk levels for HPAHs.

Specific Comments:

1. Table 2-1, Ecological Level II Screening Level Values:
   a. **Document updates required:**
      PCBs: The value provided for total PCBs should be applied to each Aroclor. Since there appear to be two sources, Aroclor 1260 and 1254 should be distinguished. The SLV for birds should be listed as 0.371 mg/kg and mammals 0.655 mg/kg. These are LOAEL based SLVs

and therefore should not be multiplied by 5 (or Q of 5). This will change the results for screening soils for birds and mammals for the East Parcel Upland, (Appendix D) as well as the hot spot levels. Additionally, Figure 2-9 should be revised.

b. **Document updates required:**
Dioxin TEQ: Bird and mammal SLVs should be presented using congener-specific risk-based concentrations. DEQ calculated congener specific RBCs using intake equations from EPA Eco SSLs (2007) and prey uptake model from Jager, (1998) [log Kww = 0.87 * log Kow - 2.0] and TRVs for shrew 1.00E-05 mg/kg/day and robin 1.40E-04 mg/kg/day. Dioxins and furan congeners should be compared to the following tabulated RBCs calculated by DEQ, presented in Table 1 for mammals and Table 2 for birds. Where available, PCB congener RBCs should be calculated and should be incorporated in the dioxin / furan TEQ evaluation. Dioxin total toxicity equivalency (TEQ) toxicity quotients for each sampling location using LOAEL risk based concentrations for chlorinated PCDD and PCDF congeners are presented in DEQ Table 3. Total TEQ toxicity quotients >1 indicate unacceptable risk and TQ > 10 indicate hot spot levels.

DEQ Table 1 Mammalian Soil RBCs	
Dioxin / Furan Congener	LOAEL Soil SLV (ng/kg)
TCDD	2.3
1,2,3,7,8-PeCDD	10.9
1,2,3,4,7,8-HxCDD	8.9
1,2,3,6,7,8-HxCDD	3.8
1,2,3,7,8,9-HxCDD	3.8
1,2,3,4,6,7,8-HpCDD	65.4
OCDD	3643.6
2,3,7,8-TCDF	22.3
1,2,3,7,8-PeCDF	73.5
2,3,4,7,8-PeCDF	5.7
1,2,3,4,7,8-HxCDF	3.8
1,2,3,6,7,8-HxCDF	3.8
1,2,3,7,8,9-HXCDF	7.6
2,3,4,6,7,8-HxCDF	3.8
1,2,3,4,6,7,8-HpCDF	64.0
1,2,3,4,7,8,9-HpCDF	64.0
OCDF	916.9
SUM Congener TQs <1	

DEQ Table 2 Avian Soil RBCs	
Dioxin / Furan Congener	LOAEL Soil SLV (ng/kg)
TCDD	21.7
1,2,3,7,8-PeCDD	99.4
1,2,3,4,7,8-HxCDD	167.2
1,2,3,6,7,8-HxCDD	361.4
1,2,3,7,8,9-HxCDD	36.1
1,2,3,4,6,7,8-HpCDD	6159.4
OCDD	102856.5
2,3,7,8-TCDF	20.9
1,2,3,7,8-PeCDF	206.7
2,3,4,7,8-PeCDF	16.0
1,2,3,4,7,8-HxCDF	36.1
1,2,3,6,7,8-HxCDF	36.1
1,2,3,7,8,9-HXCDF	71.3
2,3,4,6,7,8-HxCDF	36.1
1,2,3,4,6,7,8-HpCDF	603.0
1,2,3,4,7,8,9-HpCDF	603.0
OCDF	25942.1
SUM Congener TQs <1	

Table 3, Willamette Cove Dioxin / Furan TEQ Toxicity Quotients by sampling location		
Location	Mammalian LOAEL TQ	Avian LOAEL TQ
DU-1	381	22
DU-2	681	132
DU-3	237	43
WC-3[1]	4277	1135

[1] Discrete Sample

c. **Comment to be considered with potential document update required:**
Mercury: The DEQ Level II SLV for direct exposure is 0.025 mg/kg (birds) and 4 mg/kg (mammals) considering the presence of methyl mercury. The potential for the presence of methyl mercury should be evaluated in the document.

2. **Document updates required:**
Table 4-14, Hot Spot Values for Ecological Receptors: Hot spot levels are 10 times the acceptable risk level. If a NOAEL SLV is used, a 5 times factor can be used to estimate the LOAEL. However, where LOAEL SLVs were estimated directly, only a factor of 10 should be applied to LOAEL SLVs. This will change hot spot levels presented in Table 4-14.

3. **Document updates required:**
Section 2.2, Observed Impacts: The presence of sheen, oil and slag is not discussed in the risk assessment, although it is documented in the Phase I Progress Report, 2001 and the Source Control Report. This information should be provided in this section of the risk assessment.

4. **Document updates required:**
Section 2.5.4, Calculating COI Concentrations: The text appropriately identifies several riverbank concentrations as composites, but does not discuss that there are test pit data that are also composite samples. Test pit composite data should be included in the dataset (Appendix B) and should be included in the composite risk analysis.

5. **Document updates required:**
Section 3.3.1, Exposure Estimation Model, Lead Assimilation Efficiency: A range of lead bioavailability can be evaluated in the uncertainty section of the risk assessment. 100% should be used in the risk analysis and main text since the form of lead at the site has not been identified. See also Table 3-1 and Table 3-3 use of 50% bioavailability for the robin and shrew.

6. **Comment to be considered:**
Section 3.3.2, Ecological Response Analysis: DEQ's definition of acceptable risk for populations of ecological receptors is defined in two parts:

a. A 10 percent chance, or less, that more than 20 percent of the total local population will be exposed to an exposure point value greater than the ecological benchmark value (LD50) for each contaminant of concern
b. No other observed significant adverse effects on the health or viability of the local population. This evaluation must evaluate effects on reproduction related to fecundity and the sustainability of the local population.

By evaluating probability of exposure to "no observed" and "lowest observed" effect levels on mortality, growth and reproduction the two criteria were met.

7. **Comment to be considered:**
Section 4.0, Exposure Analysis, Probabilistic Risk Assessment, Local Population, Number of Animals: The number of animals (49 shrew and 49 robin) used in the probability of exposure analysis is overestimated in some cases, which when corrected will increase the probability of exposure slightly. The population assessed should be the local population as defined by the size of the facility parcels. The number of organisms in the local population should be based on the number of expected animals within this area. This number should then be rounded down a number divisible by 5 in order to avoid unrealistically high calculated values of b as an artifact of the calculation method given y must be an integer. More information on this issue can be provided in an example upon request. Robin and shrew updates are provided below:
   a. West Parcel: 5 acres (2 hectares), 10 robin /hectare and 7 shrew / hectare shrew (means, EPA Exposure Factors Handbook) = 20 robin; 10 shrew
   b. Central Parcel: 11 acres (4.5 hectares) = 45 robin; 30 shrew
   c. East Parcel: 16 acres (6.5 hectares) = 65 robin; 45 shrew

8. **Document updates required:**
Section 4.3.5, Dioxin / Furan Upland Soil Samples: Composite Samples DU-1, DU-2, DU-3 and WC-1/2/3 as well as discrete samples WC-1, WC-2 and WC-3 should be included in the Central Parcel Upland Exposure unit in the absence of more spatially representative data. Dioxin / furan TEQ's for birds and mammals should be screened as a part of these units. The results for birds and mammals in Table 3 show dioxin TEQ at hot spot levels in the Central Parcel Uplands for all discrete and composite samples (including the multi-incremental samples or MIS). DU-2, which is the westernmost sample, had the highest hazard quotient for the MIS samples.

9. **Comment to be considered:**
Section 5.0, Conclusions and Recommendations: Elevated concentrations of metals in the shoreline areas are representative of upland conditions. The future likely use of the site is as a natural area and therefore plants and invertebrates should be considered in the context of receptors at other trophic levels. Table 4 below, prepared by DEQ, presents a summary of contaminants of concern for Willamette Cove exposure areas and appropriate ecological receptor (e.g. plants, invertebrates, birds and mammals). Risk at multiple levels of biological organization increases the weight of evidence of ecological risk. Also note for each exposure area the number of exceedances for each ecological receptor.

Table 4, DEQ Summary of Ecological COCs by Exposure Area and Ecological Receptor:

COC Summary by Exposure Unit					
	West	East	Central	Cove Beach	Central Beach
Barium				B	
Mercury	P, I	I	P, I,	P, I, B	I
Vanadium	NA	NA	NA	P, B	M
Nickel		P			
Lead	B	P, B, M	P, I, B, M	P, I, B, M	B
Cadmium					B, M
Chromium		P, I	P, I		P, I
Antimony		P, M	P, M	P, M	
Copper		P, I, B, M	P, I, B, M	P, I, B, M	
Zinc		P,I, B, M	P,I, B, M	I,B,M	
HPAH			I, M	M	
Dibenzofuran				M	
Diesel		I	I	I, B, M	
Dioxins / Furans	NA	M	B, M	B,M	NA
Aroclor 1260 (Riverbank)		B,M	M	P, B,M	
Aroclor 1254 (Seep)				P, B, M	
Phthalates			B, M	B,M[1]	
COC Summary By Receptor					
Plant COCs	1	6	6	7	1
Invertebrate COCs	1	5	7	5	2
Bird COCs	1	5	5	11	2
Mammalian COCs		7	11	11	2

P = Plants

I = Invertebrates

B = Birds

M = Mammals

NA = Not Analyzed

[1] Using E&E Seep Data

10. Document updates required:

Section 4.0 to 5.0, Uncertainty Section: An uncertainty section should be added here that describes important uncertainties in the dataset and identifies CPECs based on inadequate detection limits or no available SLVs.

11. Comment to be considered:

General, Tables and Figures: Dioxin is misspelled (as dioxan) in several figures and tables.

12. Document updates required:

Tables 2-2 through Table 2-7, CPEC Summary by Exposure Unit:

a. COIs without screening level values should be included as CPECs on this basis in the summary tables
b. Visual observations of oil, sheen and slag should be included here
c. All TPH data is not included in summary or screening tables (e.g. West Parcel @ 1,810 mg/kg)
d. Aroclors should be listed separately and then added to a "Total PCB" concentration for screening.
e. Discrete and composite results for dioxins and furan TEQ should be presented.

13. Document updates required:

Table 3-1 and Table 3-3, Uptake Equations:

a. Dioxins and furans: Uptake equations should be congener-specific using BAFs presented below (log Kww = 0.87 * log Kow - 2.0).
b. The use of 50% invertebrates for the shrew is not a realistic assumption. An evaluation that presents the range from 80% to 100% is reasonable.

14. Document updates required:

Table 3-2, Ecological Benchmark Values, Birds:

a. Cadmium: The LOAEL EBV for birds should be 6.4 mg/kg bw-day geomean (EPA Eco SSL, 2005). This will change the results for cadmium LOAEL exceedance for birds for the central beach exposure unit.
b. Copper: The NOAEL EBV for birds should be 4.05 mg/kg bw-day and the LOAEL should be 12.1 mg/kg bw-day for the same study (EPA Eco SSL, 2005). This will not change the results but will change the toxicity quotient in Table 4-3 and 4-4.
c. Vanadium: The EBV for birds should be a NOAEL of 0.344 mg/kg bw-day and a LOAEL of 0.688 from the same study (EPA Eco SSL, 2005).

15. Document updates required:

Table 3-4, Ecological Benchmark Values, Mammals:

a. Cadmium: The EBV for mammals should be a NOAEL of 0.77 mg/kg bw-day and a LOAEL of 7.7 mg/kg bw-day from the same study (EPA Eco SSL, 2005). This will change the results slightly in Table 4-12 – LOAEL exposure for the omnivore will exceed a toxicity quotient of 1.
b. Copper: The EBV for mammals should be a NOAEL of 5.6 mg/kg bw-day and a LOAEL of 9.34 mg/kg bw-day from the same study (EPA Eco SSL, 2005). This will not change the results, but it will change the toxicity quotients presented in Table 4-3, 4-9, 4-10 and 4-11.
c. Lead: The EPVs are correct, but the citation should read EPA Eco SSL, 2005.

16. **Document updates required:**
Table 4-7 and 4-13, Exposure Calculation for Dioxin / Furan TEQ: Toxicity quotients should be calculated using information in comment #4 regarding Table 2-1. This will increase the toxicity quotients – see Table 2 on toxicity quotients for each sample using congener specific RBCs.

17. **Document updates required:**
Table 4-10, Exposure Calculation and Comparison to EBVs: Aroclors are presented, but Total PCBs should be indicated along with the dominant congeners – 1260 and 1248

18. **Document updates required:**
Table 4-14, Generic High Concentration Hot Spot Values for Ecological Receptors:
    a. Plant and Invertebrate Hot Spot Levels: These should only be multiplied by 10 – the 5 x factor does not apply.
    b. Aroclors and Total PCBs: The SLVs are 0.371 mg/kg for the shrew and 0.655 mg/kg for the robin (Preliminary Remediation Goals for Ecological Endpoints, 1997). These are LOAEL based SLVs and should be multiplied by 10 to determine hot spot levels.
        i. Birds: 3.71 mg/kg
        ii. Mammals: 6.55 mg/kg
    c. Dioxin TEQ: A toxicity quotient of 10 and above for dioxin TEQ indicate hot spot levels. RBCs presented above are LOAEL SLVs.

19. **Document updates required:**
Table 4-15 and Appendix F, Probabilistic Hot Spots: Hot spots are location specific and are identified as concentrations that exceed risk-based concentrations. Risk based concentrations cannot be identified from the probability of exposure analysis. Instead, LOAEL risk based concentrations using the intake and EPVs presented in Tables 3-1 through 3-4 in soil should be used to identify hot spots. PCBs and bird and mammalian TEQ should be added to this table.

20. **Document updates required:**
Figure 2-1, Habitat Areas: The map shows the upland facility boundary, but does not state what elevation it is based on. It appears the upland boundary is defined as down to the low water line. The upland facility should be clearly defined in both Figure 2-1 and 2-2.

21. **Document updates required:**
Figure 2-2, Conceptual Site Model of Ecological Exposure Pathways:
    a. Soil: Soil should be defined as riverbank and upland soil down to mean high water.
    b. Uptake by Biota and Soil (ingestion, direct contact): This should show a complete pathway to the aquatic environment with a statement that the in-water Portland Harbor Risk Assessment and the DEQ source control evaluation will be used to evaluate these pathways.
    c. Sediment Exposure (Pore water, Beach Sediment): The footnote here states "there is no exposure to surface water, groundwater, or to sediment on the Upland Facility". However, Figure 2-1 clearly defines the upland facility boundary down to low water where these exposures occur. Please clarify.

d. Groundwater: Exposure to seep areas should be considered complete for terrestrial receptors. Aquatic exposure is also complete and should be footnoted to indicate this will be addressed as a part of the source control and in-water risk assessments.

22. Document updates required:

Attachment E, Level III Probabilistic Analysis for Birds and Mammals, Lead, Central Parcel: A removal action conducted in the eastern end of the central parcel in 2008 removed significantly elevated concentrations of metals. The replacement of these samples with representative samples after the removal is appropriate, but including all of the many samples is out of proportion to the sampling frequency in the remainder of the exposure unit, and biases the distribution low. This is especially the case for lead, where 18 samples from the same 9 locations are included for the 1.0 ft and 1.5 ft depths. All other metals (arsenic, chromium, copper, mercury and zinc) were only analyzed at the 1.0 ft sampling interval representing a total of 9 samples. However, since the leave surface was not re-characterized after removal it is unclear if these samples are representative of the 0-3 ft. soil interval. Recommend presenting the results with and without this area and discuss in the uncertainty section.

DEQ Comments on Residual Human Health Risk Assessment, Willamette Cove Upland Facility, Prepared for Ash Creek Associates and the Port of Portland by Formation Environmental, February 2013

General Comments:

1. **Document updates required: Site characterization and uncertainty.** At our meeting on October 3, 2012, we discussed the lack of identified extent of soil contaminated with unacceptable concentrations of dioxin and PCBs. In moving forward with the risk assessment, we understood that the Port would provide support for why the contaminated areas are expected to be limited. The risk assessment does not support the contention that the contamination is limited. The lack of full characterization of the extent of dioxin and PCB contamination is not discussed in the uncertainty section. Without adequate delineation, the risk assessment will need to include assumptions about the extent of unacceptable concentrations in soil and potential hot spots.
2. **Document updates required: TPH.** The presence of petroleum hydrocarbons needs to be addressed in more detail. Total petroleum hydrocarbons (TPH) was screened in, but was not quantitatively evaluated in the risk assessment. DEQ developed risk-based decision making guidance in 2003 for quantitatively evaluating risk from petroleum hydrocarbons. Quantitative assessments of TPH risk should be made following this guidance, as presented in DEQ's 2010 human health risk assessment guidance. In addition, sheen has been observed at the site. Following DEQ guidance, the risk assessment should state that the presence of TPH product is considered an unacceptable risk to humans from direct exposure.

Specific Comments:

1. **Document updates required: Page 2-8, Section 2.6.1, third paragraph**. Chemicals that do not have SLVs should not be eliminated from the risk assessment. As stated in the next sentence, not being able to quantitatively evaluate these chemicals is a source of uncertainty. This should be discussed in the uncertainty section.

2. **Document updates may be required: Page 2-9, Section 2.6.2, top paragraph**. Urban residential RBC levels were used to screen recreational exposure. The quantitative information regarding recreational exposure parameter values used in the risk assessment should be used to support the assumption that urban residential RBCs are sufficiently protective as screening values. We calculated trespasser and recreational RBCs using site-specific exposure values, and concur that default urban residential RBCs are protective of the other receptors.

3. **Document updates may be required: Page 2-9, Section 2.6.2.** The text states that EPA RSLs were used for screening if no DEQ RBC was available. This approach is consistent with DEQ guidance. However, Appendix D shows that RSLs were not used to screen site concentrations. The lack of a full screen using RSLs does not appear to substantially affect the results of the residual human health risk assessment (RHHRA).

4. **Document updates required (Table 5 *to be added* and carried forward into FS: Page 2-10, Section 2.6.4, top paragraph**. The statement that "risk is not generally quantified for complex mixtures like diesel" is contradicted by the use of quantitative risk-based screening levels. It is

correct that there is not an RfD for diesel that can be used in risk calculations. However, in 2003, DEQ developed a method for quantifying risks from TPH exposure, and established risk-based concentrations for TPH. DEQ risk assessment guidance allows the use of the RBCs (including TPH diesel RBCs) to calculate risk. Given the high concentrations of diesel in some portions of the site, it is important to quantify the associated risk. DEQ prepared a table of TPH RBCs (attached Table 5). The Port should confirm these calculations and use the RBCs in the risk assessment to identify areas of unacceptable risk and potential hot spots.

The presence of percent levels of TPH is soil samples in the inner cove area, and the observations of sheen in many soil samples from the West and Central parcels, indicates that separate phase petroleum hydrocarbons are present at the site. RBCs for pathways that include direct contact are not appropriate for contact with petroleum product. The risk assessment needs to include an acknowledgement that contact with sheen or product in the soil is considered unacceptable. Methods for limiting contact with sheen or product need to be evaluated in the feasibility study.

5. **Comment to be considered: Page 5-3, Section 5.2.3, last paragraph**. For pathways with a hazard index greater than 1.0, it is acceptable to evaluate non-cancer risk by toxic endpoint. This can be complicated, however, because most chemicals have more than one toxic endpoint, and the RfD may be based on only one endpoint. DEQ allows but does not require the evaluation by toxic endpoint.

6. **Document updates required: Page 5-9, Section 5.6.1, last sentence**. The Wharf Road EU may represent a small portion of the site; however, the extent of unacceptable dioxin contamination has not been delineated. Given the association of dioxin contamination with widespread metal contamination, and the extensive scale of industrial operations in the central parcel, it is likely that unacceptable dioxin soil concentrations are present over an area larger than the Wharf Road EU. This considerable uncertainty regarding risk needs to be addressed in the uncertainty section.

7. **Document updates required: Page 5-10, Section 5.8**. There is considerable uncertainty in the characterization of contamination at the site that needs to be addressed. Unacceptable dioxin concentrations in soil at the Wharf Road have not been bounded. Because dioxin is more likely associated with central parcel activities rather than some unexplained association with the road, we strongly suspect that additional areas of the central parcel are contaminated with dioxins. This possibility must be addressed and considered in the feasibility study.

   Similarly, the high PCB concentrations in the inner cove beach unit have not been fully delineated or explained. It is possible that PCB contamination is more widespread than currently identified. This uncertainty needs to be acknowledged in the residual risk assessment and addressed in the feasibility study for DEQ. This information may also influence the scope of the EPA in-water remedy at Willamette Cove.

8. **Comment to be noted: Table 3-1**. As addressed in the Port's follow-up to our June 21, 2013 call, the exposure frequency for of 208 days/year applies to all routes (ingestion, dermal and inhalation).

9. **Document updates required: Table 3-4**. The ProUCL output for lead shows that the approximate gamma distribution should be used with more than 40 data points. Because there are only 5 samples, the adjusted gamma distribution should be used, resulting in a 90UCL of 105 mg/kg; or, alternatively, the maximum value of 95 mg/kg can be used.

10. **Document updates required: Table 3-5.** Mercury is a central parcel COPC missing from this table. The maximum concentration is 20.2 mg/kg, with a 90UCL of 3.8 mg/kg.

11. **Document updates required: Table 3-7.** Diesel should be a COPC for the inner cove beach, with a maximum concentration of 91,300 mg/kg and a 90UCL of 38,000 mg/kg. These concentrations are more than ten times the urban residential soil RBC of 2,200 mg/kg. Using the TPHd RBC of 4,000 mg/kg, the exposure point concentration of 38,000 mg/kg indicates an unacceptable risk with a hazard quotient of 10. TPHd concentrations greater than 40,000 mg/kg indicate potential hot spot locations. This data and associated risk determination must be included in the HHRRA document.

12. **Document updates required: Table 5-8 and Figure 5-1.** Because there is unacceptable risk identified in the exposure units, hot spot levels need to be developed for all chemicals of interest, not just chemicals of concern.

13. **Comment to be considered: Table 5-7.** Excess lifetime cancer risks should be presented to one significant digit (e.g., 6×10^{-4} rather than 6.35×10^{-4}) to avoid implying unwarranted precision. Hazard indices can be presented to two significant digits.

14. **Document updates required: Appendix D.**
    The column with the heading "Detected chemicals without criteria" includes "?PRG" as an entry. It does not appear that any EPA regional screening levels were used to screen chemicals. Following DEQ guidance, EPA residential RSLs should be used to screen if RBCs are not available. This column can be used to indicate the use of RSLs. Even for chemicals that are not detected, it is useful to compare detection limits with RSLs to see if a definitive screening conclusion can be reached. The lack of a full screen using RSLs does not appear to substantially affect the results of the RHHRA.
    Appendix D-1-2 is missing.
    Appendix D-2-1, D-3-1. For samples that were analyzed for benzo[b+k]fluoranthene instead of the separate compounds, the lower of the RBCs for benzo[b]fluoranthene and benzo[k]fluoranthene should be used.
    Appendix D-2-2. The note for pentachlorophenol states that there were only two detected discrete values. The tables shows that there were no detected concentrations.
    Appendix D-3-1. For evaluation of Total of 4,4'-DDD/DDE/DDT, the RBCs for DDE should be used as a conservative screen. For evaluation of m,p-xylene, the RBC for total xylene should be used.
    Appendix D-4-1. For evaluation of m,p-xylene, the RBC for total xylene should be used.
    Appendix D-4-2. There are notations for chemicals with "only 3 detected values". Where screening values (RBCs or RSLs) are available, the maximum concentration should be used to calculate Rij. Cobalt and vanadium are screened in and evaluated, as shown in Table 5-4-2.

15. **Document updates required: Appendix E**
    - See comment on Table 3-1.
    - Site-specific PEFs can be used, but the calculations shown in the detailed table should match the values used in the risk assessment.
    - Values for IRSadj and SFSadj should be shown explicitly. For example, the IRSadj value for recreational park user in the West Parcel is shown as the ingestion rate (mg/day) of 62.86 for adults and 426.67 for children. Because IRSadj incorporates exposure duration and body weight (as well as toxicity adjustment factors), the units are mg-yr/kg-day. One IRSadj value can be used, combining child and adult exposure (490 mg-yr/kg-day).

- Similarly, adherence factors (mg/cm^2) should not be modified for early-life exposure. Instead use the SFSadj value of 1445 mg-yr/kg-day (for combined child and adult exposure).
- Early-life exposure is included for relevant chemicals in the assessment of cancer risk. It is not appropriate to modify intake rates for non-cancer effects.

Table 5
Site-Specific Risk-Based Concentrations for TPH

	RBCss					RBCso		
TPH Substance	Recreational Park User	Transient Park User	Occupational Worker	Construction Worker	Excavation Worker	Recreational Park User	Transient Park User	Occupational Worker
	(mg/kg)	(mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Gasoline	9,400	>max	20,000	9,700	>max	>max	50,000	69,000
Diesel	4,000	>max	14,000	4,600	>max	>max	>max	>max
Mineral Oil	9.700	>max	36,000	11,000	>max	>max	>max	>max
	RBCsi			RBCsw			RBCwe	
TPH Substance	Recreational Park User	Transient Park User	Occupational Worker	Recreational Park User	Transient Park User	Occupational Worker	Constr & Excavation	
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	
Gasoline	>max	450	>max	300	100	130	14,000	
Diesel	>max	>max	>max	>max	>max	>max	>S	
Mineral Oil	>max	>max	>max	>max	>max	>max	>S	
	RBCtw			RBCwo				
TPH Substance	Recreational Park User	Transient Park User	Occupational Worker	Recreational Park User	Transient Park User	Occupational Worker		
	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		
Gasoline	920	360	450	>S	>S	>S		
Diesel	1,100	350	430	>S	>S	>S		
Mineral Oil	3,400	1,000	1,300	>S	>S	>S		
	RBCwi			RBCair				
TPH Substance	Recreational Park User	Transient Park User	Occupational Worker	Recreational Park User	Transient Park User	Occupational Worker		
	(ug/L)	(ug/L)	(ug/L)	(ug/m^3)	(ug/m^3)	(ug/m^3)		
Gasoline	>S	>S	>S	7,900	1,300	1,700		
Diesel	>S	>S	>S	2,100	350	440		
Mineral Oil	>S	>S	>S	3,000	500	620		

Notes: Site-specific risk-based concentrations (RBCs) calculated using DEQ's RBCsTPH11a.xlsm spreadsheet

October 7, 2013

Ken Thiessen
Oregon Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201

RE: Response to DEQ July 19, 2013 Letter, Draft Residual Human Health and Ecological Risk Residual Assessments Willamette Cove Upland Facility

Dear Ken:

This letter was prepared in response to the Oregon Department of Environmental Equality (DEQ) letter from Ken Thiessen to Dwight Leisle, Port of Portland on July 19, 2011 transmitting comments from DEQ on the Residual Risk Assessments (RRAs) for the Willamette Cove Upland Facility. The responses below were prepared by Formation Environmental and Apex Companies LLC on behalf of the Port of Portland. It is our intent that these responses reflect the discussions of individual comments during meetings with DEQ on September 5, 2013 and September 16, 2013.

The original DEQ comments from the July 19 letter are presented below, along with the Port's response. Please don't hesitate to call Dwight Leisle (503.415.6325) or me (303.442.0267) if you have any questions. Thank you.

Sincerely,

Mark C. Dunn Lewis, PhD
Formation Environmental

cc:
Mike Poulsen, DEQ NWQ
Jennifer Peterson, DEQ NWQ
Katy Weil, Metro
Dwight Leisle, Port of Portland
Michael Pickering, Apex Companies LLC

The Port of Portland Responses to Oregon DEQ Comments: Draft Residual Ecological and Human Health Risk Assessments

The following provides responses from the Port of Portland (Port) on the comments from Oregon DEQ on the following documents. Both documents were prepared for Apex Companies LLC and the Port of Portland by Formation Environmental, February 2013.

- *Draft Ecological Risk Assessment, Residual Risk Assessment, Willamette Cove Upland Facility*.
- *Draft Residual Human Health Risk Assessment, Willamette Cove Upland Facility*.

DEQ Comments/Port Responses on the Residual Ecological Risk Assessment.

DEQ General Comments to be considered

1. **DEQ Comment:** *The document is well written and organized and provides an excellent assessment of ecological risks.*

Response: No response required.

2. **DEQ Comment:** *An uncertainty section is missing from the document and is needed to provide a description and analysis of the key uncertainties and risk analyses.*

Response: Discussion of uncertainties in the draft was embedded with the risk characterization discussion for chemicals and endpoints. A separate uncertainty section will be added that summarizes previous points made in the text.

3. **DEQ Comment:** *The risk assessment focus is on plants, invertebrates, and small home range birds and mammals. For bioaccumulatives such as PCBs,*

dioxins and furans, and mercury, impacts to upper trophic level receptors should be discussed.

Response: An analysis of risk to wide-ranging wildlife species such as hawks and weasels will be added to the analysis.

General Conclusions to be considered and carried forward into FS as appropriate

1. **DEQ Comment:** ***Central Parcel:*** *Hot spot levels of mercury, copper, and lead across multiple ecological receptors (plants, invertebrates, birds and mammals) are widely distributed in riverbank and upland soil in the Central Parcel. Significant concentrations above risk levels are also present for zinc, antimony, chromium and nickel. Hot spot levels of dioxins and furans occur in the limited upland soil sampled in the Central Parcel. The extent of this risk has not been defined, but based on several lines of evidence dioxins and furans may be present in other upland soil areas. In addition to metals, the Central Parcel's beach area and uplands are elevated in PAHs. Slag is present in this area.*

Response: Please see subsequent comments and responses on Hot Spot identification and the dioxin/furan (D/F) sampling, as the clarifications reached in the meeting with DEQ on September 5, 2013 may influence these statements.

2. **DEQ Comment:** ***Eastern Parcel:*** *Hot spot levels of lead and copper are found beach areas in the Inner Cove adjacent to the Eastern parcel and the beach, riverbank and upland soil adjacent to the railroad embankment. Significant concentrations above risk levels are also present for zinc, chromium, antimony, nickel and high molecular weight PAHs. PCBs are present at hot spot levels in the Eastern Parcel inner cove seep area and are above risk levels in upland and riverbank soil. However, the upland soil (adjacent to the Central Parcel) and the Inner Cove Seep appear to be from two different sources based on location and Aroclor composition. The extent of PCBs above risk levels in seep, riverbank soil and upland soil has not been fully characterized and the extent of risk levels has not been defined.*

Response: The Eastern Parcel and the Inner Cove were evaluated as separate Exposure Units, at the request of DEQ. DEQ has stated that "the extent of PCBs above risk levels in seep, riverbank soil and upland soil has not been fully characterized" is unclear. The following is intended to clarify this statement.

Seep. The Port is unaware of any seeps at Willamette Cove. A petroleum sheen was observed at the inner cover beach area during implementation of the remedial action at the McCormick & Baxter site in 2004. The test pits and removal action demonstrated that there was no continuing source to the river from the upland area; and appeared to be a localized source area. The excavation was terminated at the edge of the water, so residual product may have remained beneath the Oregon Division of State Lands (DSL) property located riverward of the OLLW.

Trenching was completed to assess the potential connection between the Facility and the inner cove beach area in 2010. No petroleum sheen was observed on groundwater in the trenches. Grab groundwater samples were analyzed for diesel and oil-range TPH, total and dissolved Priority Pollutant 13 Metals, total PCBs, total PAHs, total organochlorine pesticides, and VOCs. Low concentrations of these chemicals were detected (with the exception of pesticides and VOCs). The Inner Cove Beach EU was included in the RERA at DEQ direction, but the VCP agreement does not include this area in the Upland Facility. Rather, the VCP and subsequent agreements between DEQ and the Port indicate that the beach area would be characterized as part of the Portland Harbor Remedial Investigation (RI).

Riverbank. PCBs were detected in the riverbank samples (at concentrations up to 1.85 mg/kg) from the WC-SSH sampling area. Multiple phases of sampling were completed to delineate the nature and extent.

Upland. PCBs were non-detect in all of the upland samples from the Eastern Parcel. Following is a list of those samples.

- Deep samples from borings SE/E-1-10, SE/E-2-10, SE/E-3-10, SE/E-4-20, SE/E-5-10, and SE/E-6-20
- Hand auger samples from HA-1 through HA-4

- Shallow soil samples from borings TP-37/S-1, TP-38/S-2, and TP-39/S-2
- TB-3-SC1
- A3C1

DEQ states that "the upland soil (adjacent to the Central Parcel) and the Inner Cove Seep appear to be from two different sources based on location and Aroclor composition". PCBs were (1) non-detect in upland soil from the Eastern Parcel and (2) detected at significantly lower concentrations in upland soil from the Central Parcel (relative to the Eastern Parcel beach). This supports the conclusion that the upland is not a source of the PCBs detected in the deep beach soil.

3. **DEQ Comment:** ***Western Parcel:*** *Characterization on the Western Parcel is limited – only 5 samples for most analytes are available from the upland railroad area. No samples were taken to characterize riverbank soil. This area exceeds risk levels for HPAHs.*

Response: Comment noted; however, the sampling was consistent with work plans. For all parcels on the site, RI sampling was proposed by the Port and Metro, and approved by DEQ. Most of the sampling to date has been focused on areas of concern in the Upland Facility (UF) that were locations of particular contamination concern because of specific activities. Therefore, sampling across the UF is biased toward areas of higher concentration and exposure estimates. In addition, riverbank sampling was conducted as directed by DEQ based on the guidance identified for Source Control Program.

The Source Control Evaluation (SCE) concluded that the West Parcel has low potential for erosion. Although the riverbank is relatively steep and the shoreline is subject to relatively high bed shear during high-flow conditions, the riverbank is heavily armored and covered with thick vegetation. Furthermore, the riverbank location has been unchanged since it was constructed more than 30 years ago. Because there is no current or reasonably likely complete contaminant pathway to the river via soil erosion, the West Parcel is an excluded site (as defined by JSCS, a site that does not require source control) for the riverbank erosion pathway.

Specific Comments:

1. **DEQ Comment:** Table 2-1, Ecological Level II Screening Level Values:
   a. **Document updates required:**

   PCBs: The value provided for total PCBs should be applied to each Aroclor. Since there appear to be two sources, Aroclor 1260 and 1254 should be distinguished. The SLV for birds should be listed as 0.371 mg/kg and mammals 0.655 mg/kg. These are LOAEL based SLVs and therefore should not be multiplied by 5 (or Q of 5). This will change the results for screening soils for birds and mammals for the East Parcel Upland, (Appendix D) as well as the hot spot levels. Additionally, Figure 2-9 should be revised.

Response: DEQ directed the use of the SLVs in a teleconference and unofficial letter with comments on the BERA, citing Oak Ridge National Laboratory documents and the Washington MTCA cleanup levels. The Port incorporated the values as directed by DEQ (See Table 2-1 in the RERA).

Based on discussion on September 5, 2013, the Port agrees to apply the SLVs named above to total PCBs concentrations and to each of the Aroclors for which data are reported for Willamette Cove. The RERA Table 2-1 shows both the 0.65 and 0.371 values for mammals (corresponding to both the MTCA and ORNL values), and 0.655 for birds. The revised document will show the SLV for mammals as 0.371 mg/kg, and 0.65 mg/kg for birds. These SLVs will be shown for each of the Aroclors and for total PCBs.

The Port wishes to note, however, that these values are inconsistent with the Level II SLVs published by ODEQ in Table 1 of ODEQ Level II Screening Level Values (ODEQ 2001). In addition, the Washington MTCA regulations (Table 749-3) show only values for Plants (40 ppm) and 'wildlife' at 0.65 ppm. The ORNL ecorisk PRG documents (Efroymson et al., 1997; Table 6) show 0.371 ppm for shrews and 0.655 ppm for American Woodcock. Both the MTCA and ORNL tables identify these values for application to PCBs, which we interpret to mean total PCBs.

Reference Cited:
R. A. Efroymson, G. W. Suter II, B. E. Sample, D. S. Jones. 1997. Preliminary Remediation Goals for Ecological Endpoints. ES/ER/TM-162/R2

b. Document updates required:

*Dioxin TEQ: Bird and mammal SLVs should be presented using congener-specific risk-based concentrations. DEQ calculated congener specific RBCs using intake equations from EPA Eco SSLs (2007) and prey uptake model from Jager, (1998) [log Kww = 0.87 * log Kow- 2.0] and TRVs for shrew l.00E-05 mg/kg/day and robin 1.40E-04 mg/kg/day. Dioxins and furan congeners should be compared to the following tabulated RBCs calculated by DEQ, presented in Table 1 for mammals and Table 2 for birds. Where available, PCB congener RBCs should be calculated and should be incorporated in the dioxin/ furan TEQ evaluation. Dioxin total toxicity equivalency (TEQ) toxicity quotients for each sampling location using LOAEL risk based concentrations for chlorinated PCDD and PCDF congeners are presented in DEQ Table 3. Total TEQ toxicity quotients > 1 indicate unacceptable risk and TQ > 10 indicate hot spot levels.*

Response: Based on the discussion with DEQ on September 5, 2013, the Port will use the RBCs provided by DEQ in the Level II screen. The Port will also expand the more detailed exposure and risk analysis for dioxins so that risk is calculated for each detected congener, as converted to the TEQ to 2,3,7,8 TCDD. Total dioxin risk will then be calculated based on the sum of the risk from individual congeners. As discussed, congener-specific Kow values from the EPA Estimation Program Interface (EPI) Suite will be used where dioxin uptake estimating is necessary, such as in expanded exposure analysis.

In the initial draft, dioxins were included in the expanded Level II analysis using total TEQ based on the sum of concentrations from individual congeners. See section 4.2.6 and 4.3.6 in the RERA. This is a more common approach where screening level results are needed.

c. Comment to be considered with potential document update required:

Mercury: The DEQ Level II SLV for direct exposure is 0.025 mg/kg (bird s) and 4 mg/kg (mammals) considering the presence of methylmercury. The potential for the presence of methyl mercury should be evaluated in the document.

Response: The potential for methyl mercury in soils will be evaluated in the revised document. The potential presence of methyl mercury in surface soils seems low since the reducing conditions that promote methylation would not generally be present in surface soils. Note that mercury was retained as a COPC for all receptors except mammals in the Central Parcel, so incorporating this change into the Level II screen may not change results of the COPC identification.

2. **DEQ Comment: Document updates required:** Table 4-14, Hot Spot Values for Ecological Receptors: *Hot spot levels are 10 times the acceptable risk level. If a NOAEL SLV is used, a 5 times factor can be used to estimate the LOAEL. However, where LOAEL SLVs were estimated directly, only a factor of 10 should be applied to LOAEL SLVs. This will change hot spot levels presented in Table 4-14.*

Response: The hot spot values shown in Table 4-14 were based on the Level II SLVs published by DEQ (2001), and the 5x multiplier was applied properly based on DEQ Hot Spot guidance (1998). Except for PCBs, these hot spot values will remain unchanged, based on the discussion with DEQ on September 5, 2013. The SLVs for Aroclors for birds and mammals will be replaced by the values cited in Comment 1a, and multiplied by a factor of 10 to reflect that the SLVs are intended to be LOAEL-based. However, we note that the PCB values cited are not published SLVs, nor do they specifically correspond to Acceptable Risk Levels based on Oregon rules. Neither Oregon rules nor guidance are specific for using LOAEL-based screening levels in generic hot spot calculations.

3. **DEQ Comment: Document updates required:**

Section 2.2, Observed Impacts: The presence of sheen, oil, and slag is not discussed in the risk assessment, although it is documented in the Phase I Progress Report, 2001 and the Source Control Report. This information should be provided in this section of the risk assessment.

Response: The sheen and slag presence will be described in the document. But note that the sheen was technically not in the Willamette Cove Upland unit, but rather in the river. In addition, the sheen was observed over 10 years ago and has not been observed since.

4. **DEQ Comment: Document updates required:**

Section 2.5.4, Calculating COI Concentrations: *The text appropriately identifies several riverbank concentrations as composites, but does not discuss that there are test pit data that are also composite samples. Test pit composite data should be included in the dataset (Appendix B) and should be included in the composite risk analysis.*

Response: The test pit composites are samples that were combined from at least two test pit locations. In many of the composites, subsamples were taken from outside of the established depth intervals. In most cases, the test pits are represented in the discrete data from known depth intervals. Some of the test pit composites contained subsamples from different Exposure Units, and at least one includes a subsample (TP9) that was in the Lead Removal Action Area. As agreed in a September 5, 2013 meeting with DEQ, the Port will provide information that shows details of the makeup of the composite samples, and will show UCL90 values calculated with the test pit composites. Additionally, the uncertainty associated with excluding test pit composites in the dataset will be discussed further in the uncertainty section of the document. For example, the test pit concentrations for COCs will be compared to data from the range of discrete samples and the potential impacts on conclusions will be discussed.

5. **DEQ Comment: Document updates required:**

Section 3.3.1, Exposure Estimation Model, Lead Assimilation Efficiency: *A range of lead bioavailability can be evaluated in the uncertainty section of the risk assessment. 100% should be used in the risk analysis and main text since the form of lead at the site has not been identified. See also Table 3-1 and Table 3-3 use of 50% bioavailability for the robin and shrew.*

Response: Lead bioavailability of less than 100% is only used for soils; lead from ingested food is assumed to be 100%. Bioavailability less than 100% from soils and sediments (and foods) is well documented and could be an important factor in site management decisions in an FS. As agreed in the September 5, 2013 meeting with DEQ, analyses assuming 100% bioavailability from soils will be included in the primary risk evaluation; lower estimates of lead bioavailability will be incorporated as part of the uncertainty analysis.

6. **DEQ Comment: Comment to be considered:**

Section 3.3.2, Ecological Response Analysis: *DEQ's definition of acceptable risk for populations of ecological receptors is defined in two parts:*

a. *A 10 percent chance, or less, that more than 20 percent of the total local population will be exposed to an exposure point value greater than the ecological benchmark value (LD50) for each contaminant of concern*
b. *No other observed significant adverse effects on the health or viability of the local population. This evaluation must evaluate effects on reproduction related to fecundity and the sustainability of the local population.*

By evaluating probability of exposure to "no observed" and "lowest observed" effect levels on mortality, growth, and reproduction the two criteria were met.

Response: No response required.

7. DEQ Comment: Comment to be considered:

Section 4.0, Exposure Analysis, Probabilistic Risk Assessment, Local Population, Number of Animals: *The number of animals (49 shrew and 49 robin) used in the probability of exposure analysis is overestimated in some cases, which when corrected will increase the probability of exposure slightly. The population assessed should be the local population as defined by the size of the facility parcels. The number of organisms in the local population should be based on the number of expected animals within this area. This number should then be rounded down a number divisible by 5 in order to avoid unrealistically high calculated values of b as an artifact of the calculation method given y must be an integer. More information on this issue can be provided in an example upon request. Robin and shrew updates are provided below:*

a. *West Parcel: 5 acres (2 hectares), 10 robin / hectare and 7 shrew I hectare shrew (means, EPA Exposure Factors Handbook) = 20 robin; 10 shrew*
b. *Central Parcel: 11 acres (4.5 hectares) = 45 robin; 30 shrew*
c. *East Parcel: 16 acres (6.5 hectares) = 65 robin; 45 shrew*

Response: As agreed on September 5, 2013, the suggested population sizes will be used. However, we note that the calculation of the population size reported in the RERA was consistent with the guidance provided by DEQ for conducting probabilistic analysis for ecological risk assessments. See DEQ Level III ERA guidance, Appendix A.

8. DEQ Comment: Document updates required:

Section 4.3.5, Dioxin /Furan Upland Soil Samples: *Composite Samples DU-1, DU-2, DU-3 and WC-1/2/3 as well as discrete samples WC-1, WC-2 and WC-3 should be included in the Central Parcel Upland Exposure unit in the absence of more spatially representative data. Dioxin I furan TEQ's for birds and mammals should be screened as a part of these units. The results for birds and mammals in Table 3 show dioxin TEQ at hot spot levels in the*

Central Parcel Uplands for all discrete and composite samples (including the multi-incremental samples or MIS). DU-2, which is the westernmost sample, had the highest hazard quotient for the MIS samples.

Response: The direction in the comment is inconsistent with the agreements between the Port and DEQ prior to preparation of the RERA. The agreements specifically identified the MIS-based samples (DU-1, DU-2, and DU-3) as the basis for exposure point calculation for the Wharf Road EU. DEQ specifically identified the average (we used the maximum) concentration among the DU samples as adequate for the EPC for birds and mammals in the Wharf Road EU, whereas individual DU samples should be used for invertebrates and plants (see the December 20, 2011 DEQ comment letter.) The DU samples were collected as MIS samples specifically to support risk-assessment. Because the DU samples were 30-pt composites sampled along a grid, they are not comparable to the "WC" samples cited in the comment, and should not be combined for an exposure assessment. This may be especially true for a RERA, where the focus is on site risk management decisions, and not screening-level analyses to determine COCs.

The comment is also inconsistent with agreements for the RERA based on the approach that the exposure units would be mutually exclusive. (See the March 12, 2012 DEQ comment letter.)

We understand that the analysis requested in the comment will provide additional information on the contribution of D/F congeners to overall risk. However, including the analysis as requested is unlikely to change the overall conclusions of the RERA regarding identification of COCs on which the FS should focus, and is unlikely to contribute to development of remediation alternatives for the FS. The uncertainty associated with excluding the "WC" samples will be discussed in the uncertainty section of the document.

9. **DEQ Comment: Comment to be considered:**

Section 5.0, Conclusions and Recommendations: *Elevated concentrations of metals in the shoreline areas are representative of upland conditions. The future likely use of the site is as a natural area and therefore plants and invertebrates should be considered in the context of receptors at other*

trophic levels. Table 4 below, prepared by DEQ, presents a summary of contaminants of concern for Willamette Cove exposure areas and appropriate ecological receptor (e.g. plants, invertebrates, birds and mammals). Risk at multiple levels of biological organization increases the weight of evidence of ecological risk. Also note for each exposure area the number of exceedances for each ecological receptor.

Response: The Conclusions section will be expanded to discuss these issues and concepts.

10. DEQ Comment: Document updates required:

Section 4.0 to 5.0, Uncertainty Section: *An uncertainty section should be added here that describes important uncertainties in the dataset and identifies CPECs based on inadequate detection limits or no available SLVs.*

Response: An uncertainty section will be added to the document, and address the major points already addressed in the document and the additional points requested by DEQ in these comments.

11. DEQ Comment: Comment to be considered:

General, Tables and Figures: *Dioxin is misspelled (as dioxan) in several figures and tables.*

Response: The spelling will be corrected.

12. DEQ Comment: Document updates required:

Tables 2-2 through Table 2-7, CPEC Summary by Exposure Unit:

a. *COIs without screening level values should be included as CPECs on this basis in the summary tables*
b. *Visual observations of oil, sheen and slag should be included here*

c. *All TPH data is not included in summary or screening tables (e.g. West Parcel@ 1,810 mg/kg)*
d. *Aroclors should be listed separately and then added to a "Total PCB" concentration for screening.*
e. *Discrete and composite results for dioxins and furan TEQ should be presented.*

Response: Edits will be made in the revised report.

13. DEQ Comment: Document updates required:

Table 3-1 and Table 3-3, Uptake Equations:

a. *Dioxins and furans: Uptake equations should be congener-specific using BAFs presented below (log Kww = 0.87 * log Kow - 2.0).*
b. *The use of 50% invertebrates for the shrew is not a realistic assumption. An evaluation that presents the range from 80% to 1 00% is reasonable.*

Response: See response to Comment #8 regarding the congener-specific D/F uptake. The 50% level was added to represent omnivorous small mammals, not an alternative diet for the shrew. The shrew diet remains the limiting exposure scenario for most of the COCs.

14. DEQ Comment: Document updates required:

Table 3-2, Ecological Benchmark Values, Birds:

a. Cadmium: *The LOAEL EBV for birds should be 6.4 mg/kg bw-day geomean (EPA Eco SSL, 2005). This will change the results for cadmium LOAEL exceedance for birds for the central beach exposure unit.*
b. Copper: *The NOAEL EBV for birds should be 4.05 mg/kg bw-day and the LOAEL should be 12.1 mg/kg bw-day for the same study (EPA Eco SSL, 2005). This will not change the results but will change the toxicity quotient in Table 4-3 and 4-4.*
c. Vanadium: *The EBV for birds should be a NOAEL of 0.344mg/kg bw-day and a LOAEL of 0.688 from the same study (EPA Eco SSL, 2005).*

Response: The above EBV changes will be incorporated into the revised analysis as requested.

15. DEQ Comment: Document updates required:

Table 3-4, Ecological Benchmark Values, Mammals:

a. Cadmium: *The EBV for mammals should be a NOAEL of 0.77 mg/kg bw-day and a LOAEL of 7.7 mg/kg bw-day from the same study (EPA Eco SSL, 2005). This will change the results slightly in Table 4-12 – LOAEL exposure for the omnivore will exceed a toxicity quotient of 1.*
b. Copper: *The EBV for mammals should be a NOAEL of 5.6 mg/kg bw-day and a LOAEL of 9.34 mg/kg bw-day from the same study (EPA Eco SSL, 2005). This will not change the results, but it will change the toxicity quotients presented in Table 4-3, 4-9, 4-10 and4-ll.*
c. Lead: *The EPVs are correct, but the citation should read EPA Eco SSL, 2005.*

Response: The above EBV changes will be incorporated into the revised analysis as requested.

16. DEQ Comment: Document updates required:

Table 4-7 and 4-13, Exposure Calculation for Dioxin / Furan TEQ: *Toxicity quotients should be calculated using information in comment #4 regarding Table 2-1. This will increase the toxicity quotients – see Table 2 on toxicity quotients for each sample using congener specific RBCs.*

Response: We assume the comment above refers to Comment #1 (instead of Comment #4) referring to treatment of different Aroclors in the PCB screening. Please see response to Comment #8 regarding D/F calculations.

17. DEQ Comment: Document updates required:

Table 4-10, Exposure Calculation and Comparison to EBVs: *Aroclors are presented, but Total PCBs should be indicated along with the dominant congeners-1260 and 1248.*

Response: The table (including the footnotes) and text will be changed to clarify that the Aroclors refer to total PCBs as reflected by total Aroclors. As directed in the September 5, 2013 meeting with DEQ, the risk from each Aroclor will be presented.

18. DEQ Comment: Document updates required:

Table 4-14, Generic High Concentration Hot Spot Values for Ecological Receptors:

a. Plant and Invertebrate Hot Spot Levels: *These should only be multiplied by 10 – the 5 x factor does not apply.*

Response: As agreed in the September 5, 2013 meeting, the 50x multiplier will only be applied where the TRV used to calculate an SLV represents an NOAEL endpoint. Based on the September 16, 2013 meeting, where the plant and invertebrate screening level values from DEQ's Level II SLV Table are not based on NOAEL values, SLVs will be multiplied by the 10x for high hot spot concentrations.

b. Aroclors and Total PCBs: *The SLVs are 0.371 mg/kg for the shrew and 0.655 mg/kg for the robin (Preliminary Remediation Goals for Ecological End points, 1997). These are LOAEL based SLVs and should be multiplied by 10 to determine hot spot levels.*

i. Birds: 3.71 mg/kg

ii. Mammals: 6.55 mg/kg

Response: As directed in the September 5, 2013 meeting the bird and mammals SLVs for PCBs that were identified by DEQ are based on LOAELs and therefore will be multiplied by only 10x to calculate High Concentration Hot Spots. , a

c. Dioxin TEQ: *A toxicity quotient of 10 and above for dioxin TEQ indicate hot spot levels. RBCs presented above are LOAEL SLVs.*

Response: Please see previous Comment #1 on published Level II SLVs, and the use of hot-spot calculations in the response to part "a" of this comment.

19. DEQ Comment: Document updates required:

Table 4-15 and Appendix F, Probabilistic Hot Spots: *Hot spots are location specific and are identified as concentrations that exceed risk-based concentrations. Risk based concentrations cannot be identified from the probability of exposure analysis. Instead, LOAEL risk based concentrations using the intake and EPVs presented in Tables 3-1 through 3-4 in soil should be used to identify hot spots. PCBs and bird and mammalian TEQ should be added to this table.*

Response: As agreed in the September 5, 2013 meeting, the probabilistic hot spots will be removed from the document.

20. DEQ Comment: Document updates required:

Figure 2-1, Habitat Areas: *The map shows the upland facility boundary, but does not state what elevation it is based on. It appears the upland boundary is defined as down to the low water line. The upland facility should be clearly defined in both Figure 2-1 and 2-2.*

Response: The upland facility and elevations lines will be clearly shown in the revised document.

21. DEQ Comment: Document updates required:

Figure 2-2, Conceptual Site Model of Ecological Exposure Pathways:

a. Soil: *Soil should be defined as riverbank and upland soil down to mean high water.*

Response: Soils will be defined this way in the revised document.

b. Uptake by Biota and Soil (ingestion, direct contact): *This should show a complete pathway to the aquatic environment with a statement that the in-water Portland Harbor Risk Assessment and the DEQ source control evaluation will be used to evaluate these pathways.*

Response: This note will be added to the figure.

c. Sediment Exposure (Pore water, Beach Sediment): *The footnote here states "there is no exposure to surface water, groundwater, or to sediment on the Upland Facility". However, Figure 2-1 clearly defines the upland facility boundary down to low water where these exposures occur. Please clarify.*

Response: The Upland Facility as defined by the VCP agreement extends to the mean high water mark. The note is based on the division between the UF and the beach areas that were included in the RERA by direction of DEQ. The figure will be clarified to reflect inclusion of the beach exposure units.

d. Groundwater: *Exposure to seep areas should be considered complete for terrestrial receptors. Aquatic exposure is also complete and should be footnoted to indicate this will be addressed as a part of the source control and in-water risk assessments.*

Response: The Port agrees that seeps can be exposure points for terrestrial species. However, there are no seeps at the Willamette Cove site.

22. DEQ Comment: Document updates required:

Attachment E, Level III Probabilistic Analysis for Birds and Mammals, Lead, Central Parcel: A removal action conducted in the eastern end of the central parcel in 2008 removed significantly elevated concentrations of metals. The replacement of

these samples with representative samples after the removal is appropriate, but including all of the many samples is out of proportion to the sampling frequency in the remainder of the exposure unit, and biases the distribution low. This is especially the case for lead, where 18 samples from the same 9 locations are included for the 1.0 ft and 1.5 ft depths. All other metals (arsenic, chromium, copper, mercury and zinc) were only analyzed at the 1.0 ft sampling interval representing a total of 9 samples. However, since the leave surface was not re-characterized after removal it is unclear if these samples are representative of the 0-3 ft. soil interval. Recommend presenting the results with and without this area and discuss in the uncertainty section.

Response: The data set for the Central Parcel included samples reported in the Removal Action Report for the area from which soil was removed. However, in some cases data from more than one sampling depth was included for an individual sampling location. This inclusion was an error due to a database query, and will be corrected for the revised document. As discussed in the September 5, 2013 and September 16, 2013 meetings with DEQ, the uncertainty associated with incorporating the removal action area samples will be evaluated in the uncertainty section of the revised report. Specifically, the bias that these samples introduce to the analysis will be evaluated by also running the analysis with a reduced data set.

Oregon Department of Environmental Quality (DEQ) comments on draft: *Residual Human Health Risk Assessment, Willamette Cove Upland Facility,* Prepared for Apex Companies LLC and the Port of Portland by Formation Environmental, February 2013.

General Comments:

1. **DEQ Comment:** *Document updates required: Site characterization and uncertainty. At our meeting on October 3, 2012, we discussed the lack of identified extent of soil contaminated with unacceptable concentrations of dioxin and PCBs. In moving forward with the risk assessment, we understood that the Port would provide support for why the contaminated areas are expected to be limited. The risk assessment does not support the contention that the contamination is limited. The lack of full characterization of the extent of dioxin and PCB contamination is not discussed in the uncertainty section. Without adequate delineation, the risk assessment will need to include assumptions about the extent of unacceptable concentrations in soil and potential hot spots.*

Response: The revised RHHRA will include an expanded description of the uncertainties associated with the spatial extent of dioxin and PCB sampling. Please see response to specific comment # 6 and #7.

2. **DEQ Comment:** *Document updates required: TPH. The presence of petroleum hydrocarbons needs to be addressed in more detail. Total petroleum hydrocarbons (TPH) was screened in, but was not quantitatively evaluated in the risk assessment. DEQ developed risk-based decision making guidance in 2003 for quantitatively evaluating risk from petroleum hydrocarbons. Quantitative assessments of TPH risk should be made following this guidance, as presented in DEQ's 2010 human health risk assessment guidance. In addition, sheen has been observed at the site. Following DEQ guidance, the risk assessment should state that the presence of TPH product is considered an unacceptable risk to humans from direct exposure.*

Response: TPH will be quantitatively evaluated in the risk assessment in accordance with DEQ's 2010 human health risk assessment guidance. DEQ's RBCs from Table 5 will be used to calculate risk from TPH exposure throughout the site. Additionally, the presence of TPH product sheen will be addressed and acknowledge as an unacceptable risk to humans from direct exposure in the risk assessment.

Specific Comments:

1. **DEQ Comment: Document updates required: Page 2-8, Section 2.6.1, third paragraph.** *Chemicals that do not have SLVs should not be eliminated from the risk assessment. As stated in the next sentence, not being able to quantitatively evaluate these chemicals is a source of uncertainty. This should be discussed in the uncertainty section.*

Response: Chemicals that do not have SLVs are a source of uncertainty and will be discussed further in the uncertainty section.

2. **DEQ Comment: Document updates may be required: Page 2-9, Section 2.6.2, top paragraph.** *Urban residential RBC levels were used to screen recreational exposure. The quantitative information regarding recreational exposure parameter values used in the risk assessment should be used to support the assumption that urban residential RBCs are sufficiently protective as screening values. We calculated trespasser and recreational RBCs using site-specific exposure values, and concur that default urban residential RBCs are protective of the other receptors.*

Response: The text in the document will be updated to clarify that the urban residential RBC levels are sufficiently protective as screening values for all receptors.

3. **DEQ Comment: Document updates may be required: Page 2-9, Section 2.6.2.** *The text states that EPA RSLs were used for screening if*

no DEQ RBC was available. This approach is consistent with DEQ guidance. However, Appendix D shows that RSLs were not used to screen site concentrations. The lack of a full screen using RSLs does not appear to substantially affect the results of the residual human health risk assessment (RHHRA).

Response: As discussed in the September 5, 2013 meeting, Appendix D uses the EPA RSLs when the DEQ RBC values were unavailable. See the column header titled "Selected SLV (mg/kg) Urban Resident (DEQ)/ Resident (RSL) in Appendix D tables. Also refer to Table 2-1 for the selected screening level values for every COI at WC.

4. **DEQ Comment: Document updates required (Table 5 *to be added* and carried forward into FS: Page 2-10, Section 2.6.4, top paragraph**. *The statement that "risk is not generally quantified for complex mixtures like diesel" is contradicted by the use of quantitative risk-based screening levels. It is correct that there is not an RfD for diesel that can be used in risk calculations. However, in 2003, DEQ developed a method for quantifying risks from TPH exposure, and established risk-based concentrations for TPH. DEQ risk assessment guidance allows the use of the RBCs (including TPH diesel RBCs) to calculate risk. Given the high concentrations of diesel in some portions of the site, it is important to quantify the associated risk. DEQ prepared a table of TPH RBCs (attached Table 5). The Port should confirm these calculations and use the RBCs in the risk assessment to identify areas of unacceptable risk and potential hot spots.*

The presence of percent levels of TPH in soil samples in the inner cove area, and the observations of sheen in many soil samples from the West and Central parcels, indicates that separate phase petroleum hydrocarbons are present at the site. RBCs for pathways that include direct contact are not appropriate (or contact with petroleum product. The risk assessment needs to include an acknowledgement that contact with sheen or product in the soil is considered unacceptable. Methods for limiting contact with sheen or product need to be evaluated in the feasibility study.

Response: The TPH RBCs in Table 5 prepared by DEQ will be confirmed and added to the risk assessment. TPH RBCs will be used to calculate risk from TPH exposure throughout the site.

The higher relative concentrations of TPH in the inner cove area are further discussed in the draft *Ecological Risk Assessment, Residual Risk Assessment* General Conclusions DEQ Comment #2 for the Eastern Parcel.

The observations of sheen on soil samples from the West and Central Parcels were noted as part of the field screening procedure. Sheen testing on soil provides a relative indication of whether heavier hydrocarbons are present (however, sheens can be produced from both petroleum products and organic processes). This is not an indication of separate phase hydrocarbons.

5. **DEQ Comment: Comment to be considered: Page 5-3, Section 5.2.3, last paragraph.** *For pathways with a hazard index greater than 1 .0, it is acceptable to evaluate non-cancer risk by toxic endpoint. This can be complicated, however, because most chemicals have more than one toxic endpoint, and the RfD may be based on only one endpoint. DEQ allows but does not require the evaluation by toxic endpoint.*

Response: Comment acknowledged.

6. **DEQ Comment: Document updates required: Page 5-9, Section 5.6.1, last sentence.** *The Wharf Road EU may represent a small portion of the site; however, the extent of unacceptable dioxin contamination has not been delineated. Given the association of dioxin contamination with widespread metal contamination, and the extensive scale of industrial operations in the central parcel, it is likely that unacceptable dioxin soil concentrations are present over an area larger than the Wharf Road EU. This considerable uncertainty regarding risk needs to be addressed in the uncertainty section.*

Response: The uncertainty associated with dioxin soil concentrations in the Wharf Road Exposure Unit as well as the potential for contamination in the Central Parcel will be addressed in the uncertainty section.

7. **DEQ Comment: Document updates required: Page 5-10, Section 5.8.** *There is considerable uncertainty in the characterization of contamination at the site that needs to be addressed. Unacceptable dioxin concentrations in soil at the Wharf Road have not been bounded. Because dioxin is more likely associated with central parcel activities rather than some unexplained association with the road, we strongly suspect that additional areas of the central parcel are contaminated with dioxins. This possibility must be addressed and considered in the feasibility study.*

   Similarly, the high PCB concentrations in the inner cove beach unit have not been fully delineated or explained. It is possible that PCB contamination is more widespread than currently identified. This uncertainty needs to be acknowledged in the residual risk assessment and addressed in the feasibility study for DEQ. This information may also influence the scope of the EPA in-water remedy at Willamette Cove.

Response: The uncertainties associated with the characterization of dioxin and PCB contamination at the site will be addressed in the HHRRA. These concerns will also be acknowledged and addressed in the feasibility study.

8. **DEQ Comment: Comment to be noted: Table 3-1.** *As addressed in the Port's follow-up to our June 21, 2013 call, the exposure frequency of 208 days/year applies to all routes (ingestion, dermal and inhalation).*

Response: The exposure frequency of 208 days/year will be applied to all exposure routes (ingestion, dermal and inhalation) for the transient trespasser in Table 3-1.

9. **DEQ Comment: Document updates required: Table 3-4.** *The ProUCL output for lead shows that the approximate gamma distribution should be used with more than 40 data points. Because there are only 5 samples, the adjusted gamma distribution should be used, resulting in a 90UCL*

of 105 mg/kg; or, alternatively, the maximum value of 95 mg/kg can be used.

Response: The maximum concentration of 95 mg/kg will be used for the EPC for Lead in the West parcel EU.

10. **DEQ Comment: Document updates required: Table 3-5.** *Mercury is a central parcel COPC missing from this table. The maximum is 20.2 mg/kg, with a 90 UCL of 3.8 mg/kg.*

Response:
As agreed in the September 5, 2013 meeting, Mercury should not be carried through the risk assessment based on the multi-tier concentration-risk evaluation conducted in accordance with DEQ guidance (DEQ 2010). Please see Appendix D-2-1 and D-2-2 for the risk screening summary tables.

11. **DEQ Comment: Document updates required: Table 3-7.** *Diesel should be a COPC for the inner cove beach, with a maximum concentration of 91,300 mg/kg and a 90UCL of 38,000 mg/kg. These concentrations are more than ten times the urban residential soil RBC of 2,200 mg/kg. Using the TPH RBC of 4,000 mg/kg, the exposure point concentration of 38,000 mg/kg indicates an unacceptable risk with a hazard quotient of 10. TPJ-Id concentrations greater than 40,000 mg/kg indicate potential hot spot locations. This data and associated risk determination must be included in the HHRRA document.*

Response: Diesel will be added as a COPC for the inner cove beach and the associated risk will be addressed in the risk characterization and uncertainty section of the HHRRA report.

12. **DEQ Comment: Document updates required: Table 5-8 and Figure 5-l.** *Because there is unacceptable risk identified in the exposure*

units, hot spot levels need to be developed for all chemicals of interest, not just chemicals of concern.

Response: As discussed in the September 5, 2013 meeting with DEQ, high concentration Hot Spot values will be calculated for chemicals that exceeded HQ of 1.0 in the Concentration Toxicity Screen. Exceedence of hot spot values will then be mapped for the site.

13. **DEQ Comment:** Comment to be considered: Table 5-7. *Excess lifetime cancer risks should be presented to one significant digit (e.g., 6 x 10'4 rather than 6.35 x 10'4) to avoid implying unwarranted precision. Hazard indices can be presented to two significant digits.*

Response: Excess cancer risks will be presented to one significant digit and the hazard indices will be presented to two significant digits.

14. **DEQ Comment: Document updates required: Appendix D.** *The column with the heading "Detected chemicals without criteria" includes "?PRG" as an entry. It does not appear that any EPA regional screening levels were used to screen chemicals. Following DEQ guidance, EPA residential RSLs should be used to screen if RBCs are not available. This column can be used to indicate the use of RSLs. Even for chemicals that are not detected, it is useful to compare detection limits with RSLs to see if a definitive screening conclusion can be reached. The lack of a full screen using RSLs does not appear to substantially affect the results of the RHHRA.*

Response: Appendix D uses the EPA RSLs when the DEQ RBC values were unavailable. Please see comment #3 for additional information. The footnote for "?PRG" will be updated to clarify that both the DEQ RBCs and EPA residential RSLs were used before this flag was presented.

Appendix D-1-2 *is missing.*

Response: Appendix D-1-2 was unintentionally excluded from the document and will be added to Appendix D.

Appendix D-2-1, D-3-1. *For samples that were analyzed for benzo [b+k] fluoranthene instead of the separate compounds, the lower of the RBCs for benzo[b]fluoranthene and benzo[k]fluoranthene should be used.*

Response: The lowest RBC for benzo[b]fluoranthene and benzo[k]fluoranthene was applied to samples analyzed for benzo[b+k]fluoranthene. This seems to meet the goals of the comment.

Appendix D-2-2. *The note for pentachlorophenol states that there were only two detected discrete values. The table shows that there were no detected concentrations.*

Response: The note will be changed to read "No detected values."

Appendix D-3-1. *For evaluation of Total of 4,4'-DDD/DDE/DDT, the RBCs for DDE should be used as a conservative screen. For evaluation of m,p-xylene, the RBC for total xylene should be used.*

Response: The indicated RBCs for 4,4'-DDD/DDE/DDT and m,p-xylene will be used for a conservative screen.

Appendix D-4-1. *For evaluation of m,p-xylene, the RBC for total xylene should be used.*

Response: The total xylene RBC will be used for m,p-xylene as a conservative screen.

***Appendix D-4-2**. There are notations for chemicals with "only 3 detected values". Where screening values (RBCs or RSLs) are available, the maximum concentration should be used to calculate Rij. Cobalt and vanadium are screened in and evaluated, as shown in Table 5-4-2.*

Response: The maximum concentration will be used to calculate Rij and will be screened in the risk assessment.

15. DEQ Comment: Document updates required: Appendix E

- *See comment on Table 3-l.*

Response: The appropriate changes will be made to Table 3-1 as outlined in comment #8.

- *Site-specific PEFs can be used, but the calculations shown in the detailed table should match the values used in the risk assessment.*

Response: Site-specific PEF values will be used in the risk assessment and will be consistent throughout all tables and calculations.

- *Values for IRSadj and SFSadj should be shown explicitly. For example, the IRSadj value for recreational park user in the West Parcel is shown as the ingestion rate (mg/day) of 62.86 for adults and 426.67 for children. Because IRSadj incorporates exposure duration and body weight (as well as toxicity adjustment factors), the units are mg-yr/kg-day. One IRSadj value can be used, combining child and adult exposure (490 mg-yr/kg-day).*

Response: The units for the adjusted ingestion rate will be changed to mg-yr/kg-day to reflect the incorporation of exposure duration, body weight, and toxicity adjustment factors. A single IRSadj value will not be

used as the child and adult exposure are calculated separately for all receptors and exposure pathways in the risk assessment.

- *Similarly, adherence factors (mg/cm^3) should not be modified for early-life exposure. Instead use the SFSadj value of 1445 mg-yr/kg-day (for combined child and adult exposure).*

Response: The SFSadj value will incorporate the early-life exposure; however, there will be a separate value for the child and adult to be consistent with risk calculations for this assessment.

- *Early-life exposure is included for relevant chemicals in the assessment of cancer risk. It is not appropriate to modify intake rates for non-cancer effects.*

Response: Intake rates will not be modified for non-cancer effects for any chemicals in the risk assessment.

APPENDIX B

Upland Facility Surface Soil Data - Residual Risk Assessment

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1016	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1221	0.0077	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1232	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1242	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1248	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1254	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclor 1260	0.0038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Aroclors	Aroclors	0.0077	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Conventionals	Total organic carbon	0.27		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Conventionals	Total solids	95.4		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	>10 Phi clay	0.09		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	8-9 Phi clay	0.02		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	9-10 Phi clay	0.05		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Coarse sand	19.8		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Coarse silt	0.47		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Fine sand	9.3		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Fine silt	0.14		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Fines	0.87	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Gravel	1.69		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Medium sand	66.1		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Medium silt	0.08		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Very coarse sand	1.75		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Very fine sand	0.47		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Grainsize	Very fine silt	0.02		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	2,4,5-T	0.0016	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	2,4-D	0.0065	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	2,4-DB	0.082	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	Dalapon	0.016	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	Dicamba	0.0032	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	Dichloroprop	0.0065	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	Dinoseb	0.0032	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	MCPA	3.2	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	MCPP	3.2	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Herbicides	Silvex	0.0016	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Aluminum	12300		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Antimony	0.8	J	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Arsenic	1.7		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Cadmium	0.06		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Chromium	17		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Copper	19.9		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Lead	55		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Mercury	0.18		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Nickel	18		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Selenium	0.2	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Silver	0.02	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Metals	Zinc	60		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Acenaphthene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Acenaphthylene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Anthracene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0079	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0064	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.01	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.015	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0094	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Chrysene	0.012	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Fluoranthene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Fluorene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.0717	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.011	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.019	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Naphthalene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Phenanthrene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Pyrene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Total BaPEq	0.0094	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	PAHs	Total PAHs	0.0717	T	Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	2,4'-DDD	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	2,4'-DDE	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	2,4'-DDT	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	4,4'-DDD	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	4,4'-DDE	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	4,4'-DDT	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Aldrin	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	alpha-Endosulfan	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	beta-Endosulfan	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	cis-Chlordane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	cis-Nonachlor	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Dieldrin	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Endosulfan sulfate	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Endrin	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Endrin aldehyde	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Endrin ketone	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Heptachlor	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Heptachlor epoxide	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Methoxychlor	0.0019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Mirex	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Oxychlordane	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Total Chlordanes	0.00038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Total Endosulfan	0.00038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.00038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	Toxaphene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	trans-Chlordane	0.00019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Pesticides	trans-Nonachlor	0.00038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,3,4,5-Tetrachlorophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,3,4,6-Tetrachlorophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,3,5,6-Tetrachlorophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,4,5-Trichlorophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,4,6-Trichlorophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,4-Dichlorophenol	0.057	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,4-Dimethylphenol	0.057	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2,4-Dinitrophenol	0.19	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2-Chlorophenol	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2-Methylphenol	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	2-Nitrophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	0.19	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	4-Chloro-3-methylphenol	0.038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	4-Methylphenol	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	4-Nitrophenol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	Pentachlorophenol	0.019	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phenols	Phenol	0.038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Bis(2-ethylhexyl) phthalate	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Butylbenzyl phthalate	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Dibutyl phthalate	0.034		Y
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Diethyl phthalate	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Dimethyl phthalate	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	Phthalates	Di-n-octyl phthalate	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	1,2,4-Trichlorobenzene	0.019	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	1,2-Dichlorobenzene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	1,3-Dichlorobenzene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	1,4-Dichlorobenzene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	2,4-Dinitrotoluene	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	2,6-Dinitrotoluene	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	2-Chloronaphthalene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	2-Nitroaniline	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	3,3'-Dichlorobenzidine	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	3-Nitroaniline	0.11	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	4-Bromophenyl phenyl ether	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	4-Chloroaniline	0.057	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	4-Chlorophenyl phenyl ether	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	4-Nitroaniline	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Aniline	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Azobenzene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Benzoic acid	0.19	UJ	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Benzyl alcohol	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Bis(2-chloro-1-methylethyl) ether	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Bis(2-chloroethoxy) methane	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Bis(2-chloroethyl) ether	0.038	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Carbazole	0.0038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Dibenzofuran	0.0038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Hexachlorobenzene	0.00019	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Hexachlorobutadiene	0.0008	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Hexachlorocyclopentadiene	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Hexachloroethane	0.0038	UT	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Isophorone	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	Nitrobenzene	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	N-Nitrosodimethylamine	0.094	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	N-Nitrosodiphenylamine	0.019	U	N
Central Beach Exposure Unit	06B026	LWG0106B026SDS015C00	10/14/2002	Composite	0	0.5	SVOCs	N-Nitrosodipropylamine	0.038	U	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Antimony	0.5	UJ	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Arsenic	1.27		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Beryllium	0.5	U	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Cadmium	17		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Chromium	0.622		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Copper	13.3		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Lead	42.5	J	Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Mercury	0.129		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Nickel	32.4		Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Selenium	0.5	UJ	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Silver	1	U	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Thallium	0.5	U	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Metals	Zinc	64.7	J	Y
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Beach Exposure Unit	HA-5	HA-5/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1016	0.0011	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1221	0.0019	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1232	0.0018	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1242	0.0011	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1248	0.0014	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1254	0.00064	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1260	0.00082	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1262	0.00098	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclor 1268	0.00084	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Aroclors	Aroclors	0.0019	UT	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Conventionals	Total organic carbon	0.06		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Conventionals	Total solids	95.3		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	>9 Phi clay	0.08		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	8-9 Phi clay	0		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Coarse sand	25		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Coarse silt	0.2		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Fine gravel	0.37		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Fine sand	6.34		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Fine silt	0.06		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Fines	0.41	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Medium gravel	0.1		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Medium sand	65.6		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Medium silt	0.02		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Very coarse sand	1.32		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Very fine sand	0.33		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Grainsize	Very fine silt	0.05		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Aluminum	5640		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Antimony	0.2	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Arsenic	2.95		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Cadmium	0.098		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Chromium	11.3		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Copper	16.3	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Lead	18.3		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Mercury	0.412		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Nickel	16.4		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Selenium	0.04	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Silver	0.019	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Metals	Zinc	52.7		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.018		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Acenaphthene	0.003		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Acenaphthylene	0.025		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Anthracene	0.036		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.13		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.18		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.16		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.16		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.048		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Chrysene	0.16		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.02		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Fluoranthene	0.25		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Fluorene	0.0067		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	High Molecular Weight PAH	1.61	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.14		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.237	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Naphthalene	0.038		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Phenanthrene	0.11		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Pyrene	0.36		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Total BaPEq	0.244	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PAHs	Total PAHs	1.84	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	Dioxin-like PCB congener TCDD toxicity equivalent (ND = 0)	2.49E-08	T	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB077	0.00000185		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB081	0.000000352		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB105	0.00000784		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB106 & 118	0.0000169		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB114	0.000000444		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB123	0.000000381		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB126	0.000000237		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB156	0.00000221		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB157	0.000000708		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB167	0.00000115		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB169	0.000000151	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	PCB_Congeners	PCB189	0.000000371		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	2,4'-DDD	0.0000272	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	2,4'-DDE	0.0000288	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	2,4'-DDT	0.000367	NJ	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	4,4'-DDD	0.000204		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	4,4'-DDE	0.000588		Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	4,4'-DDT	0.000438	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Aldrin	0.0000264	UJ	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	alpha-Endosulfan	0.0000243	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0000282	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	beta-Endosulfan	0.000726	NJ	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.000831	NJ	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	cis-Chlordane	0.0000281	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	cis-Nonachlor	0.0000352	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0000603	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Dieldrin	0.0000432	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Endosulfan sulfate	0.0000623	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Endrin	0.000751	NJ	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Endrin aldehyde	0.0000369	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Endrin ketone	0.0000248	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0000644	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Heptachlor	0.0000257	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Heptachlor epoxide	0.0000335	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Methoxychlor	0.0000334	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Mirex	0.0000303	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Oxychlordane	0.0000152	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Total Chlordanes	0.0000352	UT	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Total Endosulfan	0.000726	NJT	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.00123	JT	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	Toxaphene	0.00794	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	trans-Chlordane	0.0000177	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Pesticides	trans-Nonachlor	0.0000306	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,3,4,5-Tetrachlorophenol	0.00062	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,3,4,6;2,3,5,6-Tetrachlorophenol coelution	0.00039	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,4,5-Trichlorophenol	0.00031	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,4,6-Trichlorophenol	0.00039	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,4-Dichlorophenol	0.002	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,4-Dimethylphenol	0.0059	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2,4-Dinitrophenol	0.039	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2-Chlorophenol	0.0019	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2-Methylphenol	0.0037	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	2-Nitrophenol	0.0028	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	0.0019	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	4-Chloro-3-methylphenol	0.0023	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	4-Methylphenol	0.0031	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	4-Nitrophenol	0.032	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	Pentachlorophenol	0.00042	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phenols	Phenol	0.0021	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Bis(2-ethylhexyl) phthalate	0.008	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Butylbenzyl phthalate	0.0016	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Dibutyl phthalate	0.0042	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Diethyl phthalate	0.0038	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Dimethyl phthalate	0.002	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	Phthalates	Di-n-octyl phthalate	0.0013	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	1,2,4-Trichlorobenzene	0.0016	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	1,2-Dichlorobenzene	0.0014	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	1,3-Dichlorobenzene	0.0018	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	1,4-Dichlorobenzene	0.0021	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	2,4-Dinitrotoluene	0.003	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	2,6-Dinitrotoluene	0.003	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	2-Chloronaphthalene	0.0039	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	2-Nitroaniline	0.0029	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	3,3'-Dichlorobenzidine	0.004	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	3-Nitroaniline	0.0028	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	4-Bromophenyl phenyl ether	0.0015	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	4-Chloroaniline	0.0023	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	4-Chlorophenyl phenyl ether	0.0022	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	4-Nitroaniline	0.0037	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Aniline	0.0016	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Azobenzene	0.0026	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Benzoic acid	0.11	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Benzyl alcohol	0.004	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Bis(2-chloroethoxy) methane	0.0014	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Bis(2-chloroethyl) ether	0.0026	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Bis(2-chloroisopropyl) ether	0.0013	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Carbazole	0.004	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Dibenzofuran	0.0014	J	Y
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Hexachlorobenzene	0.0023	UT	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Hexachlorobutadiene	0.0000292	UT	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Hexachlorocyclopentadiene	0.016	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Hexachloroethane	0.0000431	UJT	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Isophorone	0.0018	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	Nitrobenzene	0.0022	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	N-Nitrosodimethylamine	0.0065	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	N-Nitrosodiphenylamine	0.0024	U	N
Central Beach Exposure Unit	LW2-B015	LW2-B015	7/26/2004	Composite	0	0.5	SVOCs	N-Nitrosodipropylamine	0.0035	U	N
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Arsenic	4.3		Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Chromium	29.3	J	Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Copper	46.7		Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Lead	72.2	J	Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Mercury	1.18		Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Nickel	31.2	J	Y
Central Beach Exposure Unit	SS-7	SS-7	1/17/2002	Discrete	0	0.5	Metals	Zinc	100		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Arsenic	2.7		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Cadmium	1	U	N
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Chromium	23		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Copper	134		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Lead	215	J	Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Mercury	0.67		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Nickel	26.5		Y
Central Parcel Upland Exposure Unit	B-12	B-12/S-1	5/14/2001	Discrete	0	2	Metals	Zinc	143		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Arsenic	3.52		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Cadmium	1.2		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Chromium	26.3		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Copper	35.2		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Lead	280	J	Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Mercury	0.157		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Nickel	29.4		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Metals	Zinc	475		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Acenaphthene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Acenaphthylene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Benzo(a)anthracene	0.107		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Benzo(a)pyrene	0.181		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Benzo(b)fluoranthene	0.187		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Benzo(g,h,i)perylene	0.193		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Benzo(k)fluoranthene	0.133		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Chrysene	0.149		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Dibenzo(a,h)anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Fluoranthene	0.19		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Fluorene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	High Molecular Weight PAH	1.504		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Indeno(1,2,3-cd)pyrene	0.158		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Low Molecular Weight PAH	0.0867		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Naphthalene	0.067	U	N
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Phenanthrene	0.0867		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Pyrene	0.206		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Total BaPEq	0.227679		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	PAHs	Total PAHs	1.4837		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	30.8		Y
Central Parcel Upland Exposure Unit	B-16	B-16/S-1	5/7/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	219		Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Antimony	0.5	UJ	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Arsenic	4.82	J	Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Beryllium	3.33		Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Cadmium	4.32	U	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Chromium	29.1	J	Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Copper	34.8	J	Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Lead	29.2	J	Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Mercury	0.1	U	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Nickel	37.1	J	Y
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Selenium	0.1	U	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Silver	0.5	U	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Thallium	0.5	U	N
Central Parcel Upland Exposure Unit	B-17	B-17/S-1	5/8/2001	Discrete	0	2	Metals	Zinc	182	J	Y
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Metals	Arsenic	3.32	J	Y
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Metals	Copper	25.4	J	Y
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Metals	Lead	14.3	J	Y
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Metals	Mercury	0.1	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Metals	Zinc	92.2	J	Y
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	4,4'-DDD	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	4,4'-DDE	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	4,4'-DDT	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Aldrin	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	alpha-Endosulfan	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	beta-Endosulfan	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Chlordane (technical)	0.15	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	cis-Chlordane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Dieldrin	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Endosulfan sulfate	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Endrin	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Endrin aldehyde	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Endrin ketone	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	gamma-Chlordane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Heptachlor	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Heptachlor epoxide	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Methoxychlor	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
Central Parcel Upland Exposure Unit	B-18	B-18/S-1	5/7/2001	Discrete	0	2	Pesticides	Toxaphene	0.2	U	N
Central Parcel Upland Exposure Unit	B-20	B-20/S-2	5/7/2001	Discrete	2	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	B-20	B-20/S-2	5/7/2001	Discrete	2	4	Petroleum	Oil Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1016	0.067	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1221	0.134	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1232	0.067	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1242	0.067	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1248	0.067	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1254	0.134	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1260	0.134	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Aroclors	Aroclors	0.134	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Anthracene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.402		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.568		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.672		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(b+k)fluoranthene	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.633		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.465		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Chrysene	0.689		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.932		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Fluorene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	5.741		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.484		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.436		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Naphthalene	0.195	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.436		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Pyrene	0.896		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.729139		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	PAHs	Total PAHs	2.264		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-3	5/18/2001	Discrete	1	2	Petroleum	Diesel Range Hydrocarbons	125	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	68.5		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-3	5/18/2001	Discrete	1	2	Petroleum	Oil Range Hydrocarbons	300		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	250		Y
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2,4,5-Trichlorophenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2,4,6-Trichlorophenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2,4-Dichlorophenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2,4-Dimethylphenol	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2,4-Dinitrophenol	4	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2-Chlorophenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2-Methylphenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	2-Nitrophenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	3- and 4-Methylphenol Coelution	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	4-Chloro-3-methylphenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	4-Nitrophenol	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	Pentachlorophenol	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phenols	Phenol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Bis(2-ethylhexyl) phthalate	4	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Butylbenzyl phthalate	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Dibutyl phthalate	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Diethyl phthalate	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Dimethyl phthalate	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	Phthalates	Di-n-octyl phthalate	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	1,2,4-Trichlorobenzene	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	1,2-Dichlorobenzene	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	1,3-Dichlorobenzene	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	1,4-Dichlorobenzene	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	2,4-Dinitrotoluene	1	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	2,6-Dinitrotoluene	1	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	2-Chloronaphthalene	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	2-Nitroaniline	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	3,3'-Dichlorobenzidine	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	3-Nitroaniline	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	4-Bromophenyl phenyl ether	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	4-Chloroaniline	4	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	4-Chlorophenyl phenyl ether	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	4-Nitroaniline	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Benzoic acid	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Benzyl alcohol	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroethoxy) methane	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroethyl) ether	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroisopropyl) ether	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Dibenzofuran	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Hexachlorobenzene	0.66	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Hexachlorobutadiene	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Hexachlorocyclopentadiene	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Hexachloroethane	2	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Isophorone	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	Nitrobenzene	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	N-Nitrosodiphenylamine	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	SVOCs	N-Nitrosodipropylamine	0.66	U	N
Central Parcel Upland Exposure Unit	HA-6	HA-6/S-1	5/18/2001	Discrete	0	0.5	VOCs	Methyl n-butyl ketone	2	U	N
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.067	U	N
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.176		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.103		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.345		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.659		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.375		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.841		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.369		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.496		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.147		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.4		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.067	U	N
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	4.907		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.543		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.543		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.101		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.163		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.732		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.936486		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	5.105		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	31.4		Y
Central Parcel Upland Exposure Unit	SS-10	SS-10	1/17/2002	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	144		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.095		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.135		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.246		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.188		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.151		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0378		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.144		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.3208		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.133		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0562		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0562		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.191		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.220351		Y
Central Parcel Upland Exposure Unit	SS-11	SS-11	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.282		Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Arsenic	5.45		Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Chromium	18.9	J	Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Copper	81.4		Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Lead	280	J	Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Mercury	0.4		Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Nickel	25.4	J	Y
Central Parcel Upland Exposure Unit	SS-12	SS-12	1/17/2002	Discrete	0	0.5	Metals	Zinc	228		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Arsenic	16.1		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Chromium	19.3	J	Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Copper	102		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Lead	636	J	Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Mercury	0.221		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Nickel	29.7	J	Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	Metals	Zinc	461		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0895		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.116		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.129		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.141		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0896		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.115		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0313		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.128		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.0914		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.108		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.043		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.043		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.144		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.180961		Y
Central Parcel Upland Exposure Unit	SS-13	SS-13	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.0449		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Arsenic	20.5		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Chromium	38.3	J	Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Copper	273		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Lead	755	J	Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Mercury	9.13		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Nickel	42.5	J	Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	Metals	Zinc	740		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0806		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.067	U	N
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.194		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.396		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.382		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.604		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.529		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.34		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.538		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.148		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.737		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.108		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	4.741		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.43		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	1.1899		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0773		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.73		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.637		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.676938		Y
Central Parcel Upland Exposure Unit	SS-14	SS-14	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	4.8503		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Arsenic	4.23		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Chromium	18.6	J	Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Copper	63		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Lead	313	J	Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Mercury	0.34		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Nickel	21.2	J	Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	Metals	Zinc	167		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0142		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0458		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0404		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0893		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0681		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0432		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.0903		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0184		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.0868		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.607		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0548		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.098		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0245		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0593		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.0699		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.0783123		Y
Central Parcel Upland Exposure Unit	SS-15	SS-15	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	0.5699		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0185		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0193		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0856		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.129		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.161		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.184		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0984		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.144		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0396		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.177		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.3206		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.131		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.1356		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0217		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0761		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.171		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.207488		Y
Central Parcel Upland Exposure Unit	SS-16	SS-16	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.2096		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Arsenic	3.6		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Chromium	18.7	J	Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Copper	37.7		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Lead	36	J	Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Mercury	1.09		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Nickel	25.8	J	Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	Metals	Zinc	107		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0549		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0632		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.062		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0613		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.059		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.07		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0172		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.0788		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.5976		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0505		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0385		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0134	U	N
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0385		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.0807		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.0978		Y
Central Parcel Upland Exposure Unit	SS-17	SS-17	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	0.5192		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Arsenic	9.58		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Chromium	27.8	J	Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Copper	226		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Lead	820	J	Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Mercury	1.34		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Nickel	32.4	J	Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	Metals	Zinc	387		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.067	U	N
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.135		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.169		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.53		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.707		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	1.45		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	1.23		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.994		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	1.08		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.269		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.613		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.067	U	N
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	8.434		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.94		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.645		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.074		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.267		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.621		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	1.27902		Y
Central Parcel Upland Exposure Unit	SS-18	SS-18	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	7.099		Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Arsenic	40.3		Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Chromium	68.6	J	Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Copper	744		Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Lead	468	J	Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Mercury	0.747		Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Nickel	121	J	Y
Central Parcel Upland Exposure Unit	SS-19	SS-19	1/17/2002	Discrete	0	0.5	Metals	Zinc	623		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.867		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.761		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	2.89		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	3.38		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	3.61		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	4.74		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	2.71		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	4.68		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	1.09		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	5.07		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.536	U	N
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	37.07		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	3.49		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	5.394		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.386		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	3.38		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	5.41		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	5.50078		Y
Central Parcel Upland Exposure Unit	SS-23	SS-23	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	35.964		Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Arsenic	11.4		Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Chromium	18.3	J	Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Copper	121		Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Lead	322	J	Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Mercury	0.237		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Nickel	26.5	J	Y
Central Parcel Upland Exposure Unit	SS-24	SS-24	1/18/2002	Discrete	0	0.5	Metals	Zinc	154		Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Arsenic	15.8		Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Chromium	35.7	J	Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Copper	708		Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Lead	532	J	Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Mercury	10.6		Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Nickel	60.5	J	Y
Central Parcel Upland Exposure Unit	SS-26	SS-26	1/18/2002	Discrete	0	0.5	Metals	Zinc	510		Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Arsenic	7.13		Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Chromium	25	J	Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Copper	307		Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Lead	568	J	Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Mercury	1.54		Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Nickel	31.4	J	Y
Central Parcel Upland Exposure Unit	SS-27	SS-27	1/18/2002	Discrete	0	0.5	Metals	Zinc	290		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0515		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0402		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.273		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.414		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.454		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.279		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.402		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.421		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0838		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.363		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	3.4578		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.246		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.2387		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.147		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.522		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.599541		Y
Central Parcel Upland Exposure Unit	SS-28	SS-28	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	2.9695		Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Arsenic	20.2		Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Chromium	54.9	J	Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Copper	1690		Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Lead	513	J	Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Mercury	4.53		Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Nickel	41.6	J	Y
Central Parcel Upland Exposure Unit	SS-29	SS-29	1/18/2002	Discrete	0	0.5	Metals	Zinc	758		Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Arsenic	26.2		Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Chromium	72.6	J	Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Copper	743		Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Lead	564	J	Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Mercury	6.15		Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Nickel	44.3	J	Y
Central Parcel Upland Exposure Unit	SS-30	SS-30	1/18/2002	Discrete	0	0.5	Metals	Zinc	721		Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Arsenic	4.7		Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Chromium	26.5	J	Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Copper	57.9		Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Lead	184	J	Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Mercury	0.333		Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Nickel	29.3	J	Y
Central Parcel Upland Exposure Unit	SS-31	SS-31	1/18/2002	Discrete	0	0.5	Metals	Zinc	233		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0682		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.11		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.746		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	1.01		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.984		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	1.39		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.53		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	1.18		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.286		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	1.14		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	9.655		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.869		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.8083		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0441		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.586		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	1.52		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	1.56238		Y
Central Parcel Upland Exposure Unit	SS-4	SS-4	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	10.4633		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.134	U	N
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.305		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.325		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	1.54		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	2.04		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	2.54		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	1.91		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.134	U	N
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	1.72		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.474		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	2.3		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	16.924		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	1.36		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	1.743		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.162		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.951		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	3.04		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	3.05972		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	18.667		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	86		Y
Central Parcel Upland Exposure Unit	SS-8	SS-8	1/17/2002	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	290		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.67	U	N
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	3.57		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	2.43		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	10.3		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	20.2		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	23.3		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	29.2		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.67	U	N
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	14.1		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	3.89		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	19		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	3.35	U	N
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	167.99	J	Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	18.2		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	18.27	J	Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	1.07		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	11.2	J	Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	29.8		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	29.2841		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	186.26	J	Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	779		Y
Central Parcel Upland Exposure Unit	SS-9	SS-9	1/17/2002	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	2060		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Acenaphthene	0.0166	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Acenaphthylene	0.0552		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Anthracene	0.0167		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.104		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.234		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.151		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.193		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.139		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Chrysene	0.146		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0328		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Fluoranthene	0.141		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Fluorene	0.0166	U	N
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	High Molecular Weight PAH	1.4738		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.137		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.1466		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Naphthalene	0.0209		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Phenanthrene	0.0538		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Pyrene	0.196		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Total BaPEq	0.307536		Y
Central Parcel Upland Exposure Unit	SSC	WC-SSC	12/21/2005	Composite	0	0.5	PAHs	Total PAHs	1.6204		Y
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.0787	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.0391	U	N
Central Parcel Upland Exposure Unit	SSF	WC-SSF	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.0787	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.117	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.0581	U	N
Central Parcel Upland Exposure Unit	SSG	WC-SSG	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.117	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.21		Y
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-D	WC-SSH-D	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.21		Y
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-E	WC-SSH-E	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.02	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.015	Ui	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.031	Ui	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.13		Y
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
Central Parcel Upland Exposure Unit	SSH-F	WC-SSH-F	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.13		Y
Central Parcel Upland Exposure Unit	TP-10	TP-10	10/19/1995	Discrete	0	2.8	Metals	Lead	23		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1016	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1221	0.134	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1232	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1242	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1248	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1254	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclor 1260	0.067	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Aroclors	Aroclors	0.134	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Antimony	0.5	UJ	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	3.9		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Beryllium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Chromium	21.3	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	42.9	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	116	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	0.663	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Nickel	71.3	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Selenium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Silver	0.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Thallium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	114	J	Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	2-Methylnaphthalene	3.13		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	8.38	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	12.2		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	8.65		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	23.6		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	46.3		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	27.5		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b+k)fluoranthene	18.89		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	44.3		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	24.2		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	39.1		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	9.13		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	30.3		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	8.38	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	324.43		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	27.9		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	45.78		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	8.38	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	21.8		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	52.1		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	63.6111		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	367.08		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	2390		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	5960		Y
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2,4,5-Trichlorophenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2,4,6-Trichlorophenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2,4-Dichlorophenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2,4-Dimethylphenol	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2,4-Dinitrophenol	10	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2-Chlorophenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2-Methylphenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	2-Nitrophenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	3- and 4-Methylphenol Coelution	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	4-Chloro-3-methylphenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	4-Nitrophenol	5	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	Pentachlorophenol	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phenols	Phenol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Bis(2-ethylhexyl) phthalate	10	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Butylbenzyl phthalate	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Dibutyl phthalate	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Diethyl phthalate	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Dimethyl phthalate	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	Phthalates	Di-n-octyl phthalate	3.3	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	1,2,4-Trichlorobenzene	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	1,2-Dichlorobenzene	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	1,3-Dichlorobenzene	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	1,4-Dichlorobenzene	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	2,4-Dinitrotoluene	2.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	2,6-Dinitrotoluene	2.5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	2-Chloronaphthalene	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	2-Nitroaniline	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	3,3'-Dichlorobenzidine	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	3-Nitroaniline	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	4-Bromophenyl phenyl ether	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	4-Chloroaniline	10	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	4-Chlorophenyl phenyl ether	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	4-Nitroaniline	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Benzoic acid	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Benzyl alcohol	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroethoxy) methane	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroethyl) ether	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Bis(2-chloroisopropyl) ether	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Dibenzofuran	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Hexachlorobenzene	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Hexachlorobutadiene	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Hexachlorocyclopentadiene	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Hexachloroethane	5	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Isophorone	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	Nitrobenzene	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	N-Nitrosodiphenylamine	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	SVOCs	N-Nitrosodipropylamine	1.65	U	N
Central Parcel Upland Exposure Unit	TP-22	TP-22/S-1	4/17/2001	Discrete	0	0.5	VOCs	Methyl n-butyl ketone	5	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	0.0517		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.202		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.302		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.279		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.245		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.249		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	0.295		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.064		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.31		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	2.466		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.199		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.2547		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.203		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	0.321		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.436785		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	2.7207		Y
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-23	TP-23/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	83.3		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.0302		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.142		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.254		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.257		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.226		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.209		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	0.239		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0445		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.258		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	2.0985		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.173		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.1216		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.0914		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	0.296		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.358029		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	2.2201		Y
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-24	TP-24/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	69.6		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	16.2		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Arsenic	1.76		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Cadmium	1	U	N
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Chromium	30.4		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Chromium	17.7		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	313		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Copper	18.7		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	591	J	Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Lead	2.72	J	Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	20.2	J	Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Mercury	0.1	U	N
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Nickel	49.2		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Nickel	22.7		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	388	J	Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-2	4/17/2001	Discrete	1.5	2	Metals	Zinc	55.1		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.137		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.0981		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	0.277		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	1.06		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	1.11		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	1.29		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.776		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	1.31		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	1.4		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.267		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	2.07		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	0.0926		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	11.738		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.705		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	1.8847		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	1.28		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	1.75		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	1.697		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	13.4857		Y
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-25	TP-25/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	139		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Antimony	0.5	UJ	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	3.88		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Beryllium	0.5	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Cadmium	0.573		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Chromium	20.8		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	40		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	114	J	Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	0.754		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Nickel	24.6		Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Selenium	0.5	UJ	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Silver	1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Thallium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	209	J	Y
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	PAHs	Naphthalene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,3-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,4-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachlorobutadiene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,1-Trichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,2-Trichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,3-Trichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,3-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	2,2-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	2-Chlorotoluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	4-Chlorotoluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Acetone	1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Benzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromochloromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromodichloromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromoform	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromomethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Carbon disulfide	1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Carbon tetrachloride	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chlorodibromomethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloroform	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloromethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	cis-1,2-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	cis-1,3-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Dichlorodifluoromethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Ethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Ethylene dibromide	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Isopropylbenzene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	m,p-Xylene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl isobutyl ketone	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl n-butyl ketone	1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl tert-butyl ether	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylene bromide	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylene chloride	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylethyl ketone	1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	n-Butylbenzene	0.5	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	n-Propylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	o-Xylene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Sec-butylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Styrene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	tert-Butylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Tetrachloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Toluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	trans-1,2-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	trans-1,3-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Trichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Trichlorofluoromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Vinyl chloride	0.1	U	N
Central Parcel Upland Exposure Unit	TP-26	TP-26/S-2	4/17/2001	Discrete	1.5	2	VOCs	Xylene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Antimony	0.65	J	Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	2.43		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Beryllium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Chromium	11		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	34.6		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	35.6	J	Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	0.1	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Nickel	19		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Selenium	0.5	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Silver	1	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Thallium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	159	J	Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.338		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.413		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.351		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.341		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	0.343		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.328		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	2.4628		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0268		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.174		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	0.168	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.174		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	0.322		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.385733		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	2.6368		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	4,4'-DDD	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	4,4'-DDE	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	4,4'-DDT	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Aldrin	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	alpha-Endosulfan	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	beta-Endosulfan	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Chlordane (technical)	0.15	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	cis-Chlordane	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0067	UJ	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Dieldrin	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Endosulfan sulfate	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Endrin	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Endrin aldehyde	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Endrin ketone	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	gamma-Chlordane	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Heptachlor	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Heptachlor epoxide	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Methoxychlor	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Pesticides	Toxaphene	0.2	UJ	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	116		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	450		Y
Central Parcel Upland Exposure Unit	TP-27	TP-27/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	TP-28	TP-28/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-28	TP-28/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1016	0.067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1221	0.134	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1232	0.1	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1242	0.067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1248	0.067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1254	0.1	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclor 1260	0.1	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Aroclors	Aroclors	0.134	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Arsenic	7		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Chromium	24.5		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Copper	230		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Lead	475	J	Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Mercury	1.18		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Nickel	29.6		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Metals	Zinc	280	J	Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.0451		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Anthracene	0.0575		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.104		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.121		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.185		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.124		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.136		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Chrysene	0.217		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0272		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.179		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.3815		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0963		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.2136		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.111		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Pyrene	0.192		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.188307		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	PAHs	Total PAHs	1.5951		Y
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	4,4'-DDD	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	4,4'-DDE	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	4,4'-DDT	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Aldrin	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	alpha-Endosulfan	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	beta-Endosulfan	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Chlordane (technical)	0.15	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	cis-Chlordane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Dieldrin	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Endosulfan sulfate	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Endrin	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Endrin aldehyde	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Endrin ketone	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	gamma-Chlordane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Heptachlor	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Heptachlor epoxide	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Methoxychlor	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Pesticides	Toxaphene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	TP-29	TP-29/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	304		Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Arsenic	3.34	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Cadmium	5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Chromium	14.7	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Copper	41.5	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Lead	86	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Mercury	0.392	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Nickel	21.6	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	Metals	Zinc	67.6	J	Y
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	PAHs	Naphthalene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,2-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,3-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,4-Dichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Hexachlorobutadiene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1,1-Trichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1,2-Trichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,1-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2,3-Trichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2-Dichloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,2-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1,3-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	2,2-Dichloropropane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	2-Chlorotoluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	4-Chlorotoluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Acetone	1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Benzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Bromobenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Bromochloromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Bromodichloromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Bromoform	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Bromomethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Carbon disulfide	1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Carbon tetrachloride	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Chlorobenzene	0.1	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Chlorodibromomethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Chloroethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Chloroform	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Chloromethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	cis-1,2-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	cis-1,3-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Dichlorodifluoromethane	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Ethylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Ethylene dibromide	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Isopropylbenzene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	m,p-Xylene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methyl isobutyl ketone	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methyl n-butyl ketone	1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methyl tert-butyl ether	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methylene bromide	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methylene chloride	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methylethyl ketone	1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	n-Butylbenzene	0.5	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	n-Propylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	o-Xylene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Sec-butylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Styrene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	tert-Butylbenzene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Tetrachloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Toluene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	trans-1,2-Dichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	trans-1,3-Dichloropropene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Trichloroethene	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Trichlorofluoromethane	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Vinyl chloride	0.1	U	N
Central Parcel Upland Exposure Unit	TP-31	TP-31/S-2	4/16/2001	Discrete	1.5	2	VOCs	Xylene	0.2	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Arsenic	6.02	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Cadmium	5	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Chromium	22.3	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Copper	371	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Lead	534	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Mercury	1.46	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Nickel	44.7	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Metals	Zinc	321	J	Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.177		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.185		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.19		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.128		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Chrysene	0.143		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.229		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluorene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.459		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.133		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.15		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Naphthalene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.15		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Pyrene	0.274		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.210223		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total PAHs	1.609		Y
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
Central Parcel Upland Exposure Unit	TP-33	TP-33/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	170		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Arsenic	6.5		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Arsenic	2.86	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Cadmium	1.26		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Cadmium	5	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Chromium	110		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Chromium	18.4	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Copper	3010		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Copper	69.6	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Lead	475	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Lead	527	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Mercury	9.09		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Mercury	0.315	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Nickel	18.4		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Nickel	21	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Metals	Zinc	890	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Metals	Zinc	218	J	Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Anthracene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0787		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.152		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.286		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.288		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.326		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Chrysene	0.208		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0996		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.0841		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluorene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.8661		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.261		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Naphthalene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.067	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Pyrene	0.0827		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.317638		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total PAHs	1.8661		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	50	U	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	25	UJ	N
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	232		Y
Central Parcel Upland Exposure Unit	TP-34	TP-34/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	50	UJ	N
Central Parcel Upland Exposure Unit	TP-6	TP-6	10/19/1995	Discrete	0	3	Metals	Lead	22		Y
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1016	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1221	0.3	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1232	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1242	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1248	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1254	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclor 1260	0.1	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Aroclors	Aroclors	0.3	U	N
Central Parcel Upland Exposure Unit	TP-7	TP-7	10/19/1995	Discrete	0	0.5	Metals	Lead	1420		Y
Central Parcel Upland Exposure Unit	TP-8	TP-8	10/19/1995	Discrete	0	4	Metals	Lead	20	U	N
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Antimony	6.9		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Arsenic	24.8		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Beryllium	0.31		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Cadmium	0.37		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Chromium	62.1		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Copper	262		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Lead	889		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Mercury	8.1		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Nickel	54.5		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Selenium	0.2	J	Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Silver	0.6		Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Thallium	0.07	J	Y
Central Parcel Upland Exposure Unit	WC-1	WC-1 Surface	10/1/2010	Discrete	0.3	0.8	Metals	Zinc	451		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1016	0.0054	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1221	0.0027	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1232	0.0037	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1242	0.005	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1248	0.0047	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1254	0.0029	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1260	0.0058	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1262	0.0034	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclor 1268	0.0016	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Aroclors	Aroclors	0.0058	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Antimony	4.9		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Arsenic	8.6		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Beryllium	0.19		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Cadmium	1.7		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Chromium	42.3		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Copper	251		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Lead	693		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Mercury	5.5		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Nickel	28.4		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Selenium	0.75		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Silver	0.44	J	Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Thallium	0.24		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Metals	Zinc	548		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	1-Methylnaphthalene	0.0153		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	2-Methylnaphthalene	0.035		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Acenaphthene	0.0075		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Acenaphthylene	0.0194		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Anthracene	0.0273		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Benzo(a)anthracene	0.0821		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Benzo(a)pyrene	0.121		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Benzo(b)fluoranthene	0.155		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Benzo(g,h,i)perylene	0.0908		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Benzo(k)fluoranthene	0.0946		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Chrysene	0.116		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Dibenzo(a,h)anthracene	0.0346		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Fluoranthene	0.152		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Fluorene	0.0095		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	High Molecular Weight PAH	1.0637		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Indeno(1,2,3-cd)pyrene	0.0786		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Low Molecular Weight PAH	0.2779		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Naphthalene	0.0752		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Phenanthrene	0.104		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Pyrene	0.139		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Total BaPEq	0.188232		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	PAHs	Total PAHs	1.3066		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Petroleum	Diesel Range Hydrocarbons	72.1		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	72.3		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Petroleum	Gasoline Range Hydrocarbons	20.5	<	N
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Petroleum	Motor oil	738		Y
Central Parcel Upland Exposure Unit	WC-1/2/3	WC-1/2/3	10/1/2010	Composite	0.25	0.8	Petroleum	Motor oil (silica gel treated)	388		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Antimony	7.2		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Arsenic	11.9		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Beryllium	0.38		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Cadmium	0.49		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Chromium	48.8		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Copper	188		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Lead	770		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Mercury	1.7		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Nickel	43.1		Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Selenium	0.21	J	Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Silver	0.4	J	Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Thallium	0.077	J	Y
Central Parcel Upland Exposure Unit	WC-2	WC-2 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Zinc	383		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Antimony	2.5		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Arsenic	7.3		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Beryllium	0.28		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Cadmium	0.88		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Chromium	31.7		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Copper	195		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Lead	727		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Mercury	1.4		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Nickel	49.1		Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Selenium	0.13	J	Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Silver	0.35	J	Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Thallium	0.056	J	Y
Central Parcel Upland Exposure Unit	WC-3	WC-3 Surface	10/1/2010	Discrete	0.25	0.75	Metals	Zinc	410		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.4		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	12.8		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	15		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	5.65		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	6.28		Y
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.104	<	N
Central Parcel Upland Exposure Unit	WCP-1	WCP-1 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	61.8		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.39		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	11.8		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	18.4		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	3.56		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	2.57		Y
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.107	<	N
Central Parcel Upland Exposure Unit	WCP-2	WCP-2 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	386		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.84		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	13.6		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	20.8		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	7.4		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	2.76		Y
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.0946	<	N
Central Parcel Upland Exposure Unit	WCP-3	WCP-3 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	65.2		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.63		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	12.8		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	16.6		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	11.1		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	2.57		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.173		Y
Central Parcel Upland Exposure Unit	WCP-4	WCP-4 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	46.4		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	3.32		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	12.8		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	38.3		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	71.5		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	6.5		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.404		Y
Central Parcel Upland Exposure Unit	WCP-5	WCP-5 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	290		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.15		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	13.1		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	27.2		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	4.28		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	11.2		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	6.12		Y
Central Parcel Upland Exposure Unit	WCP-6	WCP-6 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	222		Y
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.18		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	13.4		Y
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	15.3		Y
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	5.42		Y
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	4.53		Y
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.0941	<	N
Central Parcel Upland Exposure Unit	WCP-7	WCP-7 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	53.1		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.68		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	12.6		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	18		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	5.48		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	2.96		Y
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.109	<	N
Central Parcel Upland Exposure Unit	WCP-8	WCP-8 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	1200		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Arsenic	2.37		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Chromium	12.9		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Copper	15.9		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Lead	7.24		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.5)	10/30/2007	Discrete	1	1.5	Metals	Lead	7.97		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Mercury	0.116		Y
Central Parcel Upland Exposure Unit	WCP-9	WCP-9 (1.0)	10/30/2007	Discrete	0.5	1	Metals	Zinc	121		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0044	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0088	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0088	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0066	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0066	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0055	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0099	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0044	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0044	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclors	0.0099	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Antimony	0.21	J	Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Antimony	0.23	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Arsenic	4.8		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Arsenic	5.2		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Beryllium	0.31		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Beryllium	0.3		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Cadmium	0.018	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Cadmium	0.75		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Chromium	13.7		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Chromium	15.9		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Copper	1030		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Copper	2860		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Lead	175		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Lead	262		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Mercury	1.9		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Mercury	3.5		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Nickel	17.3		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Nickel	16.4		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Selenium	0.11	<	N
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Selenium	0.87		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Silver	0.28	J	Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Silver	0.51		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Thallium	0.2		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Thallium	0.28		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	Metals	Zinc	298		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	Metals	Zinc	538		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0307		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	1-Methylnaphthalene	0.0332		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0695		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	2-Methylnaphthalene	0.0583		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0211		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Acenaphthene	0.0415		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.699		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Acenaphthylene	1.08		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Anthracene	0.371		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Anthracene	1.29		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	1.58		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Benzo(a)anthracene	2.5		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	4.06		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Benzo(a)pyrene	6.89		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	3.14		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Benzo(b)fluoranthene	5.74		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	2.62		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Benzo(g,h,i)perylene	2.48		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	3.39		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Benzo(k)fluoranthene	5.83		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Chrysene	3.37		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Chrysene	1.81		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Dibenzo(a,h)anthracene	1.28		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.621		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Fluoranthene	4.47		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Fluoranthene	1.96		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Fluorene	0.174		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Fluorene	0.0479		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	23.161		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	High Molecular Weight PAH	39.26		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Indeno(1,2,3-cd)pyrene	2.41		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	2.1		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	1.9825		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Low Molecular Weight PAH	5.1408		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Naphthalene	0.167		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Naphthalene	0.214		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Phenanthrene	2.33		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Phenanthrene	0.56		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Pyrene	4.29		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Pyrene	1.88		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Total BaPEq	5.39871		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Total BaPEq	9.29667		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Total PAHs	25.074		Y
Central Parcel Upland Exposure Unit	WC-SSP (Comp)	WC-SSP (Comp)-2	10/4/2010	Composite	2	2.5	PAHs	Total PAHs	44.3425		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Antimony	3		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Antimony	0.81		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Arsenic	10.1		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Arsenic	7.9		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Beryllium	0.32		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Beryllium	0.3		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Cadmium	0.97		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Cadmium	0.017	<	N
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Chromium	18.7		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Chromium	13.4		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Copper	2420		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Copper	5440		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Lead	386		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Lead	436		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Mercury	3.4		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Mercury	9.8		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Nickel	20.4		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Nickel	19.2		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Selenium	1.5		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Selenium	0.1	<	N
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Silver	0.48	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Silver	0.54		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Thallium	0.41		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Thallium	0.77		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	Metals	Zinc	680		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	Metals	Zinc	1030		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	1-Methylnaphthalene	0.0838	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0601		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	2-Methylnaphthalene	0.175		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.132		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Acenaphthene	0.11		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0258		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Acenaphthylene	2.97		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthylene	1.18		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Anthracene	2.42		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Anthracene	0.826		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(a)anthracene	5.41		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	3.79		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(a)pyrene	12.9		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	11.2		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(b)fluoranthene	9.64		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	9.33		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(g,h,i)perylene	5.52		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	4.26		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(k)fluoranthene	10		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	10.5		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Chrysene	7.59		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Chrysene	5.32		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Dibenzo(a,h)anthracene	2.81		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	2.02		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Fluoranthene	8.34		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Fluoranthene	3.93		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Fluorene	0.37		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Fluorene	0.177		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	58.8		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	High Molecular Weight PAH	74.71		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Indeno(1,2,3-cd)pyrene	5.23		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	3.96		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	3.5208		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Low Molecular Weight PAH	10.581		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Naphthalene	0.506		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Naphthalene	0.468		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Phenanthrene	4.03		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.712		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Pyrene	7.27		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Pyrene	4.49		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Total BaPEq	15.03832		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Total BaPEq	17.84559		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-1	10/4/2010	Discrete	0	0.5	PAHs	Total PAHs	62.1888		Y
Central Parcel Upland Exposure Unit	WC-SSP-1	WC-SSP-1-2	10/4/2010	Discrete	2	2.5	PAHs	Total PAHs	85.116		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Antimony	0.22	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Antimony	0.25	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Arsenic	5.6		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Arsenic	2.9		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Beryllium	0.41		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Beryllium	0.28		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Cadmium	0.057	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Cadmium	0.02	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Chromium	18.1		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Chromium	14.2		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Copper	27.2		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Copper	28.2		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Lead	23.8		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Lead	15.7		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Mercury	0.077	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Mercury	0.15		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Nickel	20.8		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Nickel	18		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Selenium	1.7		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Selenium	0.12	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Silver	0.076	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Silver	0.22	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Thallium	0.05	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Thallium	0.052	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	Metals	Zinc	59.7		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	Metals	Zinc	53.4		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	1-Methylnaphthalene	0.00095	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0018	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	2-Methylnaphthalene	0.002	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0038	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Acenaphthene	0.0017	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0032	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Acenaphthylene	0.0012	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.0017	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Anthracene	0.0017	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Anthracene	0.0023	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(a)anthracene	0.0046	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0076	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(a)pyrene	0.0059	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0112	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(b)fluoranthene	0.0045	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0078	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(g,h,i)perylene	0.0065	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0099	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Benzo(k)fluoranthene	0.0043	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0096	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Chrysene	0.0041	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Chrysene	0.0091	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Dibenzo(a,h)anthracene	0.00081	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0021	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Fluoranthene	0.0073		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.0111	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Fluorene	0.0019	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Fluorene	0.0037	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.0891	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	High Molecular Weight PAH	0.04971	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0035	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0065	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.004	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Low Molecular Weight PAH	0.0068	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Naphthalene	0.0019	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Naphthalene	0.0037	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Phenanthrene	0.0039	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Pyrene	0.0082		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Pyrene	0.0142		Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.0155951	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Total BaPEq	0.0080171	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-1	10/4/2010	Discrete	0	0.5	PAHs	Total PAHs	0.0931	J	Y
Central Parcel Upland Exposure Unit	WC-SSP-3	WC-SSP-3-2	10/4/2010	Discrete	2	2.5	PAHs	Total PAHs	0.05651	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0042	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0084	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0084	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0063	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0063	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0052	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0094	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0042	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0042	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclors	0.0094	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Antimony	0.18	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Arsenic	3.3		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Beryllium	0.3		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Cadmium	0.15		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Chromium	13.7		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Copper	27.2		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Lead	13.8		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Mercury	0.11		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Nickel	14.2		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Selenium	1		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Silver	0.28	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Thallium	0.062	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	Metals	Zinc	69		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0009	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0025	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0016	<	N
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0068		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Anthracene	0.0176		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.105		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0981		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0703		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0356		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0653		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Chrysene	0.0897		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0155		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluoranthene	0.163		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluorene	0.0025	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.8376		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0331		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.0614	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Naphthalene	0.004	J	Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Phenanthrene	0.028		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Pyrene	0.162		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total BaPEq	0.1351827		Y
Central Parcel Upland Exposure Unit	WC-SSQ	WC-SSQ(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total PAHs	0.8965	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0065	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0065	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0054	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclors	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Antimony	0.21	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Arsenic	4.4		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Beryllium	0.36		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Cadmium	0.065	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Chromium	19.8		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Copper	22.2		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Lead	18.3		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Mercury	0.033	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Nickel	19.6		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Selenium	1		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Silver	0.083	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Thallium	0.045	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	Metals	Zinc	66.1		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.00093	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0019	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0016	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0017	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Anthracene	0.0023	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0138		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0201		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0176		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0131		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0137		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Chrysene	0.0164		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0033	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluoranthene	0.0183		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluorene	0.0019	<	N
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.1488	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0106		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.0128	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Naphthalene	0.002	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0068	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Pyrene	0.0219		Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total BaPEq	0.0277534	J	Y
Central Parcel Upland Exposure Unit	WC-SSR	WC-SSR(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total PAHs	0.1616	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0054	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclors	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Antimony	3.1		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Arsenic	12.1		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Beryllium	0.34		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Cadmium	0.76		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Chromium	25.5		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Copper	116		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Lead	733		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Mercury	2.4		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Nickel	28.4		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Selenium	0.89		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Silver	0.12	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Thallium	0.044	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	Metals	Zinc	876		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0105		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.022		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0067	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0189		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Anthracene	0.0216		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.093		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.137		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.176		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0797		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.108		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Chrysene	0.143		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0235		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluoranthene	0.164		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluorene	0.0065	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	1.1727		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0695		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.1983	J	Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Naphthalene	0.0357		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0869		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Pyrene	0.179		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total BaPEq	0.195573		Y
Central Parcel Upland Exposure Unit	WC-SSS	WC-SSS(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total PAHs	1.349	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Antimony	0.42	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Arsenic	4.3		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Beryllium	0.27		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Cadmium	0.43		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Chromium	12.6		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Copper	57.7		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Lead	203		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Mercury	2.7		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Nickel	22.2		Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Selenium	0.11	<	N
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Silver	0.2	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Thallium	0.039	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1a	WC-SSS-1a	10/1/2010	Discrete	0	0.5	Metals	Zinc	234		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Antimony	8.4		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Arsenic	15.9		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Beryllium	0.28		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Cadmium	0.19		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Chromium	20.2		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Copper	140		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Lead	388		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Mercury	2.9		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Nickel	25.5		Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Selenium	0.1	<	N
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Silver	0.18	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Thallium	0.044	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-1b	WC-SSS-1b	10/1/2010	Discrete	0	0.5	Metals	Zinc	653		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Antimony	1.1		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Arsenic	3.9		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Beryllium	0.3		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Cadmium	0.088		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Chromium	14.4		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Copper	33.6		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Lead	111		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Mercury	0.24		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Nickel	21.8		Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Selenium	0.11	<	N
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Silver	0.16	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Thallium	0.047	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-2a	WC-SSS-2a	10/1/2010	Discrete	0	0.5	Metals	Zinc	148		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Antimony	2.5		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Arsenic	21.3		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Beryllium	0.25		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Cadmium	0.83		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Chromium	35.7		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Copper	417		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Lead	4040		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Mercury	4.8		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Nickel	39.9		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Selenium	0.096	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Silver	0.66		Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Thallium	0.048	J	Y
Central Parcel Upland Exposure Unit	WC-SSS-2b	WC-SSS-2b	10/1/2010	Discrete	0	0.5	Metals	Zinc	1460		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0047	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0094	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0094	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.007	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.007	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0058	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0105	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0047	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0047	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Aroclors	Aroclors	0.0105	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Antimony	0.39	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Antimony	0.26	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Arsenic	4.7		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Arsenic	5.6		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Beryllium	0.34		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Beryllium	0.5		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Cadmium	0.49		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Cadmium	0.18		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Chromium	16.3		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Chromium	29.5		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Copper	58.6		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Copper	89.9		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Lead	1430		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Lead	119		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Mercury	1.1		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Mercury	1.3		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Nickel	26.3		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Nickel	69.5		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Selenium	1.5		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Selenium	0.13	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Silver	0.33	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Silver	0.28	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Thallium	0.083	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Thallium	0.067	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	Metals	Zinc	117		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	Metals	Zinc	472		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	1-Methylnaphthalene	0.0044	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0124		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	2-Methylnaphthalene	0.0074	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.019		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Acenaphthene	0.0035	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0221		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Acenaphthylene	0.0083	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.104		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Anthracene	0.0095	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Anthracene	0.183		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Benzo(a)anthracene	0.053		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	1.03		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Benzo(a)pyrene	0.106		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	1.03		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Benzo(b)fluoranthene	0.0877		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.719		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Benzo(g,h,i)perylene	0.0969		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.434		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Benzo(k)fluoranthene	0.0713		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.642		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Chrysene	0.0706		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Chrysene	0.926		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Dibenzo(a,h)anthracene	0.0301		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.186		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Fluoranthene	0.0688		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Fluoranthene	1.22		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Fluorene	0.004	<	N
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Fluorene	0.031		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	7.858		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	High Molecular Weight PAH	0.7358		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Indeno(1,2,3-cd)pyrene	0.0742		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.401		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.7863		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Low Molecular Weight PAH	0.0802	J	Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Naphthalene	0.0352		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Naphthalene	0.0177		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Phenanthrene	0.392		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Phenanthrene	0.0373		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Pyrene	1.27		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Pyrene	0.0772		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Total BaPEq	1.438346		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Total BaPEq	0.1583736		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST(Comp)-1	10/4/2010	Composite	0	0.5	PAHs	Total PAHs	8.6253		Y
Central Parcel Upland Exposure Unit	WC-SST (Comp)	WC-SST-(Comp)-2	10/4/2010	Composite	1.5	2	PAHs	Total PAHs	0.8086	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Antimony	0.44	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Antimony	0.31	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Arsenic	3.3		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Arsenic	5.4		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Beryllium	0.28		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Beryllium	0.47		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Cadmium	0.075	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Cadmium	0.38		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Chromium	13.4		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Chromium	25.2		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Copper	98.7		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Copper	71.4		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Lead	186		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Lead	84.7		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Mercury	0.62		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Mercury	0.76		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Nickel	23.2		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Nickel	24.7		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Selenium	0.12	<	N
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Selenium	1.7		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Silver	0.55		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Silver	0.19	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Thallium	0.063	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Thallium	0.12		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	Metals	Zinc	138		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-2	10/4/2010	Discrete	1.5	2	Metals	Zinc	166		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0016	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0032	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0021	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.02		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Anthracene	0.0342		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.139		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.164		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0984		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0977		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.139		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Chrysene	0.154		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0326		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.305		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Fluorene	0.0052	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.5567		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.079		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.1875	J	Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Naphthalene	0.0088		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.114		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Pyrene	0.348		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.229784		Y
Central Parcel Upland Exposure Unit	WC-SST-1	WC-SST-1-1	10/4/2010	Discrete	0	0.5	PAHs	Total PAHs	1.741	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Antimony	0.29	<	N
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Antimony	0.27	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Arsenic	5		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Arsenic	5.7		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Beryllium	0.55		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Beryllium	0.41		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Cadmium	0.024	<	N
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Cadmium	0.87		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Chromium	26.7		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Chromium	17.2		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Copper	75.2		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Copper	36.7		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Lead	52.2		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Lead	1800		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Mercury	1.2		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Mercury	0.66		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Nickel	28.6		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Nickel	57.5		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Selenium	0.14	<	N
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Selenium	1.5		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Silver	0.43	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Silver	0.074	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Thallium	0.11	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Thallium	0.074	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	Metals	Zinc	119		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-2	10/4/2010	Discrete	1.5	2	Metals	Zinc	788		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0089	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0184		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0115	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.0311		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Anthracene	0.0509		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0931		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.144		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.109		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.111		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.103		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Chrysene	0.118		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0268		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.185		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Fluorene	0.0153	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.1847		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0858		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.2885	J	Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Naphthalene	0.0403		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.121		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Pyrene	0.209		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.200738		Y
Central Parcel Upland Exposure Unit	WC-SST-2	WC-SST-2-1	10/4/2010	Discrete	0	0.5	PAHs	Total PAHs	1.4548	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0086	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0054	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0096	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	Aroclors	Aroclors	0.0096	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0015	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0019	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0016	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0014	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Anthracene	0.0029	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0138		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0211		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0208		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0145		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0172		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Chrysene	0.0185		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0053	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluoranthene	0.0213		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Fluorene	0.0019	<	N
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.1681	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0125		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.0215	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Naphthalene	0.0035	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0118		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Pyrene	0.0231		Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total BaPEq	0.0313005	J	Y
Central Parcel Upland Exposure Unit	WC-SSU	WC-SSU(Composite)	10/1/2010	Composite	0	0.5	PAHs	Total PAHs	0.1877	J	Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1016	0.0049	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1221	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1232	0.0097	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1242	0.0073	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1248	0.0073	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1254	0.0061	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1260	0.0109	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1262	0.0049	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclor 1268	0.0049	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Aroclors	Aroclors	0.0109	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Antimony	29.9		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Antimony	11.3		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Arsenic	7.5		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Arsenic	30.9		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Beryllium	0.45		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Beryllium	0.36		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Cadmium	1.9		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Cadmium	0.028	<	N
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Chromium	25.4		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Chromium	36.5		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Copper	3360		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Copper	693		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Lead	677		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Lead	833		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Mercury	0.6		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Mercury	1.4		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Nickel	39.3		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Nickel	144		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Selenium	1.8		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Selenium	1.2		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Silver	2.8		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Silver	1.7		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Thallium	0.15		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Thallium	0.49		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-1	10/4/2010	Discrete	0	0.5	Metals	Zinc	412		Y
Central Parcel Upland Exposure Unit	WC-SSV-1	WC-SSV-1-2	10/4/2010	Discrete	1.5	2	Metals	Zinc	838		Y
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0085	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0085	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0064	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0053	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0096	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0043	<	N
Central Parcel Upland Exposure Unit	WC-SSW	WC-SSW(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclors	0.0096	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0055	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.011	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.011	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0082	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0082	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0068	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0123	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0055	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0055	<	N
Central Parcel Upland Exposure Unit	WC-SSY	WC-SSY(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclors	0.0123	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Arsenic	3.36		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Cadmium	0.5	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Chromium	47.5	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Copper	48.3		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Lead	25.3	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Mercury	1.04		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Nickel	40.1	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-5	SS-5	1/17/2002	Discrete	0	0.5	Metals	Zinc	87.8		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Arsenic	2.34		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Cadmium	0.431	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Chromium	13.2	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Copper	16.6		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Lead	7.14	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Mercury	0.214		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Nickel	17.2	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SS-6	SS-6	1/17/2002	Discrete	0	0.5	Metals	Zinc	49.8		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Acenaphthene	0.0166	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Acenaphthylene	0.0507		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Anthracene	0.0166	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.141		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.265		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.17		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.137		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.168		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Chrysene	0.2		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0285		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Fluoranthene	0.124		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Fluorene	0.0166	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	High Molecular Weight PAH	1.5625		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.106		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.1098		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Naphthalene	0.0266		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Phenanthrene	0.0325		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Pyrene	0.223		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Total BaPEq	0.33708		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSD	WC-SSD	12/21/2005	Composite	0	0.5	PAHs	Total PAHs	1.6723		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Acenaphthene	0.0153	U	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Acenaphthylene	0.0646		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Anthracene	0.0893		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.663		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.494		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.307		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.133		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.337		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Chrysene	0.971		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0442		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Fluoranthene	1.15		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Fluorene	0.0482		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	High Molecular Weight PAH	6.1712		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.102		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Low Molecular Weight PAH	2.0408		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Naphthalene	0.0387		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Phenanthrene	1.8		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Pyrene	1.97		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Total BaPEq	0.649741		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE	WC-SSE	12/21/2005	Composite	0	0.5	PAHs	Total PAHs	3.3222		Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthylene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Anthracene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0209	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0315	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0357	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0187	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0293	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Chrysene	0.032	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Fluoranthene	0.0321	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Fluorene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.2551	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0156	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Naphthalene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Phenanthrene	0.0151	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Pyrene	0.0393	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Total BaPEq	0.039045	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-1	WC-SSE-1	12/21/2005	Discrete	0	0.5	PAHs	Total PAHs	0.167	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthylene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Anthracene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0449	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0686	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0556	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0337	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0491	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Chrysene	0.0636	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Fluoranthene	0.0489	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Fluorene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.4664	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.026	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0208	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Naphthalene	0.0161	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Phenanthrene	0.0208	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Pyrene	0.076	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Total BaPEq	0.0818046	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-2	WC-SSE-2	12/21/2005	Discrete	0	0.5	PAHs	Total PAHs	0.2973	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthylene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Anthracene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0309	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0325	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0266	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0254	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Chrysene	0.0296	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Fluoranthene	0.0427	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Fluorene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.2312	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Naphthalene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Phenanthrene	0.0149	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Pyrene	0.0435	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Total BaPEq	0.0385336	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-3	WC-SSE-3	12/21/2005	Discrete	0	0.5	PAHs	Total PAHs	0.1412	J	Y
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Acenaphthylene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Anthracene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Chrysene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Fluoranthene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Fluorene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Naphthalene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Phenanthrene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Pyrene	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Total BaPEq	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	SSE-4	WC-SSE-4	12/21/2005	Discrete	0	0.5	PAHs	Total PAHs	0.0154	UJ	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.004	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0081	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0081	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0061	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0061	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0091	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.004	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.004	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	Aroclors	Aroclors	0.0091	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Acenaphthene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.00088	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Anthracene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.00076	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Chrysene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Fluoranthene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Fluorene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.005	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Naphthalene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Phenanthrene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Pyrene	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Total BaPEq	0.005	<	N
Central Parcel Upland Exposure Unit, Central Beach Exposure Unit	WC-SSX	WC-SSX(Composite)	10/4/2010	Composite	0	0.5	PAHs	Total PAHs	0.005	<	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Herbicides	Dinoseb	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	PAHs	Naphthalene	0.2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Pesticides	Formaldehyde	2	UJ	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,4,5-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,4,6-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,4-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,4-Dimethylphenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,4-Dinitrophenol	5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2,6-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2-Chlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	2-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	4,6-Dinitro-2-methylphenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	4-Chloro-3-methylphenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	4-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	Cresol	4	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	Pentachlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	Phenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	Phenols	Tetrachlorophenol	2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	SVOCs	1,2-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	SVOCs	1,3-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	SVOCs	1,4-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	SVOCs	Hexachlorobutadiene	0.2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1,1-Trichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1,2-Trichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1-Dichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,1-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2,3-Trichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2-Dichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,2-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1,3-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	2,2-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	2-Chlorotoluene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	4-Chlorotoluene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Acetone	1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Benzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Bromobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Bromochloromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Bromodichloromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Bromoform	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Bromomethane	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Carbon disulfide	1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Carbon tetrachloride	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Chlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Chlorodibromomethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Chloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Chloroform	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Chloromethane	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	cis-1,2-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	cis-1,3-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Dichlorodifluoromethane	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Ethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Ethylene dibromide	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Isopropylbenzene	0.2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	m,p-Xylene	0.2	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methyl isobutyl ketone	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methyl n-butyl ketone	1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methyl tert-butyl ether	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methylene bromide	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methylene chloride	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Methylethyl ketone	1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	n-Butylbenzene	0.5	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	n-Propylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	o-Xylene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Sec-butylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Styrene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	tert-Butylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Tetrachloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Toluene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	trans-1,2-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	trans-1,3-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Trichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Trichlorofluoromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Vinyl chloride	0.1	U	N
East Parcel Upland Exposure Unit	B-21	B-21/S-1	5/7/2001	Discrete	0	4	VOCs	Xylene	0.2	U	N
East Parcel Upland Exposure Unit	B-22	B-22/S-1	5/15/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-22	B-22/S-1	5/15/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	113		Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Arsenic	2.85		Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Cadmium	1	U	N
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Chromium	31.4		Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Copper	28.1		Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Lead	17.7	J	Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Mercury	0.1	U	N
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Nickel	23.4		Y
East Parcel Upland Exposure Unit	B-23	B-23/S-1	5/15/2001	Discrete	0	2	Metals	Zinc	128		Y
East Parcel Upland Exposure Unit	B-24	B-24/S-1	5/17/2001	Discrete	0	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-24	B-24/S-1	5/17/2001	Discrete	0	4	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	B-25	B-25/S-2	5/7/2001	Discrete	2	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-25	B-25/S-2	5/7/2001	Discrete	2	4	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Acenaphthene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Acenaphthylene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Anthracene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Benzo(a)anthracene	0.0163		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Benzo(a)pyrene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Benzo(b)fluoranthene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Benzo(g,h,i)perylene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Benzo(k)fluoranthene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Chrysene	0.0162		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Dibenzo(a,h)anthracene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Fluoranthene	0.0292		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Fluorene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	High Molecular Weight PAH	0.0878		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Indeno(1,2,3-cd)pyrene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Low Molecular Weight PAH	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Naphthalene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Phenanthrene	0.0134	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Pyrene	0.0261		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Total BaPEq	0.0016462		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	PAHs	Total PAHs	0.0261		Y
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDE	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDT	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-26	B-26/S-1	5/11/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Antimony	0.788	J	Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Arsenic	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Beryllium	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Cadmium	0.641		Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Chromium	4.45	J	Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Copper	24.8		Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Lead	1.49		Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Mercury	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Nickel	50.2	J	Y
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Selenium	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Silver	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Thallium	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Metals	Zinc	206		Y
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	PAHs	Naphthalene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDE	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	4,4'-DDT	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-1	5/11/2001	Discrete	0	2	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	SVOCs	1,2-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	SVOCs	1,3-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	SVOCs	1,4-Dichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	SVOCs	Hexachlorobutadiene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1,1-Trichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1,2-Trichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1-Dichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,1-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2,3-Trichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2-Dichloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,2-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1,3-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	2,2-Dichloropropane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	2-Chlorotoluene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	4-Chlorotoluene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Acetone	1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Benzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Bromobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Bromochloromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Bromodichloromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Bromoform	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Bromomethane	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Carbon disulfide	1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Carbon tetrachloride	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Chlorobenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Chlorodibromomethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Chloroethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Chloroform	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Chloromethane	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	cis-1,2-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	cis-1,3-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Dichlorodifluoromethane	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Ethylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Ethylene dibromide	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Isopropylbenzene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	m,p-Xylene	0.2	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methyl isobutyl ketone	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methyl n-butyl ketone	1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methyl tert-butyl ether	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methylene bromide	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methylene chloride	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Methylethyl ketone	1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	n-Butylbenzene	0.5	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	n-Propylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	o-Xylene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Sec-butylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Styrene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	tert-Butylbenzene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Tetrachloroethene	0.1	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Toluene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	trans-1,2-Dichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	trans-1,3-Dichloropropene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Trichloroethene	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Trichlorofluoromethane	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Vinyl chloride	0.1	U	N
East Parcel Upland Exposure Unit	B-27	B-27/S-2	5/11/2001	Discrete	2	4	VOCs	Xylene	0.2	U	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Acenaphthene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Acenaphthylene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Anthracene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Benzo(a)anthracene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Benzo(a)pyrene	0.182	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Benzo(b)fluoranthene	0.191	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Benzo(g,h,i)perylene	0.171	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Benzo(k)fluoranthene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Chrysene	0.205	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Dibenzo(a,h)anthracene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Fluoranthene	0.274	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Fluorene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	High Molecular Weight PAH	1.286	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Indeno(1,2,3-cd)pyrene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Low Molecular Weight PAH	0.0778	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Naphthalene	0.168	UJ	N
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Phenanthrene	0.0778	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Pyrene	0.263	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Total BaPEq	0.201305	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	PAHs	Total PAHs	1.3638	J	Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	Petroleum	Diesel Range Hydrocarbons	32.8		Y
East Parcel Upland Exposure Unit	B-28	B-28/S-1	5/17/2001	Discrete	0.5	1	Petroleum	Oil Range Hydrocarbons	187		Y
East Parcel Upland Exposure Unit	B-29	B-29/S-1	5/17/2001	Discrete	0	4	Petroleum	Diesel Range Hydrocarbons	27.9		Y
East Parcel Upland Exposure Unit	B-29	B-29/S-1	5/17/2001	Discrete	0	4	Petroleum	Oil Range Hydrocarbons	158		Y
East Parcel Upland Exposure Unit	B-30	B-30/S-1	5/17/2001	Discrete	0	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	B-30	B-30/S-1	5/17/2001	Discrete	0	4	Petroleum	Oil Range Hydrocarbons	94.2		Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Conventionals	Total organic carbon	0.39		Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Metals	Arsenic	3.5	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Metals	Chromium	14		Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Metals	Copper	36		Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Metals	Zinc	120	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Acenaphthene	0.041	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Acenaphthylene	0.02	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Anthanthrene	0.1	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Anthracene	0.02	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Benzo(a)anthracene	0.055	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Benzo(a)pyrene	0.3	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Benzo(b+k)fluoranthene	0.35	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Benzo(e)pyrene	0.21	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Benzo(g,h,i)perylene	0.17	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Chrysene	0.1	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Dibenzo(a,h)anthracene	0.1	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Fluoranthene	0.077	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Fluorene	0.02	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	High Molecular Weight PAH	1.002	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Indeno(1,2,3-cd)pyrene	0.2	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Low Molecular Weight PAH	0.105	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Naphthalene	0.068	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Phenanthrene	0.037	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Pyrene	0.1	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Total BaPEq	0.3256	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	PAHs	Total PAHs	1.107	J	Y
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,3,4,5-Tetrachlorophenol	0.1	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,3,4,6-Tetrachlorophenol	0.1	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,4,5-Trichlorophenol	0.2	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,4,6-Trichlorophenol	0.1	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,4-Dichlorophenol	0.2	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	2,6-Dichlorophenol	0.2	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	Phenols	Pentachlorophenol	0.2	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	SVOCs	Carbazole	0.41	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	SVOCs	Hexachlorobenzene	0.041	UJ	N
East Parcel Upland Exposure Unit	SR3	SR3	10/4/1991	Discrete	0	0.2	SVOCs	Hexachlorobutadiene	0.1	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Conventionals	Total organic carbon	0.41		Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Metals	Arsenic	2.9	M	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Metals	Chromium	14	M	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Metals	Copper	23	M	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Metals	Zinc	110	JM	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Acenaphthene	0.044	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Acenaphthylene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Anthanthrene	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Anthracene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Benzo(a)anthracene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Benzo(a)pyrene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Benzo(b+k)fluoranthene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Benzo(e)pyrene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Benzo(g,h,i)perylene	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Chrysene	0.031	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Dibenzo(a,h)anthracene	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Fluoranthene	0.045	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Fluorene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	High Molecular Weight PAH	0.122	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Indeno(1,2,3-cd)pyrene	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Low Molecular Weight PAH	0.029	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Naphthalene	0.022	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Phenanthrene	0.029	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Pyrene	0.046	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Total BaPEq	0.000031	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	PAHs	Total PAHs	0.151	J	Y
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,3,4,5-Tetrachlorophenol	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,3,4,6-Tetrachlorophenol	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,4,5-Trichlorophenol	0.22	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,4,6-Trichlorophenol	0.11	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,4-Dichlorophenol	0.22	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	2,6-Dichlorophenol	0.22	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	Phenols	Pentachlorophenol	0.22	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	SVOCs	Carbazole	0.044	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	SVOCs	Hexachlorobenzene	0.044	UJ	N
East Parcel Upland Exposure Unit	SR4	SR4	10/4/1991	Discrete	0	0.2	SVOCs	Hexachlorobutadiene	0.11	UJ	N
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0424		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0271		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.132		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.216		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.186		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.15		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.184		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.169		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0471		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.228		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.6931		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.137		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.1845		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0134	U	N
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.115		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.244		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.310609		Y
East Parcel Upland Exposure Unit	SS-32	SS-32	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.8776		Y
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDE	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDT	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
East Parcel Upland Exposure Unit	SS-36	SS-36	1/18/2002	Discrete	0	0.5	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDE	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDT	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0067	U	N
East Parcel Upland Exposure Unit	SS-37	SS-37	1/18/2002	Discrete	0	0.5	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDE	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	4,4'-DDT	0.00763		Y
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.00763		Y
East Parcel Upland Exposure Unit	SS-38	SS-38	1/18/2002	Discrete	0	0.5	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0787	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.158	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0787	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0787	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0787	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0787	U	N
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.748		Y
East Parcel Upland Exposure Unit	SSH	WC-SSH	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.748		Y
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.193	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.388	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.193	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.193	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.193	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.193	UJ	N
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	1.2	J	Y
East Parcel Upland Exposure Unit	SSH-1	WC-SSH-1	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	1.2	J	Y
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.0393	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.0792	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.0393	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.0393	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.0393	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.0393	UJ	N
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	0.261	J	Y
East Parcel Upland Exposure Unit	SSH-2	WC-SSH-2	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	0.261	J	Y
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.403	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.811	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.403	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.403	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.403	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.403	UJ	N
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	1.85	J	Y
East Parcel Upland Exposure Unit	SSH-3	WC-SSH-3	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	1.85	J	Y
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.0752	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	0.0374	UJ	N
East Parcel Upland Exposure Unit	SSH-4	WC-SSH-4	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	0.0752	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-A	WC-SSH-A	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.02	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-B	WC-SSH-B	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.02	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.017		Y
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.029		Y
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-C	WC-SSH-C	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.046		Y
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.012	Ui	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.022		Y
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-G	WC-SSH-G	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.022		Y
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1254	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1260	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-H	WC-SSH-H	12/27/2007	Discrete	0	0.5	Aroclors	Aroclors	0.02	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1016	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1232	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1242	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1248	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1254	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1260	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1262	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1268	0.01	U	N
East Parcel Upland Exposure Unit	SSH-SHS1	WC-SSH-SHS1	4/21/2008	Discrete	2.5	3	Aroclors	Aroclors	0.02	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1016	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1221	0.02	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1232	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1242	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1248	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1254	0.028	P	Y
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1260	0.075		Y
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1262	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclor 1268	0.0099	U	N
East Parcel Upland Exposure Unit	SSH-SHS2	WC-SSH-SHS2	4/21/2008	Discrete	2.5	3	Aroclors	Aroclors	0.103	P	Y
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.0787	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.0391	U	N
East Parcel Upland Exposure Unit	SSI	WC-SSI	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.0787	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.0787	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.0391	U	N
East Parcel Upland Exposure Unit	SSJ	WC-SSJ	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.0787	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1016	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1221	0.0843	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1232	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1242	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1248	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1254	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclor 1260	0.0419	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Aroclors	Aroclors	0.0843	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Antimony	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Arsenic	3.03		Y
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Beryllium	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Cadmium	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Chromium	13.5		Y
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Copper	42.2		Y
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Lead	41.2		Y
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Mercury	0.0703	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Nickel	20.3		Y
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Selenium	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Silver	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Thallium	0.652	U	N
East Parcel Upland Exposure Unit	SSK	WC-SSK	12/21/2005	Composite	0	0.5	Metals	Zinc	177		Y
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	PAHs	Naphthalene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	SVOCs	1,2,4-Trichlorobenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	SVOCs	1,2-Dichlorobenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	SVOCs	1,3-Dichlorobenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	SVOCs	1,4-Dichlorobenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	SVOCs	Hexachlorobutadiene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1,1-Trichloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1,2,2-Tetrachloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1,2-Trichloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1-Dichloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1-Dichloroethene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,1-Dichloropropene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2,3-Trichlorobenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2,3-Trichloropropane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2,4-Trimethylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2-Dibromo-3-chloropropane	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2-Dichloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,2-Dichloropropane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,3,5-Trimethylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1,3-Dichloropropane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	1-Methyl-4-isopropylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	2,2-Dichloropropane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	2-Chlorotoluene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	4-Chlorotoluene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Acetone	0.05	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Benzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Bromobenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Bromochloromethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Bromodichloromethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Bromoform	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Bromomethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Carbon disulfide	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Carbon tetrachloride	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Chlorobenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Chlorodibromomethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Chloroethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Chloroform	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Chloromethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	cis-1,2-Dichloroethene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	cis-1,3-Dichloropropene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Dichlorodifluoromethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Ethylbenzene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Ethylene dibromide	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Isopropylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	m,p-Xylene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Methyl isobutyl ketone	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Methyl n-butyl ketone	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Methylene bromide	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Methylene chloride	0.014		Y
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Methylethyl ketone	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	n-Butylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	n-Propylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	o-Xylene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Sec-butylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Styrene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	tert-Butylbenzene	0.02	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Tetrachloroethene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Toluene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	trans-1,2-Dichloroethene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	trans-1,3-Dichloropropene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Trichloroethene	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Trichlorofluoromethane	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Vinyl chloride	0.005	U	N
East Parcel Upland Exposure Unit	TP-11	TP-11	10/19/1995	Discrete	0	3	VOCs	Xylene	0.005	U	N
East Parcel Upland Exposure Unit	TP-15	TP-15	10/19/1995	Discrete	0	4	Phenols	2,4,6-Trichlorophenol	0.005	U	N
East Parcel Upland Exposure Unit	TP-15	TP-15	10/19/1995	Discrete	0	4	Phenols	Pentachlorophenol	0.014		Y
East Parcel Upland Exposure Unit	TP-15	TP-15	10/19/1995	Discrete	0	4	Phenols	Tetrachlorophenol	0.005	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Anthracene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.145		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.243		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.167		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.184		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Chrysene	0.199		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.232		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluorene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.509		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.141		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.121		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Naphthalene	0.067	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.121		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Pyrene	0.198		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.185439		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total PAHs	1.63		Y
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	250	U	N
East Parcel Upland Exposure Unit	TP-35	TP-35/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	390		Y
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Herbicides	Dinoseb	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Metals	Arsenic	2.59		Y
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Metals	Copper	18.6		Y
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Metals	Lead	12	J	Y
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Metals	Mercury	0.1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Metals	Zinc	60.5	J	Y
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,5-Trichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,6-Trichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dimethylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dinitrophenol	2.5	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,6-Dichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Chlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Nitrophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Chloro-3-methylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Nitrophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	Cresol	2	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	Pentachlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	Phenol	1	U	N
East Parcel Upland Exposure Unit	TP-36	TP-36/S-1	4/16/2001	Discrete	0	0.5	Phenols	Tetrachlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1016	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1221	0.134	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1232	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1242	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1248	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1254	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclor 1260	0.067	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Aroclors	Aroclors	0.134	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Anthracene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.173		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.2		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.261		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.178		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Chrysene	0.292		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.396		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Fluorene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.83		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Naphthalene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.168	U	N
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Pyrene	0.33		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.245472		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	PAHs	Total PAHs	1.83		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	86.8		Y
East Parcel Upland Exposure Unit	TP-37	TP-37/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	217		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1016	0.067	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1221	0.134	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1232	0.067	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1242	0.067	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1248	0.067	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1254	0.067	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1260	0.067	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclors	0.134	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Herbicides	Dinoseb	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	2-Methylnaphthalene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Acenaphthene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Acenaphthylene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Anthracene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(a)anthracene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(a)pyrene	0.374		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(b)fluoranthene	0.413		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(b+k)fluoranthene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(g,h,i)perylene	0.335		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(k)fluoranthene	0.306		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Chrysene	0.232		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Dibenzo(a,h)anthracene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Fluoranthene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Fluorene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	High Molecular Weight PAH	1.939		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Indeno(1,2,3-cd)pyrene	0.279		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Low Molecular Weight PAH	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Naphthalene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Phenanthrene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Pyrene	0.168	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Total BaPEq	0.446492		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	PAHs	Total PAHs	1.939		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	250	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	1830		Y
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,5-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4,5-Trichlorophenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,6-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4,6-Trichlorophenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dichlorophenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dimethylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dimethylphenol	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dinitrophenol	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dinitrophenol	10	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,6-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Chlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2-Chlorophenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2-Methylphenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	2-Nitrophenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	3- and 4-Methylphenol Coelution	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Chloro-3-methylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	4-Chloro-3-methylphenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	4-Nitrophenol	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	Cresol	4	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	Pentachlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	Pentachlorophenol	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	Phenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phenols	Phenol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-1	4/16/2001	Discrete	0	0.5	Phenols	Tetrachlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Bis(2-ethylhexyl) phthalate	10	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Butylbenzyl phthalate	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Dibutyl phthalate	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Diethyl phthalate	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Dimethyl phthalate	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	Phthalates	Di-n-octyl phthalate	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,2,4-Trichlorobenzene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,2-Dichlorobenzene	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,3-Dichlorobenzene	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	1,4-Dichlorobenzene	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	2,4-Dinitrotoluene	2.5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	2,6-Dinitrotoluene	2.5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	2-Chloronaphthalene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	2-Nitroaniline	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	3,3'-Dichlorobenzidine	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	3-Nitroaniline	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	4-Bromophenyl phenyl ether	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	4-Chloroaniline	10	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	4-Chlorophenyl phenyl ether	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	4-Nitroaniline	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Benzoic acid	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Benzyl alcohol	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroethoxy) methane	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroethyl) ether	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroisopropyl) ether	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Dibenzofuran	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Hexachlorobenzene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Hexachlorobutadiene	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Hexachlorocyclopentadiene	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Hexachloroethane	5	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Isophorone	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	Nitrobenzene	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	N-Nitrosodiphenylamine	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	SVOCs	N-Nitrosodipropylamine	1.65	U	N
East Parcel Upland Exposure Unit	TP-38	TP-38/S-2	4/16/2001	Discrete	1.5	2	VOCs	Methyl n-butyl ketone	5	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1016	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1221	0.134	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1232	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1242	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1248	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1254	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclor 1260	0.067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Aroclors	Aroclors	0.134	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Herbicides	Dinoseb	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Acenaphthene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Acenaphthylene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Anthracene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(a)anthracene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(a)pyrene	0.0366		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(b)fluoranthene	0.0427		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(g,h,i)perylene	0.0316		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Benzo(k)fluoranthene	0.0325		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Chrysene	0.0441		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Dibenzo(a,h)anthracene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Fluoranthene	0.0508		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Fluorene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	High Molecular Weight PAH	0.2841		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Indeno(1,2,3-cd)pyrene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Low Molecular Weight PAH	0.0297		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Naphthalene	0.0268	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Phenanthrene	0.0297		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Pyrene	0.0458		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Total BaPEq	0.0412391		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	PAHs	Total PAHs	0.3138		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	4,4'-DDD	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	4,4'-DDE	0.0067	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	4,4'-DDT	0.0571		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Aldrin	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	alpha-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	alpha-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	beta-Endosulfan	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	beta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Chlordane (technical)	0.15	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	cis-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	delta-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Dieldrin	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Endosulfan sulfate	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Endrin	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Endrin aldehyde	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Endrin ketone	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	gamma-Chlordane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	gamma-Hexachlorocyclohexane	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Heptachlor	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Heptachlor epoxide	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Methoxychlor	0.0067	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.0571		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Pesticides	Toxaphene	0.2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	55.2		Y
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4,5-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4,6-Trichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dimethylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,4-Dinitrophenol	5	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2,6-Dichlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2-Chlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	2-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	4,6-Dinitro-2-methylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	4-Chloro-3-methylphenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	4-Nitrophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	Cresol	4	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	Pentachlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	Phenol	2	U	N
East Parcel Upland Exposure Unit	TP-39	TP-39/S-2	4/16/2001	Discrete	1.5	2	Phenols	Tetrachlorophenol	2	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Herbicides	Dinoseb	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,5-Trichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4,6-Trichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dimethylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,4-Dinitrophenol	2.5	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2,6-Dichlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Chlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	2-Nitrophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Chloro-3-methylphenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	4-Nitrophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	Cresol	2	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	Pentachlorophenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	Phenol	1	U	N
East Parcel Upland Exposure Unit	TP-40	TP-40/S-1	4/16/2001	Discrete	0	0.5	Phenols	Tetrachlorophenol	1	U	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0058	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0029	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0041	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0054	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0052	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0031	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0063	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0037	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0017	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Aroclors	Aroclors	0.0063	<	N
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Antimony	13.3		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Arsenic	12.1		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Beryllium	0.28		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Cadmium	1.7		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Chromium	61.8		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Copper	746		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Lead	610		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Mercury	0.073	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Nickel	54.7		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Selenium	0.71		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Silver	0.62		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Thallium	0.085	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	Metals	Zinc	697		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0671		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.146		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0292		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.138		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Anthracene	0.171		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.336		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.512		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.675		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.343		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.332		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Chrysene	0.449		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0856		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Fluoranthene	0.507		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Fluorene	0.0391		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	4.0576		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.269		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	1.1133		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Naphthalene	0.277		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Phenanthrene	0.313		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Pyrene	0.549		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Total BaPEq	0.729369		Y
East Parcel Upland Exposure Unit	WC-SSL-1	WC-SSL-1 Composite	9/28/2010	Composite	0	0.5	PAHs	Total PAHs	5.0249		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Antimony	24.8		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Arsenic	10.3		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Beryllium	0.43		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Cadmium	0.02	<	N
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Chromium	33.4		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Copper	143		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Lead	631		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Mercury	0.14		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Nickel	45.4		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Selenium	0.14	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Silver	0.3	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Thallium	0.072	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	Metals	Zinc	849		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0927		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.259		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0648		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.289		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Anthracene	0.328		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.568		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.589		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.782		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.335		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.555		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Chrysene	0.803		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.127		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.745		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Fluorene	0.0808		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	5.58		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.278		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	1.9976		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Naphthalene	0.506		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.47		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Pyrene	0.798		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.885153		Y
East Parcel Upland Exposure Unit	WC-SSL-1-1	WC-SSL-1-1	9/28/2010	Discrete	0	0.5	PAHs	Total PAHs	7.3186		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Antimony	192		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Arsenic	36.2		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Beryllium	0.26		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Cadmium	0.019	<	N
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Chromium	145		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Copper	47500		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Lead	3090		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Mercury	0.051	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Nickel	306		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Selenium	0.54		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Silver	8.6		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Thallium	0.044	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	Metals	Zinc	1810		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0239		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0654		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0116		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.0361		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Anthracene	0.0406		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0691		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.0734		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.0732		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0564		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0574		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Chrysene	0.0868		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0147		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.0916		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Fluorene	0.0137		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.6776		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.039		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.373		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Naphthalene	0.0996		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.106		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Pyrene	0.116		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.1068908		Y
East Parcel Upland Exposure Unit	WC-SSL-1-2	WC-SSL-1-2	9/28/2010	Discrete	0	0.5	PAHs	Total PAHs	0.9852		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Antimony	12.5		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Arsenic	10.7		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Beryllium	0.33		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Cadmium	0.019	<	N
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Chromium	39.9		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Copper	233		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Lead	381		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Mercury	0.066	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Nickel	53.6		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Selenium	0.23	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Silver	0.77		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Thallium	0.062	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	Metals	Zinc	586		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0145		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0407		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0095		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.0813		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Anthracene	0.0567		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.218		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.311		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.237		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.286		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.221		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Chrysene	0.295		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.043		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.342		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Fluorene	0.0209		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	2.564		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.174		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.4643		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Naphthalene	0.0902		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.165		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Pyrene	0.437		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.419405		Y
East Parcel Upland Exposure Unit	WC-SSL-1-3	WC-SSL-1-3	9/28/2010	Discrete	0	0.5	PAHs	Total PAHs	2.9876		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Antimony	140		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Arsenic	11.5		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Beryllium	0.59		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Cadmium	0.023	<	N
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Chromium	35.1		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Copper	153		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Lead	915		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Mercury	0.022	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Nickel	45.3		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Selenium	0.14	<	N
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Silver	0.8		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Thallium	0.027	J	Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	Metals	Zinc	231		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	1-Methylnaphthalene	0.0151		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	2-Methylnaphthalene	0.0368		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthene	0.0127		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Acenaphthylene	0.108		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Anthracene	0.107		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.145		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.182		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.194		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.178		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.144		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Chrysene	0.22		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0507		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Fluoranthene	0.152		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Fluorene	0.0228		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.5907		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.12		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.4683		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Naphthalene	0.064		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Phenanthrene	0.117		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Pyrene	0.205		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Total BaPEq	0.28026		Y
East Parcel Upland Exposure Unit	WC-SSL-1-4	WC-SSL-1-4	9/28/2010	Discrete	0	0.5	PAHs	Total PAHs	2.0222		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1016	0.0059	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1221	0.0029	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1232	0.0041	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1242	0.0054	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1248	0.0052	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1254	0.0031	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1260	0.0063	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1262	0.0037	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclor 1268	0.0017	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Aroclors	Aroclors	0.0063	<	N
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Antimony	23.3		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Arsenic	15.1		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Beryllium	0.31		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Cadmium	1.3		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Chromium	48.5		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Copper	13500		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Lead	1150		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Mercury	0.085	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Nickel	73		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Selenium	1.1		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Silver	4.4		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Thallium	0.072	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	Metals	Zinc	524		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0644		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.193		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0127		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.154		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Anthracene	0.0791		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.19		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.272		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.243		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.105		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.173		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Chrysene	0.243		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0354		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Fluoranthene	0.258		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Fluorene	0.0149		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	1.9734		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.101		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.8527		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Naphthalene	0.211		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Phenanthrene	0.188		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Pyrene	0.353		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Total BaPEq	0.362773		Y
East Parcel Upland Exposure Unit	WC-SSL-2	WC-SSL-2 Composite	9/30/2010	Composite	0	0.5	PAHs	Total PAHs	2.6331		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Antimony	21.5		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Arsenic	9.8		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.43		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.019	<	N
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Chromium	38.7		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Copper	207		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Lead	147		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.14		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Nickel	47.9		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.11	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Silver	0.53		Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.064	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-1	WC-SSL-2-1	9/30/2010	Discrete	0	0.5	Metals	Zinc	421		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Antimony	4.8		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Arsenic	5.8		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.38		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.018	<	N
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Chromium	32.9		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Copper	194		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Lead	145		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.07	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Nickel	35		Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.29	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Silver	0.45	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.068	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-2	WC-SSL-2-2	9/30/2010	Discrete	0	0.5	Metals	Zinc	415		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Antimony	7		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Arsenic	9.7		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.48		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.018	<	N
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Chromium	62		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Copper	276		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Lead	169		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.074	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Nickel	47		Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.11	<	N
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Silver	0.37	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.021	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-3	WC-SSL-2-3	9/30/2010	Discrete	0	0.5	Metals	Zinc	294		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Antimony	38.5		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Arsenic	10.2		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.37		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.017	<	N
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Chromium	26.3		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Copper	204		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Lead	362		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.059	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Nickel	41.3		Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.23	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Silver	0.32	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.056	J	Y
East Parcel Upland Exposure Unit	WC-SSL-2-4	WC-SSL-2-4	9/30/2010	Discrete	0	0.5	Metals	Zinc	1640		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.00092	<	N
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0019	<	N
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0016	<	N
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.002	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Anthracene	0.004	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0159		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0164		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0142		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0074		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.011		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Chrysene	0.0151		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.003	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Fluoranthene	0.0255		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Fluorene	0.0019	<	N
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.1406	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0066	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.0184	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Naphthalene	0.003	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0094		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Pyrene	0.0255		Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Total BaPEq	0.0231951	J	Y
East Parcel Upland Exposure Unit	WC-SSM	WC-SSM Composite	9/30/2010	Composite	0	0.5	PAHs	Total PAHs	0.159	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Antimony	0.23	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Arsenic	3.3		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Beryllium	0.29		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Cadmium	0.12		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Chromium	16.4		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Copper	17.5		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Lead	11.6		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Mercury	0.019	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Nickel	19.9		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Selenium	0.9		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Silver	0.36	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Thallium	0.052	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	Metals	Zinc	74.7		Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.00093	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0019	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0016	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0011	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Anthracene	0.0009	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0032	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0052	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0052	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0056	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0031	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Chrysene	0.0047	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.00091	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Fluoranthene	0.0046	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Fluorene	0.0019	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.04141	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0035	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.0051	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Naphthalene	0.0031	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0033	<	N
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Pyrene	0.0054	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Total BaPEq	0.0073357	J	Y
East Parcel Upland Exposure Unit	WC-SSN	WC-SSN Composite	9/30/2010	Composite	0	0.5	PAHs	Total PAHs	0.04651	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Antimony	1.3		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Arsenic	6.1		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Beryllium	0.37		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Cadmium	1		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Chromium	21.9		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Copper	51.9		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Lead	126		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Mercury	0.21		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Nickel	28.1		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Selenium	1.3		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Silver	0.15	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Thallium	0.064	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	Metals	Zinc	377		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	1-Methylnaphthalene	0.0108		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.0263		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthene	0.0042	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Acenaphthylene	0.0166		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Anthracene	0.0099		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0384		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0619		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0546		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0441		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0421		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Chrysene	0.056		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0121		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Fluoranthene	0.0846		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Fluorene	0.0059	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.5234		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0348		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.2092	J	Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Naphthalene	0.0839		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Phenanthrene	0.0624		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Pyrene	0.0948		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Total BaPEq	0.087257		Y
East Parcel Upland Exposure Unit	WC-SSO	WC-SSO Composite	9/30/2010	Composite	0	0.5	PAHs	Total PAHs	0.7063	J	Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Antimony	0.78		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Arsenic	4.8		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.34		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.48		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Chromium	17.2		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Copper	37.1		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Lead	193		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.21		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Nickel	25.6		Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.13	<	N
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Silver	0.29	J	Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.069	J	Y
East Parcel Upland Exposure Unit	WC-SSO-1	WC-SSO-1	9/30/2010	Discrete	0	0.5	Metals	Zinc	264		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Antimony	0.36	J	Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Arsenic	5.5		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.39		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.5		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Chromium	14.4		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Copper	87.5		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Lead	111		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Mercury	1.1		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Nickel	19.7		Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.12	<	N
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Silver	0.21	J	Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.058	J	Y
East Parcel Upland Exposure Unit	WC-SSO-2	WC-SSO-2	9/30/2010	Discrete	0	0.5	Metals	Zinc	222		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Antimony	1		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Arsenic	5.2		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.31		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.75		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Chromium	14.8		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Copper	37.4		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Lead	66.8		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.059	J	Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Nickel	27.7		Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.15	J	Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Silver	0.21	J	Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.059	J	Y
East Parcel Upland Exposure Unit	WC-SSO-3	WC-SSO-3	9/30/2010	Discrete	0	0.5	Metals	Zinc	440		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Antimony	0.88		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Arsenic	3.7		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Beryllium	0.35		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Cadmium	0.45		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Chromium	22.4		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Copper	28.3		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Lead	76		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Mercury	0.058	J	Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Nickel	27.4		Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Selenium	0.12	<	N
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Silver	0.2	J	Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Thallium	0.049	J	Y
East Parcel Upland Exposure Unit	WC-SSO-4	WC-SSO-4	9/30/2010	Discrete	0	0.5	Metals	Zinc	341		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Antimony	0.889	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Arsenic	2.47		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Chromium	13.4	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Copper	49.5	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Lead	36.7		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Mercury	0.1	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Nickel	16.1	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	SS-34	SS-34	1/18/2002	Discrete	0	0.5	Metals	Zinc	179		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1016	0.0628	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1221	0.126	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1232	0.126	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1242	0.0942	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1248	0.0942	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1254	0.0785	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1260	0.141	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1262	0.0628	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclor 1268	0.0628	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Aroclors	Aroclors	0.141	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Antimony	3.4		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Arsenic	6.8		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Beryllium	0.27		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Cadmium	0.3		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Chromium	17		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Copper	34.8		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Lead	92.3		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Mercury	0.087	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Nickel	17.6		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Selenium	0.83		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Silver	0.22	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Thallium	0.044	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Metals	Zinc	159		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	1-Methylnaphthalene	0.0615		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	2-Methylnaphthalene	0.113		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Acenaphthene	0.0282		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Acenaphthylene	0.0463		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Anthracene	0.0289		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Benzo(a)anthracene	0.078		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Benzo(a)pyrene	0.0793		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Benzo(b)fluoranthene	0.0574	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Benzo(g,h,i)perylene	0.0466		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Benzo(k)fluoranthene	0.0637	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Chrysene	0.0926		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Dibenzo(a,h)anthracene	0.0137		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Fluoranthene	0.16		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Fluorene	0.0331		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	High Molecular Weight PAH	0.816	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0347		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Low Molecular Weight PAH	0.8235		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Naphthalene	0.421		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Phenanthrene	0.153		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Pyrene	0.19		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Total BaPEq	0.1107396	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	PAHs	Total PAHs	1.128	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	236		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	Petroleum	Motor oil (silica gel treated)	1050		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	SVOCs	1,2,4-Trichlorobenzene	0.0044	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	SVOCs	1,2-Dichlorobenzene	0.0039	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	SVOCs	1,3-Dichlorobenzene	0.0034	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	SVOCs	1,4-Dichlorobenzene	0.0058	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	SVOCs	Hexachlorobutadiene	0.0196	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1,1,2-Tetrachloroethane	0.0046	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1,1-Trichloroethane	0.0048	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1,2,2-Tetrachloroethane	0.0062	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1,2-Trichloroethane	0.0047	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1-Dichloroethane	0.004	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1-Dichloroethene	0.007	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,1-Dichloropropene	0.0102	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2,3-Trichlorobenzene	0.0062	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2,3-Trichloropropane	0.0175	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2,4-Trimethylbenzene	0.0089	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2-Dibromo-3-chloropropane	0.0397	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2-Dichloroethane	0.0075	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,2-Dichloropropane	0.0065	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,3,5-Trimethylbenzene	0.0028	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1,3-Dichloropropane	0.006	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	1-Methyl-4-isopropylbenzene	0.0135	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	2,2-Dichloropropane	0.0079	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	2-Chlorotoluene	0.0027	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	4-Chlorotoluene	0.0044	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Acetone	0.0352	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Benzene	0.0071	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Bromobenzene	0.0019	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Bromochloromethane	0.0077	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Bromodichloromethane	0.0072	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Bromoform	0.009	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Bromomethane	0.0258	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Carbon disulfide	0.0225	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Carbon tetrachloride	0.0064	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Chlorobenzene	0.0033	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Chlorodibromomethane	0.0034	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Chloroethane	0.007	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Chloroform	0.0054	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Chloromethane	0.0115	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	cis-1,2-Dichloroethene	0.0046	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	cis-1,3-Dichloropropene	0.0039	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Dichlorodifluoromethane	0.0093	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Ethylbenzene	0.0055	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Ethylene dibromide	0.0044	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Isopropylbenzene	0.0034	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	m,p-Xylene	0.016	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methyl isobutyl ketone	0.0073	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methyl n-butyl ketone	0.0254	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methyl tert-butyl ether	0.0027	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methylene bromide	0.0067	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methylene chloride	0.0057	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Methylethyl ketone	0.0878	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Naphthalene	0.0225	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	n-Butylbenzene	0.009	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	n-Propylbenzene	0.0071	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	o-Xylene	0.0055	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Sec-butylbenzene	0.0051	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Styrene	0.0037	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	tert-Butylbenzene	0.0014	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Tetrachloroethene	0.0089	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Toluene	0.069	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	trans-1,2-Dichloroethene	0.0039	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	trans-1,3-Dichloropropene	0.0035	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Trichloroethene	0.0036	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Trichlorofluoromethane	0.0092	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Vinyl chloride	0.0053	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 1/2	Trench 1/2	9/28/2010	Composite	8	8.5	VOCs	Xylene	0.0214	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1016	0.0048	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1221	0.0024	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1232	0.0033	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1242	0.0044	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1248	0.0042	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1254	0.0026	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1260	0.0052	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1262	0.003	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclor 1268	0.0014	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3	Trench 3	9/28/2010	Discrete	8	8.5	Aroclors	Aroclors	0.0052	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1016	0.0723	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1221	0.145	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1232	0.145	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1242	0.108	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1248	0.108	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1254	7.94		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1260	0.163	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1262	0.0723	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclor 1268	0.0723	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Aroclors	Aroclors	7.94		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Antimony	6.9		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Arsenic	4		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Beryllium	0.2	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Cadmium	0.15		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Chromium	18		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Copper	130		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Lead	137		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Mercury	0.054	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Nickel	20.9		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Selenium	0.79		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Silver	0.66	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Thallium	0.055	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Metals	Zinc	115		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	1-Methylnaphthalene	0.029		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	2-Methylnaphthalene	0.0752		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Acenaphthene	0.0051	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Acenaphthylene	0.0313		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Anthracene	0.0196		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Benzo(a)anthracene	0.0664		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Benzo(a)pyrene	0.0586		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Benzo(b)fluoranthene	0.0415	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Benzo(g,h,i)perylene	0.0239		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Benzo(k)fluoranthene	0.0484	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Chrysene	0.0937		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Dibenzo(a,h)anthracene	0.0081	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Fluoranthene	0.208		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Fluorene	0.0159		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	High Molecular Weight PAH	0.7105	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0209		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Low Molecular Weight PAH	0.4321	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Naphthalene	0.146		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Phenanthrene	0.139		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Pyrene	0.141		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Total BaPEq	0.0801577	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	PAHs	Total PAHs	0.9576	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	1340		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	Petroleum	Motor oil (silica gel treated)	1140		Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	SVOCs	1,2,4-Trichlorobenzene	0.0068	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	SVOCs	1,2-Dichlorobenzene	0.006	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	SVOCs	1,3-Dichlorobenzene	0.0052	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	SVOCs	1,4-Dichlorobenzene	0.023	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	SVOCs	Hexachlorobutadiene	0.0304	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1,1,2-Tetrachloroethane	0.0071	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1,1-Trichloroethane	0.0075	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1,2,2-Tetrachloroethane	0.0096	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1,2-Trichloroethane	0.0072	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1-Dichloroethane	0.0062	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1-Dichloroethene	0.0109	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,1-Dichloropropene	0.0158	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2,3-Trichlorobenzene	0.0096	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2,3-Trichloropropane	0.0271	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2,4-Trimethylbenzene	0.0132	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2-Dibromo-3-chloropropane	0.0617	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2-Dichloroethane	0.0116	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,2-Dichloropropane	0.0101	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,3,5-Trimethylbenzene	0.0044	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1,3-Dichloropropane	0.0094	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	1-Methyl-4-isopropylbenzene	0.0448	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	2,2-Dichloropropane	0.0123	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	2-Chlorotoluene	0.0042	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	4-Chlorotoluene	0.0068	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Acetone	0.0546	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Benzene	0.0117	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Bromobenzene	0.003	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Bromochloromethane	0.012	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Bromodichloromethane	0.0112	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Bromoform	0.014	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Bromomethane	0.0401	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Carbon disulfide	0.035	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Carbon tetrachloride	0.0099	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Chlorobenzene	0.0043	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Chlorodibromomethane	0.0053	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Chloroethane	0.0109	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Chloroform	0.0084	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Chloromethane	0.0231	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	cis-1,2-Dichloroethene	0.0071	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	cis-1,3-Dichloropropene	0.006	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Dichlorodifluoromethane	0.0144	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Ethylbenzene	0.0091	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Ethylene dibromide	0.0068	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Isopropylbenzene	0.0062	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	m,p-Xylene	0.0208	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methyl isobutyl ketone	0.0114	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methyl n-butyl ketone	0.0395	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methyl tert-butyl ether	0.0042	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methylene bromide	0.0104	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methylene chloride	0.0088	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Methylethyl ketone	0.136	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Naphthalene	0.0362	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	n-Butylbenzene	0.0131	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	n-Propylbenzene	0.0084	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	o-Xylene	0.0071	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Sec-butylbenzene	0.0069	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Styrene	0.0054	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	tert-Butylbenzene	0.0021	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Tetrachloroethene	0.0139	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Toluene	0.0988	J	Y
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	trans-1,2-Dichloroethene	0.006	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	trans-1,3-Dichloropropene	0.0054	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Trichloroethene	0.0056	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Trichlorofluoromethane	0.0143	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Vinyl chloride	0.0082	<	N
East Parcel Upland Exposure Unit, Inner Cove Beach Exposure Unit	Trench 3/4	Trench 3/4	9/29/2010	Composite	8	8.5	VOCs	Xylene	0.0268	J	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1016	0.004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1221	0.0079	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1232	0.004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1242	0.004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1248	0.004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1254	0.0025	J	Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclor 1260	0.004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Aroclors	Aroclors	0.0025	JT	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Conventionals	Total organic carbon	1		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Conventionals	Total solids	86.8		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	>10 Phi clay	0.09		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	8-9 Phi clay	0.06		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	9-10 Phi clay	0.05		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Coarse sand	21.2		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Coarse silt	0.81		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Fine sand	15.2		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Fine silt	0.25		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Fines	1.74	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Gravel	12.4		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Medium sand	42.8		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Medium silt	0.32		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Very coarse sand	5.84		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Very fine sand	0.81		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Grainsize	Very fine silt	0.16		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	2,4,5-T	0.0016	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	2,4-D	0.0064	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	2,4-DB	0.05	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	Dalapon	0.016	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	Dicamba	0.0032	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	Dichloroprop	0.0064	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	Dinoseb	0.0032	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	MCPA	3.2	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	MCPP	3.2	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Herbicides	Silvex	0.0016	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Aluminum	15400		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Antimony	0.3	J	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Arsenic	2.6		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Cadmium	0.23		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Chromium	22		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Copper	42.7		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Lead	30		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Mercury	0.05	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Nickel	24		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Selenium	0.2	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Silver	0.02	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Metals	Zinc	138		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	2-Methylnaphthalene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Acenaphthene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Acenaphthylene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Anthracene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Benzo(a)anthracene	0.0048	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Benzo(a)pyrene	0.0044	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Benzo(b)fluoranthene	0.0056	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Benzo(g,h,i)perylene	0.0058	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Benzo(k)fluoranthene	0.0066	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Chrysene	0.0079	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0019	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Fluoranthene	0.039		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Fluorene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	High Molecular Weight PAH	0.102	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0048	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Low Molecular Weight PAH	0.092	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Naphthalene	0.041		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Phenanthrene	0.051		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Pyrene	0.023		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Total BaPEq	0.00599	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	PAHs	Total PAHs	0.194	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	2,4'-DDD	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	2,4'-DDE	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	2,4'-DDT	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	4,4'-DDD	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	4,4'-DDE	0.00051	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	4,4'-DDT	0.0005	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Aldrin	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	alpha-Endosulfan	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	alpha-Hexachlorocyclohexane	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	beta-Endosulfan	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	beta-Hexachlorocyclohexane	0.00031	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	cis-Chlordane	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	cis-Nonachlor	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	delta-Hexachlorocyclohexane	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Dieldrin	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Endosulfan sulfate	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Endrin	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Endrin aldehyde	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Endrin ketone	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	gamma-Hexachlorocyclohexane	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Heptachlor	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Heptachlor epoxide	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Methoxychlor	0.002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Mirex	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Oxychlordane	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Total Chlordanes	0.0004	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Total Endosulfan	0.0004	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Total of 4,4'-DDD, -DDE, -DDT	0.00051	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	Toxaphene	0.02	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	trans-Chlordane	0.0002	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Pesticides	trans-Nonachlor	0.0004	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,3,4,5-Tetrachlorophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,3,4,6-Tetrachlorophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,3,5,6-Tetrachlorophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,4,5-Trichlorophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,4,6-Trichlorophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,4-Dichlorophenol	0.058	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,4-Dimethylphenol	0.058	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2,4-Dinitrophenol	0.19	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2-Chlorophenol	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2-Methylphenol	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	2-Nitrophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	4,6-Dinitro-2-methylphenol	0.19	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	4-Chloro-3-methylphenol	0.039	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	4-Methylphenol	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	4-Nitrophenol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	Pentachlorophenol	0.0097	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phenols	Phenol	0.039	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Bis(2-ethylhexyl) phthalate	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Butylbenzyl phthalate	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Dibutyl phthalate	0.035		Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Diethyl phthalate	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Dimethyl phthalate	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	Phthalates	Di-n-octyl phthalate	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	1,2,4-Trichlorobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	1,2-Dichlorobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	1,3-Dichlorobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	1,4-Dichlorobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	2,4-Dinitrotoluene	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	2,6-Dinitrotoluene	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	2-Chloronaphthalene	0.019	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	2-Nitroaniline	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	3,3'-Dichlorobenzidine	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	3-Nitroaniline	0.12	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	4-Bromophenyl phenyl ether	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	4-Chloroaniline	0.058	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	4-Chlorophenyl phenyl ether	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	4-Nitroaniline	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Aniline	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Azobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Benzoic acid	0.19	UJ	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Benzyl alcohol	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Bis(2-chloro-1-methylethyl) ether	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Bis(2-chloroethoxy) methane	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Bis(2-chloroethyl) ether	0.039	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Carbazole	0.0029	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Dibenzofuran	0.011	T	Y
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Hexachlorobenzene	0.0002	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Hexachlorobutadiene	0.00044	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Hexachlorocyclopentadiene	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Hexachloroethane	0.0019	UT	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Isophorone	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	Nitrobenzene	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	N-Nitrosodimethylamine	0.096	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	N-Nitrosodiphenylamine	0.019	U	N
Inner Cove Beach Exposure Unit	06B022	LWG0106B022SDS015C00	10/10/2002	Composite	0	0.5	SVOCs	N-Nitrosodipropylamine	0.039	U	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1016	0.0892	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1221	0.178	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1232	0.178	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1242	0.134	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1248	0.134	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1254	0.112	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1260	0.201	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1262	0.0892	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1268	0.0892	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclors	0.201	U	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Antimony	154		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Arsenic	14.8		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Beryllium	0.27	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Cadmium	0.3		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Chromium	14.5		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Copper	72.9		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Lead	1160		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Mercury	0.085	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Nickel	15.1		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Selenium	0.6	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Silver	0.87	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Thallium	0.18	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Metals	Zinc	119		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	1-Methylnaphthalene	0.108		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	2-Methylnaphthalene	0.0709		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthene	0.118		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthylene	0.0731		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Anthracene	0.519	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)anthracene	2.82		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)pyrene	0.849		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(b)fluoranthene	1.76		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(g,h,i)perylene	0.38	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(k)fluoranthene	1.56		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Chrysene	6.22		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Dibenzo(a,h)anthracene	0.233	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Fluoranthene	1.26		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Fluorene	0.577		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	High Molecular Weight PAH	18.621	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Indeno(1,2,3-cd)pyrene	0.169	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Low Molecular Weight PAH	4.198	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Naphthalene	0.13		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Phenanthrene	2.71		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Pyrene	3.37		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Total BaPEq	1.57872	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	PAHs	Total PAHs	22.6181	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons	29200		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	18500		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Petroleum	Gasoline Range Hydrocarbons	41.5	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil	56000		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil (silica gel treated)	49400		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	SVOCs	1,2,4-Trichlorobenzene	0.00086	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	SVOCs	1,2-Dichlorobenzene	0.00088	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	SVOCs	1,3-Dichlorobenzene	0.00068	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	SVOCs	1,4-Dichlorobenzene	0.0037	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	SVOCs	Hexachlorobutadiene	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1,1,2-Tetrachloroethane	0.00052	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1,1-Trichloroethane	0.00065	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1,2,2-Tetrachloroethane	0.00099	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1,2-Trichloroethane	0.00099	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethane	0.00084	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethene	0.0013	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloropropene	0.0012	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichlorobenzene	0.00099	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichloropropane	0.0012	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2,4-Trimethylbenzene	0.0477		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dibromo-3-chloropropane	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloroethane	0.00079	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloropropane	0.00064	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,3,5-Trimethylbenzene	0.0189		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1,3-Dichloropropane	0.00099	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	1-Methyl-4-isopropylbenzene	0.01	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	2,2-Dichloropropane	0.00066	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	2-Chlorotoluene	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	4-Chlorotoluene	0.00094	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Acetone	1.18		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Benzene	0.00057	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Bromobenzene	0.00083	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Bromochloromethane	0.00078	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Bromodichloromethane	0.00042	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Bromoform	0.00082	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Bromomethane	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Carbon disulfide	0.0074	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Carbon tetrachloride	0.00064	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Chlorobenzene	0.00065	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Chlorodibromomethane	0.00036	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Chloroethane	0.001	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Chloroform	0.00069	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Chloromethane	0.00073	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	cis-1,2-Dichloroethene	0.00074	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	cis-1,3-Dichloropropene	0.00046	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Dichlorodifluoromethane	0.0015	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Ethylbenzene	0.0098	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Ethylene dibromide	0.00075	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Isopropylbenzene	0.0012	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	m,p-Xylene	0.0203	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methyl isobutyl ketone	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methyl n-butyl ketone	0.0013	<	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methyl tert-butyl ether	0.00089	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methylene bromide	0.00074	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methylene chloride	0.0094	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Methylethyl ketone	0.198		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Naphthalene	0.0019	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	n-Butylbenzene	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	n-Propylbenzene	0.0108		Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	o-Xylene	0.0087	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Sec-butylbenzene	0.0044	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Styrene	0.001	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	tert-Butylbenzene	0.0012	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Tetrachloroethene	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Toluene	0.0094	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	trans-1,2-Dichloroethene	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	trans-1,3-Dichloropropene	0.00075	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Trichloroethene	0.00075	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Trichlorofluoromethane	0.00081	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Vinyl chloride	0.00099	<	N
Inner Cove Beach Exposure Unit	Beach Cove-1	Beach Cove-1	9/27/2010	Discrete	1	1.5	VOCs	Xylene	0.029	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1016	0.111	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1221	0.222	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1232	0.222	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1242	0.167	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1248	0.167	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1254	0.139	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1260	0.25	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1262	0.111	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1268	0.111	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Aroclors	Aroclors	0.25	U	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Antimony	0.96	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Arsenic	2.5		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Beryllium	0.18	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Cadmium	0.8		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Chromium	11.7		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Copper	36.2		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Lead	59.4		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Mercury	0.24		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Nickel	12.4		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Selenium	0.29	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Silver	0.68	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Thallium	0.076	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Metals	Zinc	555		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	1-Methylnaphthalene	0.0118	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	2-Methylnaphthalene	0.018	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthene	0.0145	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthylene	0.0169	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Anthracene	0.0102	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)anthracene	0.401		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)pyrene	0.222		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Benzo(b)fluoranthene	0.51		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Benzo(g,h,i)perylene	0.161	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Benzo(k)fluoranthene	0.488		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Chrysene	1.28		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Dibenzo(a,h)anthracene	0.136	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Fluoranthene	0.249		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Fluorene	0.0119	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	High Molecular Weight PAH	4.117	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Indeno(1,2,3-cd)pyrene	0.138	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Low Molecular Weight PAH	0.2503	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Naphthalene	0.063		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Phenanthrene	0.126	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Pyrene	0.532		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Total BaPEq	0.46906	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	PAHs	Total PAHs	4.2863	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons	13800		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	14900		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Petroleum	Gasoline Range Hydrocarbons	50.2	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil	30600		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil (silica gel treated)	46700		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	SVOCs	1,2,4-Trichlorobenzene	0.0041	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	SVOCs	1,2-Dichlorobenzene	0.0019	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	SVOCs	1,3-Dichlorobenzene	0.0019	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	SVOCs	1,4-Dichlorobenzene	0.0031	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	SVOCs	Hexachlorobutadiene	0.0022	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1,1,2-Tetrachloroethane	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1,1-Trichloroethane	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1,2,2-Tetrachloroethane	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1,2-Trichloroethane	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethane	0.0018	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethene	0.0028	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloropropene	0.0026	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichlorobenzene	0.005	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichloropropane	0.0025	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2,4-Trimethylbenzene	0.0144	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dibromo-3-chloropropane	0.0029	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloroethane	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloropropane	0.0013	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,3,5-Trimethylbenzene	0.0045	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1,3-Dichloropropane	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	1-Methyl-4-isopropylbenzene	0.0029	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	2,2-Dichloropropane	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	2-Chlorotoluene	0.0023	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	4-Chlorotoluene	0.002	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Acetone	0.21		Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Benzene	0.0011	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Bromobenzene	0.0017	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Bromochloromethane	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Bromodichloromethane	0.00087	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Bromoform	0.0017	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Bromomethane	0.0024	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Carbon disulfide	0.0028	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Carbon tetrachloride	0.0013	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Chlorobenzene	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Chlorodibromomethane	0.00075	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Chloroethane	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Chloroform	0.0014	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Chloromethane	0.0015	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	cis-1,2-Dichloroethene	0.0015	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	cis-1,3-Dichloropropene	0.00097	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Dichlorodifluoromethane	0.0031	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Ethylbenzene	0.0035	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Ethylene dibromide	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Isopropylbenzene	0.0026	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	m,p-Xylene	0.0121	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methyl isobutyl ketone	0.0023	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methyl n-butyl ketone	0.0027	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methyl tert-butyl ether	0.0019	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methylene bromide	0.0015	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methylene chloride	0.0196	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Methylethyl ketone	0.0301	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Naphthalene	0.0041	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	n-Butylbenzene	0.0035	J	Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	n-Propylbenzene	0.0037	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	o-Xylene	0.0036	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Sec-butylbenzene	0.0031	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Styrene	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	tert-Butylbenzene	0.0026	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Tetrachloroethene	0.0028	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Toluene	0.003	J	Y
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	trans-1,2-Dichloroethene	0.0022	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	trans-1,3-Dichloropropene	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Trichloroethene	0.0016	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Trichlorofluoromethane	0.0017	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Vinyl chloride	0.0021	<	N
Inner Cove Beach Exposure Unit	Beach Cove-2	Beach Cove-2	9/27/2010	Discrete	1	1.5	VOCs	Xylene	0.0156	J	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Aluminum	14700	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Antimony	0.0507	JN	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Arsenic	2.27		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Barium	131	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Beryllium	0.501		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Cadmium	0.0908		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Calcium	5750	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Chromium	19.8		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Cobalt	16.1		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Copper	25.5		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Iron	24200		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Lead	35.4		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Magnesium	4160	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Manganese	223		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Mercury	0.197	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Nickel	22.9		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Potassium	620	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Selenium	0.209	J	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Silver	0.166		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Sodium	496	E	Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Thallium	0.106		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Vanadium	60.3		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Metals	Zinc	65.2		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	PAHs	Total PAHs	12.4		Y
Inner Cove Beach Exposure Unit	DL-1	DL-1	9/17/2007	Discrete	1	1.5	Petroleum	Total Petroleum Hydrocarbons	600		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Aluminum	15800	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Antimony	0.661	N	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Arsenic	28.6		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Barium	1060	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Beryllium	0.535		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Cadmium	0.795		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Calcium	4040	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Chromium	33.2		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Cobalt	14.8		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Copper	805		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Iron	28300		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Lead	3910		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Magnesium	4100	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Manganese	215		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Mercury	9.89	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Nickel	24.5		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Potassium	544	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Selenium	0.268		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Silver	0.471		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Sodium	417	E	Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Thallium	0.0947		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Vanadium	68.3		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Metals	Zinc	636		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	PAHs	Total PAHs	10.5		Y
Inner Cove Beach Exposure Unit	DL-2	DL-2	9/17/2007	Discrete	1	1.5	Petroleum	Total Petroleum Hydrocarbons	430		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Aluminum	9580	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Antimony	0.314	N	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Arsenic	15.6		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Barium	269	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Beryllium	0.363		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Cadmium	0.456		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Calcium	3850	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Chromium	15.6		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Cobalt	13.8		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Copper	484		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Iron	26500		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Lead	538		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Magnesium	3310	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Manganese	206		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Mercury	13.6	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Nickel	20.2		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Potassium	465	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Selenium	0.161	J	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Silver	0.212		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Sodium	363	E	Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Thallium	0.0571		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Metals	Vanadium	47		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	PAHs	Total PAHs	11.3		Y
Inner Cove Beach Exposure Unit	DL-3	DL-3	9/17/2007	Discrete	1	1.5	Petroleum	Total Petroleum Hydrocarbons	780		Y
Inner Cove Beach Exposure Unit	EX-1	EX-1	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	89.4		Y
Inner Cove Beach Exposure Unit	EX-1	EX-1	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	299		Y
Inner Cove Beach Exposure Unit	EX-2	EX-2	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	576		Y
Inner Cove Beach Exposure Unit	EX-2	EX-2	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	2040		Y
Inner Cove Beach Exposure Unit	EX-4	EX-4	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	4500		Y
Inner Cove Beach Exposure Unit	EX-4	EX-4	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	8390		Y
Inner Cove Beach Exposure Unit	EX-5	EX-5	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	5220		Y
Inner Cove Beach Exposure Unit	EX-5	EX-5	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	11300		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Antimony	7.48	J	Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Arsenic	3.63		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Beryllium	0.296		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Cadmium	0.05	U	N
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Chromium	21.9		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Copper	99.2		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Lead	70		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Mercury	0.1	U	N
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Nickel	33.9		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Selenium	0.209		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Silver	0.0983		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Thallium	0.05	U	N
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Metals	Zinc	274		Y
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Petroleum	Diesel Range Hydrocarbons	25	U	N
Inner Cove Beach Exposure Unit	HA-7	HA-7/S-2	5/17/2001	Discrete	0.5	1	Petroleum	Oil Range Hydrocarbons	132		Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Antimony	0.522	J	Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Arsenic	1.55		Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Chromium	15.6	J	Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Copper	30.3	J	Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Lead	35.7		Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Mercury	0.1	U	N
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Nickel	16.1	J	Y
Inner Cove Beach Exposure Unit	SS-33	SS-33	1/18/2002	Discrete	0	0.5	Metals	Zinc	98.3		Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Antimony	2.42	J	Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Arsenic	1.99		Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Chromium	10	J	Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Copper	32.7	J	Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Lead	48.5		Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Mercury	0.1	U	N
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Nickel	19.2	J	Y
Inner Cove Beach Exposure Unit	SS-35	SS-35	1/18/2002	Discrete	0	0.5	Metals	Zinc	123		Y
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthylene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Anthracene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)anthracene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)pyrene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(b)fluoranthene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(g,h,i)perylene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(k)fluoranthene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Chrysene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Dibenzo(a,h)anthracene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Fluoranthene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Fluorene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	High Molecular Weight PAH	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Indeno(1,2,3-cd)pyrene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Low Molecular Weight PAH	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Naphthalene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Phenanthrene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Pyrene	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Total BaPEq	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	PAHs	Total PAHs	1.6	<	N
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	6470		Y
Inner Cove Beach Exposure Unit	TP-41	TP-41/S-1	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	34600		Y
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthylene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Anthracene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)anthracene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)pyrene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(b)fluoranthene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(g,h,i)perylene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(k)fluoranthene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Chrysene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Dibenzo(a,h)anthracene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Fluoranthene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Fluorene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	High Molecular Weight PAH	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Indeno(1,2,3-cd)pyrene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Low Molecular Weight PAH	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Naphthalene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Phenanthrene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Pyrene	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Total BaPEq	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	PAHs	Total PAHs	0.427	<	N
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	1690		Y
Inner Cove Beach Exposure Unit	TP-42	TP-42/S-1	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	6270		Y
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Acenaphthylene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Anthracene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)anthracene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(a)pyrene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(b)fluoranthene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(g,h,i)perylene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Benzo(k)fluoranthene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Chrysene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Dibenzo(a,h)anthracene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Fluoranthene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Fluorene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	High Molecular Weight PAH	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Indeno(1,2,3-cd)pyrene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Low Molecular Weight PAH	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Naphthalene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Phenanthrene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Pyrene	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Total BaPEq	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	PAHs	Total PAHs	32.8	<	N
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	Petroleum	Diesel Range Hydrocarbons	91300		Y
Inner Cove Beach Exposure Unit	TP-43	TP-43/S-1	10/28/2004	Discrete	3	3	Petroleum	Oil Range Hydrocarbons	193000		Y
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1016	0.0048	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1221	0.0024	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1232	0.0034	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1242	0.0045	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1248	0.0043	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1254	0.363		Y
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1260	0.0052	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1262	0.003	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1268	0.0014	<	N
Inner Cove Beach Exposure Unit	Trench 4A	Trench 4A	9/29/2010	Discrete	8	8.5	Aroclors	Aroclors	0.363		Y
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1016	0.0049	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1221	0.0024	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1232	0.0034	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1242	0.0045	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1248	0.0043	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1254	207		Y
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1260	0.0052	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1262	0.003	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclor 1268	0.0014	<	N
Inner Cove Beach Exposure Unit	Trench 4B	Trench 4B	9/29/2010	Discrete	8	8.5	Aroclors	Aroclors	207		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1016	0.0057	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1221	0.0113	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1232	0.0113	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1242	0.0085	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1248	0.0085	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1254	0.0071	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1260	0.0127	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1262	0.0057	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclor 1268	0.0057	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Aroclors	Aroclors	0.0127	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Antimony	0.57	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Arsenic	39		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Beryllium	0.45		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Cadmium	1		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Chromium	33.4		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Copper	1400		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Lead	8660		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Mercury	113		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Nickel	25.3		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Selenium	0.82		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Silver	0.18	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Thallium	0.08	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Metals	Zinc	684		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	1-Methylnaphthalene	0.0395		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	2-Methylnaphthalene	0.0793		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthene	0.013		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Acenaphthylene	0.0507		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Anthracene	0.0344		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)anthracene	0.103		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(a)pyrene	0.0777		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(b)fluoranthene	0.123		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(g,h,i)perylene	0.0295		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Benzo(k)fluoranthene	0.11		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Chrysene	0.146		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Dibenzo(a,h)anthracene	0.0128		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Fluoranthene	0.315		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Fluorene	0.03		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	High Molecular Weight PAH	1.2026		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Indeno(1,2,3-cd)pyrene	0.0296		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Low Molecular Weight PAH	0.5974		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Naphthalene	0.203		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Phenanthrene	0.187		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Pyrene	0.256		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Total BaPEq	0.117306		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	PAHs	Total PAHs	1.5177		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons	396		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Diesel Range Hydrocarbons (silica gel treated)	397		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Gasoline Range Hydrocarbons	43.5		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Gasoline Range Hydrocarbons	1.4	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil	218		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	Petroleum	Motor oil (silica gel treated)	199		Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	SVOCs	1,2,4-Trichlorobenzene	0.00038	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	SVOCs	1,2-Dichlorobenzene	0.00035	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	SVOCs	1,3-Dichlorobenzene	0.00027	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	SVOCs	1,4-Dichlorobenzene	0.00034	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	SVOCs	Hexachlorobutadiene	0.00042	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1,1,2-Tetrachloroethane	0.00021	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1,1-Trichloroethane	0.00026	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1,2,2-Tetrachloroethane	0.00039	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1,2-Trichloroethane	0.00039	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethane	0.00034	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloroethene	0.00053	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,1-Dichloropropene	0.00049	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichlorobenzene	0.00039	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2,3-Trichloropropane	0.00048	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2,4-Trimethylbenzene	0.00098	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dibromo-3-chloropropane	0.00055	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloroethane	0.00031	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,2-Dichloropropane	0.00026	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,3,5-Trimethylbenzene	0.00045	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1,3-Dichloropropane	0.00039	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	1-Methyl-4-isopropylbenzene	0.00055	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	2,2-Dichloropropane	0.00026	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	2-Chlorotoluene	0.00045	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	4-Chlorotoluene	0.00038	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Acetone	0.0054	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Benzene	0.00021	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Bromobenzene	0.00033	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Bromochloromethane	0.00031	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Bromodichloromethane	0.00017	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Bromoform	0.00033	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Bromomethane	0.00045	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Carbon disulfide	0.0004	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Carbon tetrachloride	0.00026	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Chlorobenzene	0.00026	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Chlorodibromomethane	0.00014	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Chloroethane	0.00041	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Chloroform	0.00028	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Chloromethane	0.00029	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	cis-1,2-Dichloroethene	0.0003	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	cis-1,3-Dichloropropene	0.00019	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Dichlorodifluoromethane	0.00059	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Ethylbenzene	0.00054	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Ethylene dibromide	0.0003	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Isopropylbenzene	0.00049	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	m,p-Xylene	0.0017	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methyl isobutyl ketone	0.00043	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methyl n-butyl ketone	0.00051	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methyl tert-butyl ether	0.00035	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methylene bromide	0.0003	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methylene chloride	0.0037	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Methylethyl ketone	0.0021	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Naphthalene	0.00078	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	n-Butylbenzene	0.00065	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	n-Propylbenzene	0.0005	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	o-Xylene	0.00046	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Sec-butylbenzene	0.00059	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Styrene	0.00061	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	tert-Butylbenzene	0.00049	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Tetrachloroethene	0.00054	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Toluene	0.00053	J	Y
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	trans-1,2-Dichloroethene	0.00042	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	trans-1,3-Dichloropropene	0.0003	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Trichloroethene	0.0003	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Trichlorofluoromethane	0.00032	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Vinyl chloride	0.0004	<	N
Inner Cove Beach Exposure Unit	Wharf Beach -1	Wharf Beach -1	9/27/2010	Discrete	1	1.5	VOCs	Xylene	0.0017	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Arsenic	2.63	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Cadmium	42.7	U	N
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Chromium	20.6	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Copper	18.5	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Lead	31	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Mercury	0.1	U	N
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Nickel	16.5	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Metals	Zinc	85.7	J	Y
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	B-1	B-1/S-2	5/8/2001	Discrete	2	4	Petroleum	Oil Range Hydrocarbons	87.5		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Herbicides	Dinoseb	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Antimony	0.5	UJ	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Arsenic	3.07		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Beryllium	5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Cadmium	4.68	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Chromium	15.3	J	Y
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Copper	22.3		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Lead	9.81		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Mercury	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Nickel	19.7	J	Y
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Selenium	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Silver	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Thallium	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Metals	Zinc	93.1		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	PAHs	Naphthalene	0.228		Y
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Pesticides	Formaldehyde	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-1	5/10/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	50	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,4,5-Trichlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,4,6-Trichlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,4-Dichlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,4-Dimethylphenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,4-Dinitrophenol	5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2,6-Dichlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2-Chlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	2-Nitrophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	4,6-Dinitro-2-methylphenol	2	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	4-Chloro-3-methylphenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	4-Nitrophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	Cresol	4	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	Pentachlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	Phenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	Phenols	Tetrachlorophenol	2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	SVOCs	1,2-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	SVOCs	1,3-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	SVOCs	1,4-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	SVOCs	Hexachlorobutadiene	0.2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1,1-Trichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1,2-Trichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1-Dichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,1-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2,3-Trichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2-Dichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,2-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1,3-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	2,2-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	2-Chlorotoluene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	4-Chlorotoluene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Acetone	1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Benzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Bromobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Bromochloromethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Bromodichloromethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Bromoform	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Bromomethane	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Carbon disulfide	1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Carbon tetrachloride	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Chlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Chlorodibromomethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Chloroethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Chloroform	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Chloromethane	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	cis-1,2-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	cis-1,3-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Dichlorodifluoromethane	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Ethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Ethylene dibromide	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Isopropylbenzene	0.2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	m,p-Xylene	0.2	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methyl isobutyl ketone	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methyl n-butyl ketone	1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methyl tert-butyl ether	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methylene bromide	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methylene chloride	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Methylethyl ketone	1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	n-Butylbenzene	0.5	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	n-Propylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	o-Xylene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Sec-butylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Styrene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	tert-Butylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Tetrachloroethene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Toluene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	trans-1,2-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	trans-1,3-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Trichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Trichlorofluoromethane	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Vinyl chloride	0.1	U	N
West Parcel Upland Exposure Unit	B-2	B-2/S-2	5/10/2001	Discrete	2	4	VOCs	Xylene	0.2	U	N
West Parcel Upland Exposure Unit	B-6	B-6/S-1	5/9/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	B-6	B-6/S-1	5/9/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	67.8		Y
West Parcel Upland Exposure Unit	B-7	B-7/S-1	5/9/2001	Discrete	0	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	B-7	B-7/S-1	5/9/2001	Discrete	0	2	Petroleum	Oil Range Hydrocarbons	52.5		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Acenaphthene	0.067	U	N
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Acenaphthylene	0.152		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Anthracene	0.067	U	N
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Benzo(a)anthracene	0.198		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Benzo(a)pyrene	0.404		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Benzo(b)fluoranthene	0.423		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Benzo(g,h,i)perylene	0.544		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Benzo(k)fluoranthene	0.287		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Chrysene	0.352		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Dibenzo(a,h)anthracene	0.0891		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Fluoranthene	0.59		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Fluorene	0.067	U	N
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	High Molecular Weight PAH	3.9241		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Indeno(1,2,3-cd)pyrene	0.404		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Low Molecular Weight PAH	0.429		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Naphthalene	0.067	U	N
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Phenanthrene	0.277		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Pyrene	0.633		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Total BaPEq	0.598822		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	PAHs	Total PAHs	4.3531		Y
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	B-8	B-8/S-2	5/10/2001	Discrete	2	4	Petroleum	Oil Range Hydrocarbons	68		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.141		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.214		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.202		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.246		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.181		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.195		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0594		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.226		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.8794		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.191		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0948		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0948		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.224		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.328805		Y
West Parcel Upland Exposure Unit	SS-1	SS-1	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.9742		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0134	U	N
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0134	U	N
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0134	U	N
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0737		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.102		Y

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.1		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.105		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.0868		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.0893		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0266		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.105		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0134	U	N
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	0.8754		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.082		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0473		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0134	U	N
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0473		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.105		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.1551273		Y
West Parcel Upland Exposure Unit	SS-2	SS-2	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	0.9227		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Acenaphthylene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Anthracene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.0836		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.123		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.116		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.18		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.802		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Chrysene	0.118		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.047		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Fluoranthene	0.109		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	High Molecular Weight PAH	1.8086		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.126		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.0579		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Phenanthrene	0.0579		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Pyrene	0.104		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Total BaPEq	0.210698		Y
West Parcel Upland Exposure Unit	SS-3	SS-3	1/17/2002	Discrete	0	0.5	PAHs	Total PAHs	1.8665		Y
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.0514	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.103	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.0514	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.0514	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.0514	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.0514	U	N
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	0.111		Y
West Parcel Upland Exposure Unit	SSA	WC-SSA	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	0.111		Y
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1016	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1221	0.0985	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1232	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1242	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1248	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1254	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclor 1260	0.049	U	N
West Parcel Upland Exposure Unit	SSB	WC-SSB	12/21/2005	Discrete	0	0.5	Aroclors	Aroclors	0.0985	U	N
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	5.36		Y
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	23		Y
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	21.5	J	Y
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	0.1	U	N
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	82.2	J	Y
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-16	TP-16/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Herbicides	Dinoseb	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Antimony	0.5	UJ	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Arsenic	2.88		Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Beryllium	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Cadmium	4.45	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Chromium	13.7		Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Copper	26.1	J	Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Lead	22.7	J	Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Mercury	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Nickel	17.3		Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Selenium	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Silver	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Thallium	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Metals	Zinc	71.1	J	Y
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	PAHs	Naphthalene	0.2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Pesticides	Formaldehyde	2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	50	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4,5-Trichlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4,6-Trichlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dichlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dimethylphenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dinitrophenol	2.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,6-Dichlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2-Chlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	2-Nitrophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	4,6-Dinitro-2-methylphenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	4-Chloro-3-methylphenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	4-Nitrophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	Cresol	2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	Pentachlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	Phenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	Phenols	Tetrachlorophenol	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2,4-Trichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,3-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,4-Dichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachlorobutadiene	0.2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,1,2-Tetrachloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,1-Trichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,2,2-Tetrachloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1,2-Trichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,1-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,3-Trichlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,3-Trichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2,4-Trimethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dibromo-3-chloropropane	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dichloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,2-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,3,5-Trimethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1,3-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	1-Methyl-4-isopropylbenzene	0.2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	2,2-Dichloropropane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	2-Chlorotoluene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	4-Chlorotoluene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Acetone	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Benzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromochloromethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromodichloromethane	0.1	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromoform	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Bromomethane	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Carbon disulfide	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Carbon tetrachloride	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chlorobenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chlorodibromomethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloroethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloroform	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Chloromethane	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	cis-1,2-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	cis-1,3-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Dichlorodifluoromethane	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Ethylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Ethylene dibromide	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Isopropylbenzene	0.2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	m,p-Xylene	0.2	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl isobutyl ketone	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl n-butyl ketone	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl tert-butyl ether	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylene bromide	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylene chloride	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methylethyl ketone	1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	n-Butylbenzene	0.5	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	n-Propylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	o-Xylene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Sec-butylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Styrene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	tert-Butylbenzene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Tetrachloroethene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Toluene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	trans-1,2-Dichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	trans-1,3-Dichloropropene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Trichloroethene	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Trichlorofluoromethane	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Vinyl chloride	0.1	U	N
West Parcel Upland Exposure Unit	TP-17	TP-17/S-2	4/17/2001	Discrete	1.5	2	VOCs	Xylene	0.2	U	N
West Parcel Upland Exposure Unit	TP-18	TP-18/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-18	TP-18/S-1	4/18/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	50	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Acenaphthene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Acenaphthylene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Anthracene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Benzo(a)anthracene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Benzo(a)pyrene	0.1		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Benzo(b)fluoranthene	0.0919		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Benzo(g,h,i)perylene	0.0938		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Benzo(k)fluoranthene	0.0829		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Chrysene	0.0942		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Dibenzo(a,h)anthracene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Fluoranthene	0.119		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Fluorene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	High Molecular Weight PAH	0.7712		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Indeno(1,2,3-cd)pyrene	0.0704		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Low Molecular Weight PAH	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Naphthalene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Phenanthrene	0.067	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Pyrene	0.119		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Total BaPEq	0.1171532		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	PAHs	Total PAHs	0.7712		Y
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-19	TP-19/S-2	4/18/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	123		Y
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	PAHs	Naphthalene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	SVOCs	1,2,4-Trichlorobenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	SVOCs	1,2-Dichlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	SVOCs	1,3-Dichlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	SVOCs	1,4-Dichlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	SVOCs	Hexachlorobutadiene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1,1-Trichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1,2,2-Tetrachloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1,2-Trichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1-Dichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,1-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2,3-Trichlorobenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2,3-Trichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2,4-Trimethylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2-Dibromo-3-chloropropane	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2-Dichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,2-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,3,5-Trimethylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1,3-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	1-Methyl-4-isopropylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	2,2-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	2-Chlorotoluene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	4-Chlorotoluene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Acetone	0.05	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Benzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Bromobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Bromochloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Bromodichloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Bromoform	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Bromomethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Carbon disulfide	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Carbon tetrachloride	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Chlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Chlorodibromomethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Chloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Chloroform	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Chloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	cis-1,2-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	cis-1,3-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Dichlorodifluoromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Ethylbenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Ethylene dibromide	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Isopropylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	m,p-Xylene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Methyl isobutyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Methyl n-butyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Methylene bromide	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Methylene chloride	0.01	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Methylethyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	n-Butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	n-Propylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	o-Xylene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Sec-butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Styrene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	tert-Butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Tetrachloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Toluene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	trans-1,2-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	trans-1,3-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Trichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Trichlorofluoromethane	0.005	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Vinyl chloride	0.005	U	N
West Parcel Upland Exposure Unit	TP-2	TP-2	10/20/1995	Discrete	0	4	VOCs	Xylene	0.005	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthene	0.0268	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Acenaphthylene	0.0268	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Anthracene	0.0353		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)anthracene	0.16		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(a)pyrene	0.289		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(b)fluoranthene	0.286		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(g,h,i)perylene	0.258		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Benzo(k)fluoranthene	0.205		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Chrysene	0.21		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Dibenzo(a,h)anthracene	0.0572		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluoranthene	0.255		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Fluorene	0.0268	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	High Molecular Weight PAH	2.1532		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Indeno(1,2,3-cd)pyrene	0.208		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Low Molecular Weight PAH	0.1623		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Naphthalene	0.0268	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Phenanthrene	0.127		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Pyrene	0.225		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total BaPEq	0.41386		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	PAHs	Total PAHs	2.3155		Y
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Diesel Range Hydrocarbons	25	U	N
West Parcel Upland Exposure Unit	TP-20	TP-20/S-1	4/17/2001	Discrete	0	0.5	Petroleum	Oil Range Hydrocarbons	81.8		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	2-Methylnaphthalene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Acenaphthene	0.067	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Acenaphthylene	0.243		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Anthracene	0.102		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(a)anthracene	0.295		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(a)pyrene	0.927		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(b)fluoranthene	0.726		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(b+k)fluoranthene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(g,h,i)perylene	0.915		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Benzo(k)fluoranthene	0.608		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Chrysene	0.554		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Dibenzo(a,h)anthracene	0.159		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Fluoranthene	0.727		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Fluorene	0.067	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	High Molecular Weight PAH	6.351		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Indeno(1,2,3-cd)pyrene	0.724		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Low Molecular Weight PAH	0.754		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Naphthalene	0.067	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Phenanthrene	0.409		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Pyrene	0.716		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Total BaPEq	1.267134		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	PAHs	Total PAHs	7.105		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Diesel Range Hydrocarbons	250	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Petroleum	Oil Range Hydrocarbons	1040		Y
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4,5-Trichlorophenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4,6-Trichlorophenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dichlorophenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dimethylphenol	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2,4-Dinitrophenol	10	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2-Chlorophenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2-Methylphenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	2-Nitrophenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	3- and 4-Methylphenol Coelution	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	4-Chloro-3-methylphenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	4-Nitrophenol	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	Pentachlorophenol	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phenols	Phenol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Bis(2-ethylhexyl) phthalate	10	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Butylbenzyl phthalate	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Dibutyl phthalate	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Diethyl phthalate	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Dimethyl phthalate	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	Phthalates	Di-n-octyl phthalate	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2,4-Trichlorobenzene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,2-Dichlorobenzene	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,3-Dichlorobenzene	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	1,4-Dichlorobenzene	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	2,4-Dinitrotoluene	2.5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	2,6-Dinitrotoluene	2.5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	2-Chloronaphthalene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	2-Nitroaniline	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	3,3'-Dichlorobenzidine	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	3-Nitroaniline	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	4-Bromophenyl phenyl ether	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	4-Chloroaniline	10	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	4-Chlorophenyl phenyl ether	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	4-Nitroaniline	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Benzoic acid	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Benzyl alcohol	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroethoxy) methane	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroethyl) ether	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Bis(2-chloroisopropyl) ether	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Dibenzofuran	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachlorobenzene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachlorobutadiene	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachlorocyclopentadiene	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Hexachloroethane	5	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Isophorone	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	Nitrobenzene	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	N-Nitrosodiphenylamine	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	SVOCs	N-Nitrosodipropylamine	1.65	U	N
West Parcel Upland Exposure Unit	TP-21	TP-21/S-2	4/17/2001	Discrete	1.5	2	VOCs	Methyl n-butyl ketone	5	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1016	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1221	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1232	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1242	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1248	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1254	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclor 1260	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/20/1995	Discrete	0	3.8	Aroclors	Aroclors	0.1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Antimony	10	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Arsenic	4		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Beryllium	1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Cadmium	1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Chromium	18		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Copper	31		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Lead	95		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Mercury	3.5		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Nickel	24		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Selenium	1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Silver	2	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Thallium	1	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	Metals	Zinc	173		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	PAHs	Naphthalene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	SVOCs	1,2,4-Trichlorobenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	SVOCs	1,2-Dichlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	SVOCs	1,3-Dichlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	SVOCs	1,4-Dichlorobenzene	0.005	U	N

APPENDIX B Upland Facility Surface Soil Data - Residual Risk Assessment

Willamette Cove Upland Facility

Exposure Unit	Station	Sample ID	Sample Date	Sample Type	Depth Interval (feet bgs)		Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detect Flag
					Upper	Lower					
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	SVOCs	Hexachlorobutadiene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1,1-Trichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1,2,2-Tetrachloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1,2-Trichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1-Dichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,1-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2,3-Trichlorobenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2,3-Trichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2,4-Trimethylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2-Dibromo-3-chloropropane	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2-Dichloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,2-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,3,5-Trimethylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1,3-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	1-Methyl-4-isopropylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	2,2-Dichloropropane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	2-Chlorotoluene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	4-Chlorotoluene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Acetone	0.05	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Benzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Bromobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Bromochloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Bromodichloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Bromoform	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Bromomethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Carbon disulfide	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Carbon tetrachloride	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Chlorobenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Chlorodibromomethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Chloroethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Chloroform	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Chloromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	cis-1,2-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	cis-1,3-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Dichlorodifluoromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Ethylbenzene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Ethylene dibromide	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Isopropylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	m,p-Xylene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Methyl isobutyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Methyl n-butyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Methylene bromide	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Methylene chloride	0.013		Y
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Methylethyl ketone	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	n-Butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	n-Propylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	o-Xylene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Sec-butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Styrene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	tert-Butylbenzene	0.02	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Tetrachloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Toluene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	trans-1,2-Dichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	trans-1,3-Dichloropropene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Trichloroethene	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Trichlorofluoromethane	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Vinyl chloride	0.005	U	N
West Parcel Upland Exposure Unit	TP-3	TP-3	10/19/1995	Discrete	0	3.8	VOCs	Xylene	0.005	U	N
Wharf Road Exposure Unit (Dioxins Only)	DU-1	DU-1	8/9/2012	Composite	0	0.5	Dioxins_Furans	Dioxin/furan TCDD toxicity equivalent (ND = 0)	0.000259		Y
Wharf Road Exposure Unit (Dioxins Only)	DU-2	DU-2	8/8/2012	Composite	0	0.5	Dioxins_Furans	Dioxin/furan TCDD toxicity equivalent (ND = 0)	0.000773		Y
Wharf Road Exposure Unit (Dioxins Only)	DU-3	DU-3	8/13/2012	Composite	0	0.5	Dioxins_Furans	Dioxin/furan TCDD toxicity equivalent (ND = 0)	0.000255		Y

APPENDIX C

ProUCL Output for 90UCL calculations for all Exposure Units (EUs)

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	WestParcel_input.wst
Full Precision	OFF
Confidence Coefficient	90%
Number of Bootstrap Operations	2000

StdResult (benzo(a)pyrene_discrete)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	0.927	Maximum of Log Data	-0.0758
Mean	0.308	Mean of log Data	-1.492
Geometric Mean	0.225	SD of log Data	0.823
Median	0.214		
SD	0.295		
Std. Error of Mean	0.111		
Coefficient of Variation	0.956		
Skewness	1.935		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk Test Statistic	0.912
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.469	90% H-UCL	0.65
		90% Chebyshev (MVUE) UCL	0.577
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.704
90% Adjusted-CLT UCL (Chen-1995)	0.509	97.5% Chebyshev (MVUE) UCL	0.879
90% Modified-t UCL (Johnson-1978)	0.482	99% Chebyshev (MVUE) UCL	1.224

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.084	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.285		
MLE of Mean	0.308		
MLE of Standard Deviation	0.296		
nu star	15.17		
Approximate Chi Square Value (.05)	8.679	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.451
Adjusted Chi Square Value	7.537	90% Jackknife UCL	0.469
		90% Standard Bootstrap UCL	0.443
Anderson-Darling Test Statistic	0.421	90% Bootstrap-t UCL	0.681
Anderson-Darling 5% Critical Value	0.718	90% Hall's Bootstrap UCL	1.103

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

Kolmogorov-Smirnov Test Statistic	0.211	90% Percentile Bootstrap UCL	0.443
Kolmogorov-Smirnov 5% Critical Value	0.316	90% BCA Bootstrap UCL	0.512
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.643
		95% Chebyshev(Mean, Sd) UCL	0.794
		97.5% Chebyshev(Mean, Sd) UCL	1.004
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.417
90% Approximate Gamma UCL (Use when n >= 40)	0.539		
90% Adjusted Gamma UCL (Use when n < 40)	0.621		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (benzo(b)fluoranthene_discrete)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	0.0919	Minimum of Log Data	-2.387
Maximum	0.726	Maximum of Log Data	-0.32
Mean	0.278	Mean of log Data	-1.554
Geometric Mean	0.211	SD of log Data	0.786
Median	0.202		
SD	0.231		
Std. Error of Mean	0.0873		
Coefficient of Variation	0.831		
Skewness	1.445		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.835	Shapiro Wilk Test Statistic	0.924
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.404	90% H-UCL	0.565
		90% Chebyshev (MVUE) UCL	0.519
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.63
90% Adjusted-CLT UCL (Chen-1995)	0.424	97.5% Chebyshev (MVUE) UCL	0.784
90% Modified-t UCL (Johnson-1978)	0.411	99% Chebyshev (MVUE) UCL	1.088

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.228	Data appear Normal at 5% Significance Level
Theta Star	0.226	
MLE of Mean	0.278	
MLE of Standard Deviation	0.251	

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

nu star	17.19		
Approximate Chi Square Value (.05)	10.23	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.39
Adjusted Chi Square Value	8.98	90% Jackknife UCL	0.404
		90% Standard Bootstrap UCL	0.381
Anderson-Darling Test Statistic	0.353	90% Bootstrap-t UCL	0.504
Anderson-Darling 5% Critical Value	0.715	90% Hall's Bootstrap UCL	0.484
Kolmogorov-Smirnov Test Statistic	0.223	90% Percentile Bootstrap UCL	0.385
Kolmogorov-Smirnov 5% Critical Value	0.315	90% BCA Bootstrap UCL	0.412
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.54
		95% Chebyshev(Mean, Sd) UCL	0.658
		97.5% Chebyshev(Mean, Sd) UCL	0.823
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.147
90% Approximate Gamma UCL (Use when n >= 40)	0.467		
90% Adjusted Gamma UCL (Use when n < 40)	0.532		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (dibenzo(a,h)anthracene_discrete)

General Statistics			
Number of Valid Data	7	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	1
		Percent Non-Detects	14.29%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0266	Minimum Detected	-3.627
Maximum Detected	0.159	Maximum Detected	-1.839
Mean of Detected	0.0731	Mean of Detected	-2.771
SD of Detected	0.0467	SD of Detected	0.603
Minimum Non-Detect	0.067	Minimum Non-Detect	-2.703
Maximum Non-Detect	0.067	Maximum Non-Detect	-2.703

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0674	Mean	-2.86
SD	0.0452	SD	0.599
90% DL/2 (t) UCL	0.092	90% H-Stat (DL/2) UCL	0.107
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.814
		SD in Log Scale	0.562
		Mean in Original Scale	0.0692
		SD in Original Scale	0.0438

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

90% t UCL	0.0931
90% Percentile Bootstrap UCL	0.0881
90% BCA Bootstrap UCL	0.0966
90% H-UCL	0.106

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.809	Data appear Normal at 5% Significance Level	
Theta Star	0.0404		
nu star	21.71		
A-D Test Statistic	0.277	Nonparametric Statistics	
5% A-D Critical Value	0.701	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.701	Mean	0.0694
5% K-S Critical Value	0.334	SD	0.0408
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.017
		90% KM (t) UCL	0.0939
Assuming Gamma Distribution		90% KM (z) UCL	0.0912
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.0937
Minimum	0.0266	90% KM (bootstrap t) UCL	0.113
Maximum	0.159	90% KM (BCA) UCL	0.0874
Mean	0.0702	90% KM (Percentile Bootstrap) UCL	0.0906
Median	0.0572	90% KM (Chebyshev) UCL	0.121
SD	0.0433	95% KM (Chebyshev) UCL	0.144
k star	2.252	97.5% KM (Chebyshev) UCL	0.176
Theta star	0.0312	99% KM (Chebyshev) UCL	0.239
Nu star	31.52		
AppChi2	21.87	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.101	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.111	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (indeno(1,2,3-cd)pyrene_discrete)

General Statistics			
Number of Valid Observations	7	Number of Distinct Observations	7
Raw Statistics		Log-transformed Statistics	
Minimum	0.0704	Minimum of Log Data	-2.654
Maximum	0.724	Maximum of Log Data	-0.323
Mean	0.258	Mean of log Data	-1.669
Geometric Mean	0.188	SD of log Data	0.839
Median	0.191		
SD	0.234		
Std. Error of Mean	0.0885		
Coefficient of Variation	0.908		
Skewness	1.628		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics
Normal Distribution Test Lognormal Distribution Test

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

Shapiro Wilk Test Statistic	0.811	Shapiro Wilk Test Statistic	0.952
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.385	90% H-UCL	0.566
		90% Chebyshev (MVUE) UCL	0.494
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.603
90% Adjusted-CLT UCL (Chen-1995)	0.41	97.5% Chebyshev (MVUE) UCL	0.755
90% Modified-t UCL (Johnson-1978)	0.394	99% Chebyshev (MVUE) UCL	1.054
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.091	Data appear Normal at 5% Significance Level	
Theta Star	0.236		
MLE of Mean	0.258		
MLE of Standard Deviation	0.247		
nu star	15.27		
Approximate Chi Square Value (.05)	8.755	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.371
Adjusted Chi Square Value	7.607	90% Jackknife UCL	0.385
		90% Standard Bootstrap UCL	0.363
Anderson-Darling Test Statistic	0.327	90% Bootstrap-t UCL	0.513
Anderson-Darling 5% Critical Value	0.718	90% Hall's Bootstrap UCL	0.46
Kolmogorov-Smirnov Test Statistic	0.22	90% Percentile Bootstrap UCL	0.368
Kolmogorov-Smirnov 5% Critical Value	0.316	90% BCA Bootstrap UCL	0.398
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.523
		95% Chebyshev(Mean, Sd) UCL	0.644
		97.5% Chebyshev(Mean, Sd) UCL	0.811
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.139
90% Approximate Gamma UCL (Use when n >= 40)	0.45		
90% Adjusted Gamma UCL (Use when n < 40)	0.518		
Potential UCL to Use		Recommendation Provided only for 95% Confidence Coefficient	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (lead_discrete)

General Statistics			
Number of Valid Observations	5	Number of Distinct Observations	5
Raw Statistics		Log-transformed Statistics	
Minimum	9.81	Minimum of Log Data	2.283
Maximum	95	Maximum of Log Data	4.554
Mean	36	Mean of log Data	3.292
Geometric Mean	26.91	SD of log Data	0.823
Median	22.7		
SD	33.83		
Std. Error of Mean	15.13		
Coefficient of Variation	0.94		
Skewness	1.956		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.758	Shapiro Wilk Test Statistic	0.942
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	59.2	90% H-UCL	108
		90% Chebyshev (MVUE) UCL	72.36
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	89.34
90% Adjusted-CLT UCL (Chen-1995)	64.85	97.5% Chebyshev (MVUE) UCL	112.9
90% Modified-t UCL (Johnson-1978)	61.41	99% Chebyshev (MVUE) UCL	159.2

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.88	Data appear Gamma Distributed at 5% Significance Level
Theta Star	40.92	
MLE of Mean	36	
MLE of Standard Deviation	38.38	
nu star	8.798	
Approximate Chi Square Value (.05)	4.03	Nonparametric Statistics
Adjusted Level of Significance	0.0432	90% CLT UCL 55.39
Adjusted Chi Square Value	3.062	90% Jackknife UCL 59.2
		90% Standard Bootstrap UCL 53.35
Anderson-Darling Test Statistic	0.429	90% Bootstrap-t UCL 110.3
Anderson-Darling 5% Critical Value	0.685	90% Hall's Bootstrap UCL 174.1
Kolmogorov-Smirnov Test Statistic	0.28	90% Percentile Bootstrap UCL 53.04
Kolmogorov-Smirnov 5% Critical Value	0.361	90% BCA Bootstrap UCL 54.94
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL 81.4
		95% Chebyshev(Mean, Sd) UCL 102
		97.5% Chebyshev(Mean, Sd) UCL 130.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 186.6
90% Approximate Gamma UCL (Use when n >= 40)	78.59	
90% Adjusted Gamma UCL (Use when n < 40)	103.4	

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (total bapeq_discrete)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	0.117	Minimum of Log Data	-2.144
Maximum	1.267	Maximum of Log Data	0.237
Mean	0.442	Mean of log Data	-1.119
Geometric Mean	0.326	SD of log Data	0.823
Median	0.329		
SD	0.4		
Std. Error of Mean	0.151		
Coefficient of Variation	0.906		
Skewness	1.803		

Appendix C-1 ProUCL Output for West Parcel Upland Exposure Unit

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.806	Shapiro Wilk Test Statistic	0.974
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.659	90% H-UCL	0.944
		90% Chebyshev (MVUE) UCL	0.838
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.021
90% Adjusted-CLT UCL (Chen-1995)	0.709	97.5% Chebyshev (MVUE) UCL	1.276
90% Modified-t UCL (Johnson-1978)	0.677	99% Chebyshev (MVUE) UCL	1.777

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.126	Data appear Normal at 5% Significance Level
Theta Star	0.392	
MLE of Mean	0.442	
MLE of Standard Deviation	0.416	
nu star	15.76	
Approximate Chi Square Value (.05)	9.129	Nonparametric Statistics
Adjusted Level of Significance	0.0549	90% CLT UCL 0.635
Adjusted Chi Square Value	7.954	90% Jackknife UCL 0.659
		90% Standard Bootstrap UCL 0.622
Anderson-Darling Test Statistic	0.269	90% Bootstrap-t UCL 0.904
Anderson-Darling 5% Critical Value	0.717	90% Hall's Bootstrap UCL 1.538
Kolmogorov-Smirnov Test Statistic	0.162	90% Percentile Bootstrap UCL 0.623
Kolmogorov-Smirnov 5% Critical Value	0.316	90% BCA Bootstrap UCL 0.696
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL 0.895
		95% Chebyshev(Mean, Sd) UCL 1.101
		97.5% Chebyshev(Mean, Sd) UCL 1.386
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.946
90% Approximate Gamma UCL (Use when n >= 40)	0.763	
90% Adjusted Gamma UCL (Use when n < 40)	0.875	

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Central Parcel_input_AVG.wst
Full Precision	OFF
Confidence Coefficient	90%
Number of Bootstrap Operations	2000

StdResult (antimony_composite)

General Statistics

Number of Valid Data	6	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	2
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.21	Minimum Detected	-1.561
Maximum Detected	4.9	Maximum Detected	1.589
Mean of Detected	2.134	Mean of Detected	0.00901
SD of Detected	2.277	SD of Detected	1.582
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.21	Maximum Non-Detect	-1.561

Note: Data have multiple DLs - Use of KM Method is recommende	Number treated as Non-Detect	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	33.33%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.874	Shapiro Wilk Test Statistic	0.862
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.455	Mean	-0.771
SD	2.054	SD	1.721
90% DL/2 (t) UCL	2.692	90% H-Stat (DL/2) UCL	51.95

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.905	Mean in Log Scale	-1.396
SD	2.501	SD in Log Scale	2.497
90% MLE (t) UCL	2.412	Mean in Original Scale	1.427
90% MLE (Tiku) UCL	2.52	SD in Original Scale	2.076
		90% t UCL	2.678
		90% Percentile Bootstrap UCL	2.49
		90% BCA Bootstrap UCL	2.672
		90% H UCL	4469

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.365	Data appear Normal at 5% Significance Level
Theta Star	5.846	
nu star	2.92	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

A-D Test Statistic	0.438	Nonparametric Statistics	
5% A-D Critical Value	0.67	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.67	Mean	1.493
5% K-S Critical Value	0.405	SD	1.848
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.871
		90% KM (t) UCL	2.778
Assuming Gamma Distribution		90% KM (z) UCL	2.609
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	2.693
Minimum	1.00E-06	90% KM (bootstrap t) UCL	2.82
Maximum	4.9	90% KM (BCA) UCL	3.1
Mean	1.423	90% KM (Percentile Bootstrap) UCL	3.075
Median	0.268	90% KM (Chebyshev) UCL	4.106
SD	2.08	95% KM (Chebyshev) UCL	5.29
k star	0.188	97.5% KM (Chebyshev) UCL	6.933
Theta star	7.551	99% KM (Chebyshev) UCL	10.16
Nu star	2.261		
AppChi2	0.314	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	10.24	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (antimony_discrete)

General Statistics			
Number of Valid Data	16	Number of Detected Data	12
Number of Distinct Detected Data	11	Number of Non-Detect Data	4
		Percent Non-Detects	25.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.27	Minimum Detected	-1.309
Maximum Detected	20.6	Maximum Detected	3.025
Mean of Detected	4.402	Mean of Detected	0.67
SD of Detected	5.878	SD of Detected	1.402
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693
Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	9
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	43.75%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.719	Shapiro Wilk Test Statistic	0.949
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.356	Mean	0.113
SD	5.37	SD	1.569
90% DL/2 (t) UCL	5.156	90% H-Stat (DL/2) UCL	11.12
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.766	Mean in Log Scale	0.0386
SD	7.818	SD in Log Scale	1.703
90% MLE (t) UCL	3.387	Mean in Original Scale	3.354
90% MLE (Tiku) UCL	3.806	SD in Original Scale	5.371
		90% t UCL	5.155
		90% Percentile Bootstrap UCL	5.247
		90% BCA Bootstrap UCL	5.978
		90% H UCL	15.17

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.61	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	7.218		
nu star	14.63		
A-D Test Statistic	0.401	Nonparametric Statistics	
5% A-D Critical Value	0.766	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.766	Mean	3.381
5% K-S Critical Value	0.255	SD	5.185
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.354
		90% KM (t) UCL	5.196
Assuming Gamma Distribution		90% KM (z) UCL	5.116
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	5.165
Minimum	1.00E-06	90% KM (bootstrap t) UCL	6.769
Maximum	20.6	90% KM (BCA) UCL	5.023
Mean	3.301	90% KM (Percentile Bootstrap) UCL	5.116
Median	0.875	90% KM (Chebyshev) UCL	7.442
SD	5.405	95% KM (Chebyshev) UCL	9.282
k star	0.188	97.5% KM (Chebyshev) UCL	11.84
Theta star	17.54	99% KM (Chebyshev) UCL	16.85
Nu star	6.023		
AppChi2	2.22	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	8.956	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	9.83	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (arsenic_composite)

General Statistics			
Number of Valid Observations	6	Number of Distinct Observations	6
Raw Statistics		Log-transformed Statistics	
Minimum	3.3	Minimum of Log Data	1.194
Maximum	12.1	Maximum of Log Data	2.493
Mean	6.425	Mean of log Data	1.761
Geometric Mean	5.821	SD of log Data	0.475
Median	5.075		
SD	3.3		
Std. Error of Mean	1.347		
Coefficient of Variation	0.514		
Skewness	1.246		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.862	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	8.413	90% H-UCL	9.45
		90% Chebyshev (MVUE) UCL	10.09
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11.77
90% Adjusted-CLT UCL (Chen-1995)	8.641	97.5% Chebyshev (MVUE) UCL	14.1
90% Modified-t UCL (Johnson-1978)	8.528	99% Chebyshev (MVUE) UCL	18.68
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.724	Data appear Normal at 5% Significance Level	
Theta Star	2.358		
MLE of Mean	6.425		
MLE of Standard Deviation	3.893		
nu star	32.69		
Approximate Chi Square Value (.05)	22.85	Nonparametric Statistics	
Adjusted Level of Significance	0.049	90% CLT UCL	8.152
Adjusted Chi Square Value	20.57	90% Jackknife UCL	8.413
		90% Standard Bootstrap UCL	8.002
Anderson-Darling Test Statistic	0.39	90% Bootstrap-t UCL	9.099
Anderson-Darling 5% Critical Value	0.698	90% Hall's Bootstrap UCL	8.61
Kolmogorov-Smirnov Test Statistic	0.299	90% Percentile Bootstrap UCL	8.033
Kolmogorov-Smirnov 5% Critical Value	0.333	90% BCA Bootstrap UCL	8.317
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	10.47
		95% Chebyshev(Mean, Sd) UCL	12.3
		97.5% Chebyshev(Mean, Sd) UCL	14.84
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	19.83
90% Approximate Gamma UCL (Use when n >= 40)	9.192		
90% Adjusted Gamma UCL (Use when n < 40)	10.21		
Potential UCL to Use		Recommendation Provided only for 95% Confidence Coefficient	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (arsenic_discrete)

General Statistics			
Number of Valid Observations	48	Number of Distinct Observations	46
Raw Statistics		Log-transformed Statistics	
Minimum	2.15	Minimum of Log Data	0.765
Maximum	40.3	Maximum of Log Data	3.696
Mean	8.333	Mean of log Data	1.77
Geometric Mean	5.869	SD of log Data	0.8
Median	4.515		
SD	8.122		
Std. Error of Mean	1.172		
Coefficient of Variation	0.975		
Skewness	1.967		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.74	Shapiro Wilk Test Statistic	0.902
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	9.857	90% H-UCL	9.764
		90% Chebyshev (MVUE) UCL	11.12
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.53

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

90% Adjusted-CLT UCL (Chen-1995)	10.07	97.5% Chebyshev (MVUE) UCL	14.48
90% Modified-t UCL (Johnson-1978)	9.912	99% Chebyshev (MVUE) UCL	18.32

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.488	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.601		
MLE of Mean	8.333		
MLE of Standard Deviation	6.832		
nu star	142.8		
Approximate Chi Square Value (.05)	121.6	Nonparametric Statistics	
Adjusted Level of Significance	0.0945	90% CLT UCL	9.836
Adjusted Chi Square Value	121.2	90% Jackknife UCL	9.857
		90% Standard Bootstrap UCL	9.79
Anderson-Darling Test Statistic	2.39	90% Bootstrap-t UCL	10.13
Anderson-Darling 5% Critical Value	0.767	90% Hall's Bootstrap UCL	10.24
Kolmogorov-Smirnov Test Statistic	0.2	90% Percentile Bootstrap UCL	9.876
Kolmogorov-Smirnov 5% Critical Value	0.13	90% BCA Bootstrap UCL	10.23
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	11.85
		95% Chebyshev(Mean, Sd) UCL	13.44
		97.5% Chebyshev(Mean, Sd) UCL	15.65
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	20
90% Approximate Gamma UCL (Use when n >= 40)	9.784		
90% Adjusted Gamma UCL (Use when n < 40)	9.824		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (benzo(a)anthracene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	9	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0138	Minimum Detected	-4.283
Maximum Detected	2.04	Maximum Detected	0.713
Mean of Detected	0.38	Mean of Detected	-2.023
SD of Detected	0.625	SD of Detected	1.59
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.625	Shapiro Wilk Test Statistic	0.929
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.345	Mean	-2.384
SD	0.603	SD	1.925
90% DL/2 (t) UCL	0.595	90% H-Stat (DL/2) UCL	4.804
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.31	Mean in Log Scale	-2.372
SD	0.614	SD in Log Scale	1.902

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

90% MLE (t) UCL	0.564	Mean in Original Scale	0.345
90% MLE (Tiku) UCL	0.547	SD in Original Scale	0.603
		90% t UCL	0.595
		90% Percentile Bootstrap UCL	0.578
		90% BCA Bootstrap UCL	0.707
		90% H UCL	4.426

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.478	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.794		
nu star	9.561		
A-D Test Statistic	0.605	Nonparametric Statistics	
5% A-D Critical Value	0.77	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.77	Mean	0.346
5% K-S Critical Value	0.279	SD	0.575
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.183
		90% KM (t) UCL	0.597
Assuming Gamma Distribution		90% KM (z) UCL	0.58
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.596
Minimum	1.00E-06	90% KM (bootstrap t) UCL	1.078
Maximum	2.04	90% KM (BCA) UCL	0.56
Mean	0.345	90% KM (Percentile Bootstrap) UCL	0.586
Median	0.104	90% KM (Chebyshev) UCL	0.894
SD	0.603	95% KM (Chebyshev) UCL	1.142
k star	0.303	97.5% KM (Chebyshev) UCL	1.487
Theta star	1.138	99% KM (Chebyshev) UCL	2.163
Nu star	6.671		
AppChi2	2.625	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.877	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.993	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)anthracene_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	28
Number of Distinct Detected Data	28	Number of Non-Detect Data	3
		Percent Non-Detects	9.68%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0061	Minimum Detected	-5.099
Maximum Detected	23.6	Maximum Detected	3.161
Mean of Detected	1.715	Mean of Detected	-1.438
SD of Detected	4.773	SD of Detected	1.892
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173
Maximum Non-Detect	0.168	Maximum Non-Detect	-1.784
Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	13
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	58.06%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.401	Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.924	5% Shapiro Wilk Critical Value	0.924
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.553	Mean	-1.645

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

SD	4.556	SD	1.933
90% DL/2 (t) UCL	2.625	90% H-Stat (DL/2) UCL	3.284

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.691
		SD in Log Scale	1.987
		Mean in Original Scale	1.552
		SD in Original Scale	4.557
		90% t UCL	2.624
		90% Percentile Bootstrap UCL	2.667
		90% BCA Bootstrap UCL	3.457
		90% H-UCL	3.666

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.329	Data appear Lognormal at 5% Significance Level	
Theta Star	5.218		
nu star	18.41		
A-D Test Statistic	2.517	Nonparametric Statistics	
5% A-D Critical Value	0.845	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.845	Mean	1.552
5% K-S Critical Value	0.179	SD	4.482
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.82
		90% KM (t) UCL	2.627
Assuming Gamma Distribution		90% KM (z) UCL	2.603
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	2.624
Minimum	1.00E-06	90% KM (bootstrap t) UCL	5.049
Maximum	23.6	90% KM (BCA) UCL	2.633
Mean	1.549	90% KM (Percentile Bootstrap) UCL	2.673
Median	0.107	90% KM (Chebyshev) UCL	4.012
SD	4.558	95% KM (Chebyshev) UCL	5.126
k star	0.233	97.5% KM (Chebyshev) UCL	6.672
Theta star	6.661	99% KM (Chebyshev) UCL	9.71
Nu star	14.42		
AppChi2	8.105	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	2.756	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	2.827	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)pyrene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0201	Minimum Detected	-3.907
Maximum Detected	5.475	Maximum Detected	1.7
Mean of Detected	0.743	Mean of Detected	-1.654
SD of Detected	1.673	SD of Detected	1.639
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.676	Mean	-2.048
SD	1.603	SD	2.032
90% DL/2 (t) UCL	1.339	90% H-Stat (DL/2) UCL	10.36
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.575	Mean in Log Scale	-2.013
SD	1.626	SD in Log Scale	1.959
90% MLE (t) UCL	1.248	Mean in Original Scale	0.676
90% MLE (Tiku) UCL	1.196	SD in Original Scale	1.603
		90% t UCL	1.339
		90% Percentile Bootstrap UCL	1.202
		90% BCA Bootstrap UCL	1.663
		90% H UCL	7.972
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.397	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	1.871		
nu star	7.944		
A-D Test Statistic	0.883	Nonparametric Statistics	
5% A-D Critical Value	0.782	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.782	Mean	0.678
5% K-S Critical Value	0.282	SD	1.527
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.485
		90% KM (t) UCL	1.344
Assuming Gamma Distribution		90% KM (z) UCL	1.3
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.34
Minimum	1.00E-06	90% KM (bootstrap t) UCL	5.91
Maximum	5.475	90% KM (BCA) UCL	1.203
Mean	0.676	90% KM (Percentile Bootstrap) UCL	1.213
Median	0.137	90% KM (Chebyshev) UCL	2.134
SD	1.603	95% KM (Chebyshev) UCL	2.794
k star	0.273	97.5% KM (Chebyshev) UCL	3.709
Theta star	2.472	99% KM (Chebyshev) UCL	5.508
Nu star	6.013		
AppChi2	2.214	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.835	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	2.096	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)pyrene_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	30
Number of Distinct Detected Data	30	Number of Non-Detect Data	1
		Percent Non-Detects	3.23%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00855	Minimum Detected	-4.762
Maximum Detected	46.3	Maximum Detected	3.835
Mean of Detected	3.043	Mean of Detected	-1.104
SD of Detected	9.171	SD of Detected	1.925
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173
Maximum Non-Detect	0.0154	Maximum Non-Detect	-4.173
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.374	Shapiro Wilk Test Statistic	0.943

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.945	Mean	-1.226
SD	9.033	SD	2.009
90% DL/2 (t) UCL	5.071	90% H-Stat (DL/2) UCL	6.227
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.523	Mean in Log Scale	-1.234
SD	9.259	SD in Log Scale	2.025
90% MLE (t) UCL	4.702	Mean in Original Scale	2.945
90% MLE (Tiku) UCL	4.494	SD in Original Scale	9.033
		90% t UCL	5.071
		90% Percentile Bootstrap UCL	5.17
		90% BCA Bootstrap UCL	6.053
		90% H UCL	6.462
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.301	Data appear Lognormal at 5% Significance Level	
Theta Star	10.12		
nu star	18.04		
A-D Test Statistic	3.375	Nonparametric Statistics	
5% A-D Critical Value	0.852	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.852	Mean	2.945
5% K-S Critical Value	0.173	SD	8.886
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.623
		90% KM (t) UCL	5.072
Assuming Gamma Distribution		90% KM (z) UCL	5.025
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	5.07
Minimum	1.00E-06	90% KM (bootstrap t) UCL	8.757
Maximum	46.3	90% KM (BCA) UCL	4.788
Mean	2.944	90% KM (Percentile Bootstrap) UCL	4.974
Median	0.181	90% KM (Chebyshev) UCL	7.815
SD	9.033	95% KM (Chebyshev) UCL	10.02
k star	0.266	97.5% KM (Chebyshev) UCL	13.08
Theta star	11.08	99% KM (Chebyshev) UCL	19.1
Nu star	16.47		
AppChi2	9.676	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	5.012	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	5.133	for 95% Confidence Coeficient	
Note: DL/2 is not a recommended method.			

StdResult (benzo(b)fluoranthene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0176	Minimum Detected	-4.04
Maximum Detected	4.44	Maximum Detected	1.491
Mean of Detected	0.591	Mean of Detected	-1.843
SD of Detected	1.358	SD of Detected	1.565
Minimum Non-Detect	7.60E-04	Minimum Non-Detect	-7.182
Maximum Non-Detect	7.60E-04	Maximum Non-Detect	-7.182

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.445	Shapiro Wilk Test Statistic	0.913
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.537	Mean	-2.391
SD	1.3	SD	2.348
90% DL/2 (t) UCL	1.075	90% H-Stat (DL/2) UCL	30.48
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.455	Mean in Log Scale	-2.179
SD	1.319	SD in Log Scale	1.857
90% MLE (t) UCL	1.001	Mean in Original Scale	0.538
90% MLE (Tiku) UCL	0.958	SD in Original Scale	1.3
		90% t UCL	1.076
		90% Percentile Bootstrap UCL	0.964
		90% BCA Bootstrap UCL	1.329
		90% H UCL	4.512
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.406	Data appear Lognormal at 5% Significance Level	
Theta Star	1.456		
nu star	8.117		
A-D Test Statistic	1.098	Nonparametric Statistics	
5% A-D Critical Value	0.78	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.78	Mean	0.539
5% K-S Critical Value	0.281	SD	1.239
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.394
		90% KM (t) UCL	1.079
Assuming Gamma Distribution		90% KM (z) UCL	1.044
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.076
Minimum	1.00E-06	90% KM (bootstrap t) UCL	5.558
Maximum	4.44	90% KM (BCA) UCL	0.972
Mean	0.537	90% KM (Percentile Bootstrap) UCL	0.974
Median	0.155	90% KM (Chebyshev) UCL	1.72
SD	1.3	95% KM (Chebyshev) UCL	2.255
k star	0.278	97.5% KM (Chebyshev) UCL	2.998
Theta star	1.934	99% KM (Chebyshev) UCL	4.457
Nu star	6.112		
AppChi2	2.275	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.444	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.647	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(b)fluoranthene_discrete)

General Statistics

Number of Valid Data	31	Number of Detected Data	30
Number of Distinct Detected Data	29	Number of Non-Detect Data	1
		Percent Non-Detects	3.23%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00615	Minimum Detected	-5.091
Maximum Detected	27.5	Maximum Detected	3.314
Mean of Detected	2.502	Mean of Detected	-1.03
SD of Detected	6.505	SD of Detected	1.903
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Maximum Non-Detect	0.0154	Maximum Non-Detect	-4.173
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.422	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.422	Mean	-1.154
SD	6.412	SD	1.994
90% DL/2 (t) UCL	3.931	90% H-Stat (DL/2) UCL	6.401
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.129	Mean in Log Scale	-1.16
SD	6.579	SD in Log Scale	2.005
90% MLE (t) UCL	3.677	Mean in Original Scale	2.422
90% MLE (Tiku) UCL	3.534	SD in Original Scale	6.412
		90% t UCL	3.931
		90% Percentile Bootstrap UCL	3.915
		90% BCA Bootstrap UCL	4.585
		90% H UCL	6.574
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.334	Data appear Lognormal at 5% Significance Level	
Theta Star	7.502		
nu star	20.01		
A-D Test Statistic	2.7	Nonparametric Statistics	
5% A-D Critical Value	0.844	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.844	Mean	2.422
5% K-S Critical Value	0.173	SD	6.307
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.152
		90% KM (t) UCL	3.932
Assuming Gamma Distribution		90% KM (z) UCL	3.899
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	3.93
Minimum	1.00E-06	90% KM (bootstrap t) UCL	5.483
Maximum	27.5	90% KM (BCA) UCL	3.657
Mean	2.422	90% KM (Percentile Bootstrap) UCL	3.945
Median	0.257	90% KM (Chebyshev) UCL	5.879
SD	6.412	95% KM (Chebyshev) UCL	7.444
k star	0.29	97.5% KM (Chebyshev) UCL	9.618
Theta star	8.362	99% KM (Chebyshev) UCL	13.89
Nu star	17.96		
AppChi2	10.83	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	4.015	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	4.107	for 95% Confidence Coeficient	
Note: DL/2 is not a recommended method.			

StdResult (benzo(k)fluoranthene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0137	Minimum Detected	-4.29
Maximum Detected	4.61	Maximum Detected	1.528

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Mean of Detected	0.591	Mean of Detected	-2.001
SD of Detected	1.417	SD of Detected	1.649
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.439	Shapiro Wilk Test Statistic	0.929
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.537	Mean	-2.364
SD	1.356	SD	1.974
90% DL/2 (t) UCL	1.098	90% H-Stat (DL/2) UCL	5.944
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.451	Mean in Log Scale	-2.36
SD	1.374	SD in Log Scale	1.965
90% MLE (t) UCL	1.02	Mean in Original Scale	0.537
90% MLE (Tiku) UCL	0.975	SD in Original Scale	1.356
		90% t UCL	1.098
		90% Percentile Bootstrap UCL	0.978
		90% BCA Bootstrap UCL	1.366
		90% H UCL	5.755
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.374	Data appear Lognormal at 5% Significance Level	
Theta Star	1.579		
nu star	7.485		
A-D Test Statistic	1.078	Nonparametric Statistics	
5% A-D Critical Value	0.788	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.788	Mean	0.538
5% K-S Critical Value	0.283	SD	1.293
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.411
		90% KM (t) UCL	1.102
Assuming Gamma Distribution		90% KM (z) UCL	1.065
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.099
Minimum	1.00E-06	90% KM (bootstrap t) UCL	6.202
Maximum	4.61	90% KM (BCA) UCL	0.974
Mean	0.537	90% KM (Percentile Bootstrap) UCL	0.977
Median	0.108	90% KM (Chebyshev) UCL	1.771
SD	1.356	95% KM (Chebyshev) UCL	2.329
k star	0.267	97.5% KM (Chebyshev) UCL	3.104
Theta star	2.013	99% KM (Chebyshev) UCL	4.626
Nu star	5.871		
AppChi2	2.127	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.483	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.697	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(k)fluoranthene_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	27
Number of Distinct Detected Data	27	Number of Non-Detect Data	4
		Percent Non-Detects	12.90%

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00695	Minimum Detected	-4.969
Maximum Detected	24.2	Maximum Detected	3.186
Mean of Detected	1.62	Mean of Detected	-1.443
SD of Detected	4.927	SD of Detected	1.768
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173
Maximum Non-Detect	0.67	Maximum Non-Detect	-0.4
Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.87%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.356	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.923	5% Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.424	Mean	-1.676
SD	4.616	SD	1.838
90% DL/2 (t) UCL	2.511	90% H-Stat (DL/2) UCL	2.453
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.739
		SD in Log Scale	1.869
		Mean in Original Scale	1.416
		SD in Original Scale	4.619
		90% t UCL	2.503
		90% Percentile Bootstrap UCL	2.594
		90% BCA Bootstrap UCL	3.285
		90% H-UCL	2.508
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.335	Data appear Lognormal at 5% Significance Level	
Theta Star	4.832		
nu star	18.1		
A-D Test Statistic	2.899	Nonparametric Statistics	
5% A-D Critical Value	0.842	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.842	Mean	1.419
5% K-S Critical Value	0.182	SD	4.543
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.831
		90% KM (t) UCL	2.509
Assuming Gamma Distribution		90% KM (z) UCL	2.485
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	2.505
Minimum	1.00E-06	90% KM (bootstrap t) UCL	8.908
Maximum	24.2	90% KM (BCA) UCL	2.444
Mean	1.411	90% KM (Percentile Bootstrap) UCL	2.55
Median	0.136	90% KM (Chebyshev) UCL	3.913
SD	4.62	95% KM (Chebyshev) UCL	5.043
k star	0.216	97.5% KM (Chebyshev) UCL	6.612
Theta star	6.54	99% KM (Chebyshev) UCL	9.692
Nu star	13.37		
AppChi2	7.321	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	2.577	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	2.648	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (chrysene_composite)

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0164	Minimum Detected	-4.11
Maximum Detected	2.59	Maximum Detected	0.952
Mean of Detected	0.479	Mean of Detected	-1.792
SD of Detected	0.797	SD of Detected	1.586
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.625	Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.436	Mean	-2.174
SD	0.769	SD	1.966
90% DL/2 (t) UCL	0.754	90% H-Stat (DL/2) UCL	6.98
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.39	Mean in Log Scale	-2.144
SD	0.783	SD in Log Scale	1.905
90% MLE (t) UCL	0.714	Mean in Original Scale	0.436
90% MLE (Tiku) UCL	0.692	SD in Original Scale	0.769
		90% t UCL	0.754
		90% Percentile Bootstrap UCL	0.713
		90% BCA Bootstrap UCL	0.94
		90% H UCL	5.629
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.478	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.002		
nu star	9.554		
A-D Test Statistic	0.514	Nonparametric Statistics	
5% A-D Critical Value	0.77	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.77	Mean	0.437
5% K-S Critical Value	0.279	SD	0.733
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.233
		90% KM (t) UCL	0.756
Assuming Gamma Distribution		90% KM (z) UCL	0.735
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.755
Minimum	1.00E-06	90% KM (bootstrap t) UCL	1.378
Maximum	2.59	90% KM (BCA) UCL	0.695
Mean	0.435	90% KM (Percentile Bootstrap) UCL	0.721
Median	0.143	90% KM (Chebyshev) UCL	1.135
SD	0.769	95% KM (Chebyshev) UCL	1.452
k star	0.301	97.5% KM (Chebyshev) UCL	1.891
Theta star	1.446	99% KM (Chebyshev) UCL	2.754
Nu star	6.622		
AppChi2	2.593	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.112	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.259	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

StdResult (chrysene_discrete)

General Statistics

Number of Valid Data	31	Number of Detected Data	30
Number of Distinct Detected Data	30	Number of Non-Detect Data	1
		Percent Non-Detects	3.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0066	Minimum Detected	-5.021
Maximum Detected	39.1	Maximum Detected	3.666
Mean of Detected	2.481	Mean of Detected	-1.073
SD of Detected	7.464	SD of Detected	1.865
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173
Maximum Non-Detect	0.0154	Maximum Non-Detect	-4.173

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.365	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.401	Mean	-1.195
SD	7.352	SD	1.956
90% DL/2 (t) UCL	4.132	90% H-Stat (DL/2) UCL	5.5

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.058	Mean in Log Scale	-1.199
SD	7.536	SD in Log Scale	1.964
90% MLE (t) UCL	3.832	Mean in Original Scale	2.401
90% MLE (Tiku) UCL	3.662	SD in Original Scale	7.352
		90% t UCL	4.131
		90% Percentile Bootstrap UCL	4.232
		90% BCA Bootstrap UCL	5.279
		90% H UCL	5.604

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.329	Data appear Lognormal at 5% Significance Level	
Theta Star	7.542		
nu star	19.74		

		Nonparametric Statistics	
A-D Test Statistic	2.818		
5% A-D Critical Value	0.845	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.845	Mean	2.401
5% K-S Critical Value	0.173	SD	7.233
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.321
		90% KM (t) UCL	4.132
Assuming Gamma Distribution		90% KM (z) UCL	4.094
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	4.131
Minimum	1.00E-06	90% KM (bootstrap t) UCL	9.347
Maximum	39.1	90% KM (BCA) UCL	4.092
Mean	2.401	90% KM (Percentile Bootstrap) UCL	4.275
Median	0.217	90% KM (Chebyshev) UCL	6.365
SD	7.352	95% KM (Chebyshev) UCL	8.16
k star	0.286	97.5% KM (Chebyshev) UCL	10.65
Theta star	8.382	99% KM (Chebyshev) UCL	15.55
Nu star	17.76		
AppChi2	10.68	Potential UCL to Use	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

90% Gamma Approximate UCL (Use when n >= 40)	3.994	Recommendation Provided only
90% Adjusted Gamma UCL (Use when n < 40)	4.085	for 95% Confidence Coeficient

Note: DL/2 is not a recommended method.

StdResult (copper_composite)

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	6

Raw Statistics		Log-transformed Statistics	
Minimum	22.2	Minimum of Log Data	3.1
Maximum	1945	Maximum of Log Data	7.573
Mean	405.9	Mean of log Data	4.76
Geometric Mean	116.8	SD of log Data	1.648
Median	95.13		
SD	758.6		
Std. Error of Mean	309.7		
Coefficient of Variation	1.869		
Skewness	2.385		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.59	Shapiro Wilk Test Statistic	0.922
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	863	90% H-UCL	8943
		90% Chebyshev (MVUE) UCL	903
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1169
90% Adjusted-CLT UCL (Chen-1995)	1018	97.5% Chebyshev (MVUE) UCL	1539
90% Modified-t UCL (Johnson-1978)	913.3	99% Chebyshev (MVUE) UCL	2265

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.365	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1111		
MLE of Mean	405.9		
MLE of Standard Deviation	671.6		
nu star	4.385		
Approximate Chi Square Value (.05)	1.271	Nonparametric Statistics	
Adjusted Level of Significance	0.049	90% CLT UCL	802.8
Adjusted Chi Square Value	0.871	90% Jackknife UCL	863
		90% Standard Bootstrap UCL	773.7
Anderson-Darling Test Statistic	0.593	90% Bootstrap-t UCL	5820
Anderson-Darling 5% Critical Value	0.735	90% Hall's Bootstrap UCL	3085
Kolmogorov-Smirnov Test Statistic	0.268	90% Percentile Bootstrap UCL	734.3
Kolmogorov-Smirnov 5% Critical Value	0.348	90% BCA Bootstrap UCL	1017
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	1335

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

		95% Chebyshev(Mean, Sd) UCL	1756
		97.5% Chebyshev(Mean, Sd) UCL	2340
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3487
90% Approximate Gamma UCL (Use when n >= 40)	1400		
90% Adjusted Gamma UCL (Use when n < 40)	2044		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (copper_discrete)

General Statistics

Number of Valid Observations	48	Number of Distinct Observations	47
Raw Statistics		Log-transformed Statistics	
Minimum	15	Minimum of Log Data	2.708
Maximum	3930	Maximum of Log Data	8.276
Mean	323.3	Mean of log Data	4.566
Geometric Mean	96.18	SD of log Data	1.461
Median	60.45		
SD	687.8		
Std. Error of Mean	99.27		
Coefficient of Variation	2.127		
Skewness	3.803		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.497	Shapiro Wilk Test Statistic	0.92
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	452.3	90% H-UCL	443.3
		90% Chebyshev (MVUE) UCL	490.2
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	591
90% Adjusted-CLT UCL (Chen-1995)	489.4	97.5% Chebyshev (MVUE) UCL	730.7
90% Modified-t UCL (Johnson-1978)	461.4	99% Chebyshev (MVUE) UCL	1005
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.502	Data do not follow a Discernable Distribution (0.05)	
Theta Star	644		
MLE of Mean	323.3		
MLE of Standard Deviation	456.3		
nu star	48.19		
Approximate Chi Square Value (.05)	36.12	Nonparametric Statistics	
Adjusted Level of Significance	0.0945	90% CLT UCL	450.5
Adjusted Chi Square Value	35.86	90% Jackknife UCL	452.3
		90% Standard Bootstrap UCL	453
Anderson-Darling Test Statistic	3.113	90% Bootstrap-t UCL	533.5
Anderson-Darling 5% Critical Value	0.812	90% Hall's Bootstrap UCL	557.2
Kolmogorov-Smirnov Test Statistic	0.19	90% Percentile Bootstrap UCL	450.9
Kolmogorov-Smirnov 5% Critical Value	0.135	90% BCA Bootstrap UCL	500.6
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	621.1
		95% Chebyshev(Mean, Sd) UCL	756
		97.5% Chebyshev(Mean, Sd) UCL	943.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1311
90% Approximate Gamma UCL (Use when n >= 40)	431.4		
90% Adjusted Gamma UCL (Use when n < 40)	434.5		

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (dibenzo(a,h)anthracene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0033	Minimum Detected	-5.714
Maximum Detected	0.951	Maximum Detected	-0.0508
Mean of Detected	0.125	Mean of Detected	-3.461
SD of Detected	0.292	SD of Detected	1.568
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.447	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.114	Mean	-3.691
SD	0.279	SD	1.672
90% DL/2 (t) UCL	0.229	90% H-Stat (DL/2) UCL	0.509
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0742	Mean in Log Scale	-3.703
SD	0.303	SD in Log Scale	1.69
90% MLE (t) UCL	0.2	Mean in Original Scale	0.113
90% MLE (Tiku) UCL	0.195	SD in Original Scale	0.279
		90% t UCL	0.229
		90% Percentile Bootstrap UCL	0.205
		90% BCA Bootstrap UCL	0.283
		90% H UCL	0.537
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.393	Data appear Lognormal at 5% Significance Level	
Theta Star	0.317		
nu star	7.857		
A-D Test Statistic	1.15	Nonparametric Statistics	
5% A-D Critical Value	0.783	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.783	Mean	0.114
5% K-S Critical Value	0.282	SD	0.266
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0846
		90% KM (t) UCL	0.23
Assuming Gamma Distribution		90% KM (z) UCL	0.222
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.229
Minimum	1.00E-06	90% KM (bootstrap t) UCL	1.563
Maximum	0.951	90% KM (BCA) UCL	0.203
Mean	0.113	90% KM (Percentile Bootstrap) UCL	0.207

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Median	0.0285	90% KM (Chebyshev) UCL	0.367
SD	0.279	95% KM (Chebyshev) UCL	0.482
k star	0.285	97.5% KM (Chebyshev) UCL	0.642
Theta star	0.397	99% KM (Chebyshev) UCL	0.955
Nu star	6.271		
AppChi2	2.373	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.299	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.341	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (dibenzo(a,h)anthracene_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	8
		Percent Non-Detects	25.81%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00146	Minimum Detected	-6.533
Maximum Detected	9.13	Maximum Detected	2.212
Mean of Detected	0.81	Mean of Detected	-2.164
SD of Detected	2.033	SD of Detected	1.995
Minimum Non-Detect	0.0149	Minimum Non-Detect	-4.206
Maximum Non-Detect	0.195	Maximum Non-Detect	-1.635
Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	23
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	8
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	74.19%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.448	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.61	Mean	-2.608
SD	1.775	SD	1.948
90% DL/2 (t) UCL	1.028	90% H-Stat (DL/2) UCL	1.31
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.911
		SD in Log Scale	2.213
		Mean in Original Scale	0.604
		SD in Original Scale	1.777
		90% t UCL	1.022
		90% Percentile Bootstrap UCL	1.019
		90% BCA Bootstrap UCL	1.268
		90% H-UCL	2.165
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.329	Data appear Lognormal at 5% Significance Level	
Theta Star	2.464		
nu star	15.13		
A-D Test Statistic	1.884	Nonparametric Statistics	
5% A-D Critical Value	0.839	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.839	Mean	0.606
5% K-S Critical Value	0.196	SD	1.748
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.321

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

		90% KM (t) UCL	1.026
Assuming Gamma Distribution		90% KM (z) UCL	1.017
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.021
Minimum	1.00E-06	90% KM (bootstrap t) UCL	1.636
Maximum	9.13	90% KM (BCA) UCL	0.938
Mean	0.601	90% KM (Percentile Bootstrap) UCL	1.042
Median	0.0378	90% KM (Chebyshev) UCL	1.568
SD	1.778	95% KM (Chebyshev) UCL	2.005
k star	0.169	97.5% KM (Chebyshev) UCL	2.61
Theta star	3.566	99% KM (Chebyshev) UCL	3.799
Nu star	10.45		
AppChi2	5.187	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.212	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.25	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (diesel range hydrocarbons_composite)

General Statistics

Number of Valid Observations	1	Number of Distinct Observations	1

Warning: This data set only has 1 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (diesel range hydrocarbons_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (diesel range hydrocarbons_discrete)

General Statistics

Number of Valid Data	17	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	10
		Percent Non-Detects	58.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	30.8	Minimum Detected	3.428
Maximum Detected	2390	Maximum Detected	7.779
Mean of Detected	500.2	Mean of Detected	4.964
SD of Detected	875.1	SD of Detected	1.648
Minimum Non-Detect	25	Minimum Non-Detect	3.219
Maximum Non-Detect	125	Maximum Non-Detect	4.828

Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	88.24%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.632	Shapiro Wilk Test Statistic	0.867
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	217.7	Mean	3.706
SD	588.8	SD	1.537
90% DL/2 (t) UCL	408.6	90% H-Stat (DL/2) UCL	353.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.437
		SD in Log Scale	2.62
		Mean in Original Scale	208.1
		SD in Original Scale	592.2
		90% t UCL	400.1
		90% Percentile Bootstrap UCL	387.4
		90% BCA Bootstrap UCL	529
		90% H-UCL	4768
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.385	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	1300		
nu star	5.386		
A-D Test Statistic	0.748	Nonparametric Statistics	
5% A-D Critical Value	0.751	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.751	Mean	224.9
5% K-S Critical Value	0.327	SD	568.7
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	149
		90% KM (t) UCL	424
Assuming Gamma Distribution		90% KM (z) UCL	415.8
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	414.6
Minimum	1.00E-06	90% KM (bootstrap t) UCL	3050
Maximum	2390	90% KM (BCA) UCL	362.6
Mean	206	90% KM (Percentile Bootstrap) UCL	408.7
Median	1.00E-06	90% KM (Chebyshev) UCL	671.8
SD	592.9	95% KM (Chebyshev) UCL	874.3
k star	0.1	97.5% KM (Chebyshev) UCL	1155
Theta star	2060	99% KM (Chebyshev) UCL	1707
Nu star	3.399		
AppChi2	0.773	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	905.9	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1028	for 95% Confidence Coeficient	
Note: DL/2 is not a recommended method.			

StdResult (indeno(1,2,3-cd)pyrene_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0106	Minimum Detected	-4.547
Maximum Detected	2.255	Maximum Detected	0.813
Mean of Detected	0.304	Mean of Detected	-2.469
SD of Detected	0.689	SD of Detected	1.53
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

UCL Statistics

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.452	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.277	Mean	-2.789
SD	0.66	SD	1.798
90% DL/2 (t) UCL	0.55	90% H-Stat (DL/2) UCL	1.971
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.235	Mean in Log Scale	-2.8
SD	0.669	SD in Log Scale	1.821
90% MLE (t) UCL	0.512	Mean in Original Scale	0.277
90% MLE (Tiku) UCL	0.49	SD in Original Scale	0.66
		90% t UCL	0.55
		90% Percentile Bootstrap UCL	0.494
		90% BCA Bootstrap UCL	0.685
		90% H UCL	2.117
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.415	Data appear Lognormal at 5% Significance Level	
Theta Star	0.733		
nu star	8.295		
A-D Test Statistic	1.045	Nonparametric Statistics	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	0.278
5% K-S Critical Value	0.281	SD	0.629
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.2
		90% KM (t) UCL	0.552
Assuming Gamma Distribution		90% KM (z) UCL	0.534
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.55
Minimum	1.00E-06	90% KM (bootstrap t) UCL	2.919
Maximum	2.255	90% KM (BCA) UCL	0.502
Mean	0.277	90% KM (Percentile Bootstrap) UCL	0.493
Median	0.0786	90% KM (Chebyshev) UCL	0.877
SD	0.66	95% KM (Chebyshev) UCL	1.148
k star	0.286	97.5% KM (Chebyshev) UCL	1.525
Theta star	0.967	99% KM (Chebyshev) UCL	2.265
Nu star	6.289		
AppChi2	2.384	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.729	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.83	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (indeno(1,2,3-cd)pyrene_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	29
Number of Distinct Detected Data	28	Number of Non-Detect Data	2
		Percent Non-Detects	6.45%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	27.9	Maximum Detected	3.329
Mean of Detected	2.121	Mean of Detected	-1.366
SD of Detected	6.028	SD of Detected	1.967
Minimum Non-Detect	0.0149	Minimum Non-Detect	-4.206
Maximum Non-Detect	0.0154	Maximum Non-Detect	-4.173

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	3
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	28
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	9.68%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.39	Shapiro Wilk Test Statistic	0.966
5% Shapiro Wilk Critical Value	0.926	5% Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.984	Mean	-1.593
SD	5.848	SD	2.093
90% DL/2 (t) UCL	3.361	90% H-Stat (DL/2) UCL	5.539
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.562	Mean in Log Scale	-1.627
SD	6.128	SD in Log Scale	2.151
90% MLE (t) UCL	3.005	Mean in Original Scale	1.984
90% MLE (Tiku) UCL	2.889	SD in Original Scale	5.848
		90% t UCL	3.36
		90% Percentile Bootstrap UCL	3.318
		90% BCA Bootstrap UCL	3.853
		90% H UCL	6.41
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.312	Data appear Lognormal at 5% Significance Level	
Theta Star	6.807		
nu star	18.07		
A-D Test Statistic	2.705	Nonparametric Statistics	
5% A-D Critical Value	0.851	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.851	Mean	1.984
5% K-S Critical Value	0.176	SD	5.753
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.052
		90% KM (t) UCL	3.362
Assuming Gamma Distribution		90% KM (z) UCL	3.332
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	3.36
Minimum	1.00E-06	90% KM (bootstrap t) UCL	8.167
Maximum	27.9	90% KM (BCA) UCL	3.46
Mean	1.984	90% KM (Percentile Bootstrap) UCL	3.381
Median	0.158	90% KM (Chebyshev) UCL	5.139
SD	5.848	95% KM (Chebyshev) UCL	6.568
k star	0.246	97.5% KM (Chebyshev) UCL	8.551
Theta star	8.051	99% KM (Chebyshev) UCL	12.45
Nu star	15.28		
AppChi2	8.758	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	3.46	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	3.547	for 95% Confidence Coeficient	
Note: DL/2 is not a recommended method.			

StdResult (lead_composite)

General Statistics			
Number of Valid Observations	6	Number of Distinct Observations	6
Raw Statistics		Log-transformed Statistics	
Minimum	13.8	Minimum of Log Data	2.625
Maximum	774.5	Maximum of Log Data	6.652

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Mean	408.5	Mean of log Data	5.118
Geometric Mean	167	SD of log Data	1.884
Median	455.8		
SD	364.5		
Std. Error of Mean	148.8		
Coefficient of Variation	0.892		
Skewness	-0.134		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.805	Shapiro Wilk Test Statistic	0.783
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	628.1	90% H-UCL	46549
		90% Chebyshev (MVUE) UCL	1796
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2343
90% Adjusted-CLT UCL (Chen-1995)	593.4	97.5% Chebyshev (MVUE) UCL	3104
90% Modified-t UCL (Johnson-1978)	626.8	99% Chebyshev (MVUE) UCL	4597

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.45	Data appear Normal at 5% Significance Level	
Theta Star	906.9		
MLE of Mean	408.5		
MLE of Standard Deviation	608.7		
nu star	5.405		
Approximate Chi Square Value (.05)	1.848	Nonparametric Statistics	
Adjusted Level of Significance	0.049	90% CLT UCL	599.2
Adjusted Chi Square Value	1.332	90% Jackknife UCL	628.1
		90% Standard Bootstrap UCL	579.3
Anderson-Darling Test Statistic	0.663	90% Bootstrap-t UCL	647.3
Anderson-Darling 5% Critical Value	0.725	90% Hall's Bootstrap UCL	539.1
Kolmogorov-Smirnov Test Statistic	0.308	90% Percentile Bootstrap UCL	600.1
Kolmogorov-Smirnov 5% Critical Value	0.345	90% BCA Bootstrap UCL	606.5
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	854.9
		95% Chebyshev(Mean, Sd) UCL	1057
		97.5% Chebyshev(Mean, Sd) UCL	1338
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1889
90% Approximate Gamma UCL (Use when n >= 40)	1195		
90% Adjusted Gamma UCL (Use when n < 40)	1657		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

(e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

StdResult (lead_discrete)

General Statistics

Number of Valid Data	52	Number of Detected Data	51
Number of Distinct Detected Data	49	Number of Non-Detect Data	1
		Percent Non-Detects	1.92%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.065	Minimum Detected	1.12
Maximum Detected	4040	Maximum Detected	8.304
Mean of Detected	385.2	Mean of Detected	4.776
SD of Detected	614.6	SD of Detected	1.891
Minimum Non-Detect	20	Minimum Non-Detect	2.996
Maximum Non-Detect	20	Maximum Non-Detect	2.996

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.267	Lilliefors Test Statistic	0.165
5% Lilliefors Critical Value	0.124	5% Lilliefors Critical Value	0.124
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	378	Mean	4.729
SD	610.7	SD	1.904
90% DL/2 (t) UCL	487.9	90% H-Stat (DL/2) UCL	1378

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	265.7	Mean in Log Scale	4.731
SD	725.9	SD in Log Scale	1.901
90% MLE (t) UCL	396.4	Mean in Original Scale	378
90% MLE (Tiku) UCL	396.6	SD in Original Scale	610.7
		90% t UCL	488
		90% Percentile Bootstrap UCL	494.4
		90% BCA Bootstrap UCL	532.2
		90% H UCL	1371

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.516	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	746.9	
nu star	52.6	

		Nonparametric Statistics	
A-D Test Statistic	0.896	Kaplan-Meier (KM) Method	
5% A-D Critical Value	0.812	Mean	377.9
K-S Test Statistic	0.812	SD	604.8
5% K-S Critical Value	0.131	SE of Mean	84.71
Data follow Appr. Gamma Distribution at 5% Significance Level		90% KM (t) UCL	487.9
		90% KM (z) UCL	486.5
Assuming Gamma Distribution		90% KM (jackknife) UCL	487.9
Gamma ROS Statistics using Extrapolated Data		90% KM (bootstrap t) UCL	582
Minimum	1.00E-06	90% KM (BCA) UCL	483
Maximum	4040	90% KM (Percentile Bootstrap) UCL	489.3
Mean	377.8	90% KM (Chebyshev) UCL	632.1
Median	209	95% KM (Chebyshev) UCL	747.2
SD	610.8	97.5% KM (Chebyshev) UCL	907
k star	0.417		

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Theta star	905.2	99% KM (Chebyshev) UCL	1221
Nu star	43.41		
AppChi2	31.98	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	512.8	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	516.5	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (mercury_composite)

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	6

Raw Statistics		Log-transformed Statistics	
Minimum	0.033	Minimum of Log Data	-3.411
Maximum	5.5	Maximum of Log Data	1.705
Mean	1.991	Mean of log Data	-0.31
Geometric Mean	0.733	SD of log Data	2.031
Median	1.8		
SD	2.048		
Std. Error of Mean	0.836		
Coefficient of Variation	1.029		
Skewness	1.012		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.901	Shapiro Wilk Test Statistic	0.875
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	3.225	90% H-UCL	499.5
		90% Chebyshev (MVUE) UCL	9.719
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.73
90% Adjusted-CLT UCL (Chen-1995)	3.309	97.5% Chebyshev (MVUE) UCL	16.91
90% Modified-t UCL (Johnson-1978)	3.282	99% Chebyshev (MVUE) UCL	25.13

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.419	Data appear Normal at 5% Significance Level	
Theta Star	4.748		
MLE of Mean	1.991		
MLE of Standard Deviation	3.074		
nu star	5.03		
Approximate Chi Square Value (.05)	1.631	Nonparametric Statistics	
Adjusted Level of Significance	0.049	90% CLT UCL	3.062
Adjusted Chi Square Value	1.156	90% Jackknife UCL	3.225
		90% Standard Bootstrap UCL	2.959
Anderson-Darling Test Statistic	0.342	90% Bootstrap-t UCL	3.564
Anderson-Darling 5% Critical Value	0.729	90% Hall's Bootstrap UCL	3.755

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Kolmogorov-Smirnov Test Statistic	0.218	90% Percentile Bootstrap UCL	2.974
Kolmogorov-Smirnov 5% Critical Value	0.346	90% BCA Bootstrap UCL	3.152
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	4.499
		95% Chebyshev(Mean, Sd) UCL	5.636
		97.5% Chebyshev(Mean, Sd) UCL	7.213
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	10.31
90% Approximate Gamma UCL (Use when n >= 40)	6.141		
90% Adjusted Gamma UCL (Use when n < 40)	8.663		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (mercury_discrete)

General Statistics

Number of Valid Data	48	Number of Detected Data	40
Number of Distinct Detected Data	40	Number of Non-Detect Data	8
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.114	Minimum Detected	-2.176
Maximum Detected	20.2	Maximum Detected	3.006
Mean of Detected	2.652	Mean of Detected	0.0878
SD of Detected	3.95	SD of Detected	1.378
Minimum Non-Detect	0.0941	Minimum Non-Detect	-2.363
Maximum Non-Detect	0.109	Maximum Non-Detect	-2.216

Note: Data have multiple DLs - Use of KM Method is recommende		Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	40
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	16.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.662	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.94	5% Shapiro Wilk Critical Value	0.94
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.218	Mean	-0.425
SD	3.729	SD	1.707
90% DL/2 (t) UCL	2.918	90% H-Stat (DL/2) UCL	5.102

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.761	Mean in Log Scale	-0.426
SD	4.18	SD in Log Scale	1.714
90% MLE (t) UCL	2.546	Mean in Original Scale	2.219
90% MLE (Tiku) UCL	2.519	SD in Original Scale	3.729
		90% t UCL	2.918
		90% Percentile Bootstrap UCL	2.944
		90% BCA Bootstrap UCL	3.12
		90% H UCL	5.168

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.649	Data appear Lognormal at 5% Significance Level
Theta Star	4.088	
nu star	51.89	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

A-D Test Statistic	1.238	Nonparametric Statistics	
5% A-D Critical Value	0.796	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.796	Mean	2.229
5% K-S Critical Value	0.146	SD	3.684
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.538
		90% KM (t) UCL	2.929
Assuming Gamma Distribution		90% KM (z) UCL	2.919
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	2.927
Minimum	1.00E-06	90% KM (bootstrap t) UCL	3.161
Maximum	20.2	90% KM (BCA) UCL	2.975
Mean	2.21	90% KM (Percentile Bootstrap) UCL	2.904
Median	0.719	90% KM (Chebyshev) UCL	3.844
SD	3.734	95% KM (Chebyshev) UCL	4.576
k star	0.236	97.5% KM (Chebyshev) UCL	5.592
Theta star	9.36	99% KM (Chebyshev) UCL	7.587
Nu star	22.67		
AppChi2	14.58	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	3.436	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	3.474	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (thallium_composite)

General Statistics

Number of Valid Observations	6	Number of Distinct Observations	6

Raw Statistics		Log-transformed Statistics	
Minimum	0.044	Minimum of Log Data	-3.124
Maximum	0.24	Maximum of Log Data	-1.427
Mean	0.118	Mean of log Data	-2.408
Geometric Mean	0.09	SD of log Data	0.786
Median	0.0685		
SD	0.0955		
Std. Error of Mean	0.039		
Coefficient of Variation	0.811		
Skewness	0.906		

Warning: A sample size of 'n' = 6 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 6 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.726	Shapiro Wilk Test Statistic	0.806
Shapiro Wilk Critical Value	0.788	Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.175	90% H-UCL	0.269
		90% Chebyshev (MVUE) UCL	0.226
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.276
90% Adjusted-CLT UCL (Chen-1995)	0.178	97.5% Chebyshev (MVUE) UCL	0.345

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

90% Modified-t UCL (Johnson-1978)	0.178	99% Chebyshev (MVUE) UCL	0.481

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.118	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	0.105		
MLE of Mean	0.118		
MLE of Standard Deviation	0.111		
nu star	13.42		
Approximate Chi Square Value (.05)	7.351	Nonparametric Statistics	
Adjusted Level of Significance	0.049	90% CLT UCL	0.168
Adjusted Chi Square Value	6.145	90% Jackknife UCL	0.175
		90% Standard Bootstrap UCL	0.162
Anderson-Darling Test Statistic	0.732	90% Bootstrap-t UCL	0.163
Anderson-Darling 5% Critical Value	0.704	90% Hall's Bootstrap UCL	0.147
Kolmogorov-Smirnov Test Statistic	0.304	90% Percentile Bootstrap UCL	0.175
Kolmogorov-Smirnov 5% Critical Value	0.336	90% BCA Bootstrap UCL	0.175
Data follow Appr. Gamma Distribution at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.235
		95% Chebyshev(Mean, Sd) UCL	0.288
		97.5% Chebyshev(Mean, Sd) UCL	0.361
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.505
90% Approximate Gamma UCL (Use when n >= 40)	0.215		
90% Adjusted Gamma UCL (Use when n < 40)	0.257		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (thallium_discrete)

General Statistics			
Number of Valid Data	16	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	4
		Percent Non-Detects	25.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.039	Minimum Detected	-3.244
Maximum Detected	0.59	Maximum Detected	-0.528
Mean of Detected	0.127	Mean of Detected	-2.499
SD of Detected	0.165	SD of Detected	0.837
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.574	Shapiro Wilk Test Statistic	0.78
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.158	Mean	-2.221
SD	0.151	SD	0.873
90% DL/2 (t) UCL	0.209	90% H-Stat (DL/2) UCL	0.24
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.53
		SD in Log Scale	0.759
		Mean in Original Scale	0.116

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

		SD in Original Scale	0.144
		90% t UCL	0.164
		90% Percentile Bootstrap UCL	0.165
		90% BCA Bootstrap UCL	0.182
		90% H-UCL	0.149
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.021	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.125		
nu star	24.5		
A-D Test Statistic	1.607	Nonparametric Statistics	
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.75	Mean	0.117
5% K-S Critical Value	0.251	SD	0.143
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0391
		90% KM (t) UCL	0.169
Assuming Gamma Distribution		90% KM (z) UCL	0.167
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.169
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.423
Maximum	0.59	90% KM (BCA) UCL	0.176
Mean	0.123	90% KM (Percentile Bootstrap) UCL	0.166
Median	0.0704	90% KM (Chebyshev) UCL	0.234
SD	0.148	95% KM (Chebyshev) UCL	0.287
k star	0.533	97.5% KM (Chebyshev) UCL	0.361
Theta star	0.231	99% KM (Chebyshev) UCL	0.505
Nu star	17.05		
AppChi2	10.12	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.207	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.218	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (total bapeq_composite)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0278	Minimum Detected	-3.584
Maximum Detected	7.348	Maximum Detected	1.994
Mean of Detected	1.002	Mean of Detected	-1.328
SD of Detected	2.244	SD of Detected	1.614
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.911	Mean	-1.752
SD	2.15	SD	2.079
90% DL/2 (t) UCL	1.8	90% H-Stat (DL/2) UCL	17
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

Mean	0.776	Mean in Log Scale	-1.681
SD	2.181	SD in Log Scale	1.929
90% MLE (t) UCL	1.678	Mean in Original Scale	0.911
90% MLE (Tiku) UCL	1.608	SD in Original Scale	2.15
		90% t UCL	1.801
		90% Percentile Bootstrap UCL	1.635
		90% BCA Bootstrap UCL	2.239
		90% H UCL	9.817

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.403	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	2.485		
nu star	8.062		
A-D Test Statistic	0.902	Nonparametric Statistics	
5% A-D Critical Value	0.781	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.781	Mean	0.913
5% K-S Critical Value	0.282	SD	2.049
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.651
		90% KM (t) UCL	1.807
Assuming Gamma Distribution		90% KM (z) UCL	1.748
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.802
Minimum	1.00E-06	90% KM (bootstrap t) UCL	7.555
Maximum	7.348	90% KM (BCA) UCL	1.612
Mean	0.911	90% KM (Percentile Bootstrap) UCL	1.649
Median	0.196	90% KM (Chebyshev) UCL	2.867
SD	2.15	95% KM (Chebyshev) UCL	3.752
k star	0.273	97.5% KM (Chebyshev) UCL	4.98
Theta star	3.334	99% KM (Chebyshev) UCL	7.392
Nu star	6.009		
AppChi2	2.211	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	2.475	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	2.826	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (total bapeq_discrete)

General Statistics			
Number of Valid Data	31	Number of Detected Data	30
Number of Distinct Detected Data	30	Number of Non-Detect Data	1
		Percent Non-Detects	3.23%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0118	Minimum Detected	-4.439
Maximum Detected	63.61	Maximum Detected	4.153
Mean of Detected	4.296	Mean of Detected	-0.725
SD of Detected	12.69	SD of Detected	1.936
Minimum Non-Detect	0.0154	Minimum Non-Detect	-4.173
Maximum Non-Detect	0.0154	Maximum Non-Detect	-4.173

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.382	Shapiro Wilk Test Statistic	0.947
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.158	Mean	-0.859
SD	12.5	SD	2.044

Appendix C-2 ProUCL Output for Central Parcel Upland Exposure Unit

90% DL/2 (t) UCL	7.1	90% H-Stat (DL/2) UCL	9.95
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.575	Mean in Log Scale	-0.856
SD	12.82	SD in Log Scale	2.037
90% MLE (t) UCL	6.592	Mean in Original Scale	4.158
90% MLE (Tiku) UCL	6.304	SD in Original Scale	12.5
		90% t UCL	7.1
		90% Percentile Bootstrap UCL	7.167
		90% BCA Bootstrap UCL	9.062
		90% H UCL	9.791
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.304	Data appear Lognormal at 5% Significance Level	
Theta Star	14.11		
nu star	18.27		
A-D Test Statistic	3.226	Nonparametric Statistics	
5% A-D Critical Value	0.851	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.851	Mean	4.158
5% K-S Critical Value	0.173	SD	12.3
Data not Gamma Distributed at 5% Significance Level		SE of Mean	2.246
		90% KM (t) UCL	7.102
Assuming Gamma Distribution		90% KM (z) UCL	7.037
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	7.099
Minimum	1.00E-06	90% KM (bootstrap t) UCL	11.92
Maximum	63.61	90% KM (BCA) UCL	7.042
Mean	4.158	90% KM (Percentile Bootstrap) UCL	7.227
Median	0.318	90% KM (Chebyshev) UCL	10.9
SD	12.5	95% KM (Chebyshev) UCL	13.95
k star	0.267	97.5% KM (Chebyshev) UCL	18.19
Theta star	15.54	99% KM (Chebyshev) UCL	26.51
Nu star	16.58		
AppChi2	9.762	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	7.063	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	7.232	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	East Parcel_input.wst
Full Precision	OFF
Confidence Coefficient	90%
Number of Bootstrap Operations	2000

StdResult (antimony_composite)

General Statistics			
Number of Valid Data	7	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	2
		Percent Non-Detects	28.57%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.3	Minimum Detected	0.262
Maximum Detected	23.3	Maximum Detected	3.148
Mean of Detected	9.64	Mean of Detected	1.831
SD of Detected	8.888	SD of Detected	1.134
Minimum Non-Detect	0.23	Minimum Non-Detect	-1.47
Maximum Non-Detect	0.652	Maximum Non-Detect	-0.428

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	2
Number treated as Detected	5
Single DL Non-Detect Percentage	28.57%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.916	Shapiro Wilk Test Statistic	0.981
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.949	Mean	0.839
SD	8.59	SD	1.954
90% DL/2 (t) UCL	11.62	90% H-Stat (DL/2) UCL	477.9
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.165	Mean in Log Scale	0.981
SD	10.17	SD in Log Scale	1.722
90% MLE (t) UCL	10.7	Mean in Original Scale	6.977
90% MLE (Tiku) UCL	10.97	SD in Original Scale	8.565
		90% t UCL	11.64
		90% Percentile Bootstrap UCL	11.03
		90% BCA Bootstrap UCL	12
		90% H UCL	172.5
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.649	Data appear Normal at 5% Significance Level	
Theta Star	14.84		
nu star	6.494		
A-D Test Statistic	0.175	Nonparametric Statistics	
5% A-D Critical Value	0.688	Kaplan-Meier (KM) Method	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

K-S Test Statistic	0.688	Mean	7.257
5% K-S Critical Value	0.363	SD	7.703
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	3.255
		90% KM (t) UCL	11.94
Assuming Gamma Distribution		90% KM (z) UCL	11.43
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	11.53
Minimum	1.00E-06	90% KM (bootstrap t) UCL	13.19
Maximum	23.3	90% KM (BCA) UCL	11.99
Mean	6.886	90% KM (Percentile Bootstrap) UCL	11.91
Median	3.4	90% KM (Chebyshev) UCL	17.02
SD	8.648	95% KM (Chebyshev) UCL	21.45
k star	0.19	97.5% KM (Chebyshev) UCL	27.59
Theta star	36.25	99% KM (Chebyshev) UCL	39.65
Nu star	2.659		
AppChi2	0.456	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	40.18	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	61.7	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (antimony_discrete)

General Statistics			
Number of Valid Observations	14	Number of Distinct Observations	14
Raw Statistics		Log-transformed Statistics	
Minimum	0.36	Minimum of Log Data	-1.022
Maximum	192	Maximum of Log Data	5.257
Mean	31.84	Mean of log Data	1.744
Geometric Mean	5.72	SD of log Data	2.082
Median	5.9		
SD	58.87		
Std. Error of Mean	15.73		
Coefficient of Variation	1.849		
Skewness	2.265		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.596	Shapiro Wilk Test Statistic	0.911
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	53.09	90% H-UCL	360
		90% Chebyshev (MVUE) UCL	100
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	129.6
90% Adjusted-CLT UCL (Chen-1995)	58.81	97.5% Chebyshev (MVUE) UCL	170.6
90% Modified-t UCL (Johnson-1978)	54.67	99% Chebyshev (MVUE) UCL	251.2
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.351	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	90.83		
MLE of Mean	31.84		
MLE of Standard Deviation	53.78		
nu star	9.816		
Approximate Chi Square Value (.05)	4.736	Nonparametric Statistics	
Adjusted Level of Significance	0.0781	90% CLT UCL	52.01
Adjusted Chi Square Value	4.378	90% Jackknife UCL	53.09
		90% Standard Bootstrap UCL	51.1
Anderson-Darling Test Statistic	0.797	90% Bootstrap-t UCL	113.3
Anderson-Darling 5% Critical Value	0.815	90% Hall's Bootstrap UCL	163.9
Kolmogorov-Smirnov Test Statistic	0.224	90% Percentile Bootstrap UCL	53.38
Kolmogorov-Smirnov 5% Critical Value	0.245	90% BCA Bootstrap UCL	58.51
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	79.05

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

		95% Chebyshev(Mean, Sd) UCL	100.4
		97.5% Chebyshev(Mean, Sd) UCL	130.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	188.4
90% Approximate Gamma UCL (Use when n >= 40)	66		
90% Adjusted Gamma UCL (Use when n < 40)	71.39		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (aroclor 1254_composite)

General Statistics

Number of Valid Data	8	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	7
		Percent Non-Detects	87.50%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable StdResult (aroclor 1254_composite) was not processed!

StdResult (aroclor 1254_discrete)

General Statistics

Number of Valid Data	15	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	13
		Percent Non-Detects	86.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.017	Minimum Detected	-4.075
Maximum Detected	0.028	Maximum Detected	-3.576
Mean of Detected	0.0225	Mean of Detected	-3.825
SD of Detected	0.00778	SD of Detected	0.353
Minimum Non-Detect	0.0026	Minimum Non-Detect	-5.952
Maximum Non-Detect	0.403	Maximum Non-Detect	-0.909

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Data not Normal at 5% Significance Level

Assuming Normal Distribution
DL/2 Substitution Method

Mean	0.0339
SD	0.0521
90% DL/2 (t) UCL	0.052

Maximum Likelihood Estimate(MLE) Method N/A
MLE method failed to converge properly

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A

A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution
Gamma ROS Statistics using Extrapolated Data

Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
90% Gamma Approximate UCL (Use when n >= 40)	N/A
90% Adjusted Gamma UCL (Use when n < 40)	N/A

Note: DL/2 is not a recommended method.

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution
DL/2 Substitution Method

Mean	-4.176
SD	1.318
90% H-Stat (DL/2) UCL	0.0838

Log ROS Method

Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
90% t UCL	N/A
90% Percentile Bootstrap UCL	N/A
90% BCA Bootstrap UCL	N/A
90% H-UCL	N/A

Data Distribution Test with Detected Values Only
Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics
Kaplan-Meier (KM) Method

Mean	0.0184
SD	0.00364
SE of Mean	0.00182
90% KM (t) UCL	0.0208
90% KM (z) UCL	0.0207
90% KM (jackknife) UCL	0.0218
90% KM (bootstrap t) UCL	0.019
90% KM (BCA) UCL	N/A
90% KM (Percentile Bootstrap) UCL	0.028
90% KM (Chebyshev) UCL	0.0238
95% KM (Chebyshev) UCL	0.0263
97.5% KM (Chebyshev) UCL	0.0297
99% KM (Chebyshev) UCL	0.0365

Potential UCL to Use
Recommendation Provided only
for 95% Confidence Coeficient

StdResult (aroclor 1260_composite)

General Statistics

Number of Valid Data	8	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	7
		Percent Non-Detects	87.50%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable StdResult (aroclor 1260_composite) was not processed!

StdResult (aroclor 1260_discrete)

General Statistics

Number of Valid Data	15	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	9

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

		Percent Non-Detects	60.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	1.85	Maximum Detected	0.615
Mean of Detected	0.573	Mean of Detected	-1.749
SD of Detected	0.771	SD of Detected	1.88
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.067	Maximum Non-Detect	-2.703
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	73.33%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.907
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.239	Mean	-3.454
SD	0.54	SD	1.987
90% DL/2 (t) UCL	0.426	90% H-Stat (DL/2) UCL	1.262
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.806
		SD in Log Scale	3.031
		Mean in Original Scale	0.231
		SD in Original Scale	0.544
		90% t UCL	0.419
		90% Percentile Bootstrap UCL	0.415
		90% BCA Bootstrap UCL	0.478
		90% H-UCL	36.22
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.375	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.526		
nu star	4.504		
A-D Test Statistic	0.407	Nonparametric Statistics	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.734	Mean	0.243
5% K-S Critical Value	0.348	SD	0.52
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.147
		90% KM (t) UCL	0.441
Assuming Gamma Distribution		90% KM (z) UCL	0.431
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.426
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.482
Maximum	1.85	90% KM (BCA) UCL	0.498
Mean	0.229	90% KM (Percentile Bootstrap) UCL	0.44
Median	1.00E-06	90% KM (Chebyshev) UCL	0.684
SD	0.544	95% KM (Chebyshev) UCL	0.884
k star	0.13	97.5% KM (Chebyshev) UCL	1.161
Theta star	1.761	99% KM (Chebyshev) UCL	1.707
Nu star	3.904		

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

AppChi2	1.019	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.877	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.005	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (aroclors_composite)

General Statistics

Number of Valid Data	8	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	6
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.748	Minimum Detected	-0.29
Maximum Detected	7.94	Maximum Detected	2.072
Mean of Detected	4.344	Mean of Detected	0.891
SD of Detected	5.086	SD of Detected	1.67
Minimum Non-Detect	0.0063	Minimum Non-Detect	-5.067
Maximum Non-Detect	0.141	Maximum Non-Detect	-1.959

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	75.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.111	Mean	-2.754
SD	2.771	SD	2.621
90% DL/2 (t) UCL	2.497	90% H-Stat (DL/2) UCL	353.9

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		90% t UCL	N/A
		90% Percentile Bootstrap UCL	N/A
		90% BCA Bootstrap UCL	N/A
		90% H-UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)
Theta Star	N/A	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.647
5% K-S Critical Value	N/A	SD	2.379
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.189
		90% KM (t) UCL	3.33
Assuming Gamma Distribution		90% KM (z) UCL	3.171
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	4.168
Minimum	N/A	90% KM (bootstrap t) UCL	1.647
Maximum	N/A	90% KM (BCA) UCL	7.94
Mean	N/A	90% KM (Percentile Bootstrap) UCL	7.94
Median	N/A	90% KM (Chebyshev) UCL	5.215
SD	N/A	95% KM (Chebyshev) UCL	6.831
k star	N/A	97.5% KM (Chebyshev) UCL	9.074
Theta star	N/A	99% KM (Chebyshev) UCL	13.48
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (aroclors_discrete)

General Statistics			
Number of Valid Data	15	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	9
		Percent Non-Detects	60.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	1.85	Maximum Detected	0.615
Mean of Detected	0.58	Mean of Detected	-1.619
SD of Detected	0.765	SD of Detected	1.772
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.134	Maximum Non-Detect	-2.01
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	80.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.783	Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.251	Mean	-3.032
SD	0.536	SD	1.822
90% DL/2 (t) UCL	0.437	90% H-Stat (DL/2) UCL	1.096
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.254

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

		SD in Log Scale	2.68
		Mean in Original Scale	0.236
		SD in Original Scale	0.542
		90% t UCL	0.424
		90% Percentile Bootstrap UCL	0.416
		90% BCA Bootstrap UCL	0.487
		90% H-UCL	10.41
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.4	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.45		
nu star	4.801		
A-D Test Statistic	0.354	Nonparametric Statistics	
5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.731	Mean	0.248
5% K-S Critical Value	0.347	SD	0.518
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.147
		90% KM (t) UCL	0.445
Assuming Gamma Distribution		90% KM (z) UCL	0.436
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.424
Minimum	1.00E-06	90% KM (bootstrap t) UCL	1.022
Maximum	1.85	90% KM (BCA) UCL	0.505
Mean	0.232	90% KM (Percentile Bootstrap) UCL	0.449
Median	1.00E-06	90% KM (Chebyshev) UCL	0.688
SD	0.544	95% KM (Chebyshev) UCL	0.887
k star	0.131	97.5% KM (Chebyshev) UCL	1.164
Theta star	1.778	99% KM (Chebyshev) UCL	1.707
Nu star	3.916		
AppChi2	1.026	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.886	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	1.015	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (arsenic_composite)

General Statistics			
Number of Valid Observations	7	Number of Distinct Observations	7
Raw Statistics		Log-transformed Statistics	
Minimum	3.03	Minimum of Log Data	1.109
Maximum	15.1	Maximum of Log Data	2.715
Mean	7.204	Mean of log Data	1.803
Geometric Mean	6.069	SD of log Data	0.625
Median	6.1		
SD	4.666		
Std. Error of Mean	1.764		
Coefficient of Variation	0.648		
Skewness	1.018		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.857	Shapiro Wilk Test Statistic	0.92
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	9.743	90% H-UCL	11.89
		90% Chebyshev (MVUE) UCL	12.26
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14.57
90% Adjusted-CLT UCL (Chen-1995)	9.949	97.5% Chebyshev (MVUE) UCL	17.78
90% Modified-t UCL (Johnson-1978)	9.856	99% Chebyshev (MVUE) UCL	24.08
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.85	Data appear Normal at 5% Significance Level	
Theta Star	3.894		
MLE of Mean	7.204		
MLE of Standard Deviation	5.296		
nu star	25.9		
Approximate Chi Square Value (.05)	17.21	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	9.464
Adjusted Chi Square Value	15.54	90% Jackknife UCL	9.743
		90% Standard Bootstrap UCL	9.266
Anderson-Darling Test Statistic	0.375	90% Bootstrap-t UCL	10.4
Anderson-Darling 5% Critical Value	0.712	90% Hall's Bootstrap UCL	12.72
Kolmogorov-Smirnov Test Statistic	0.199	90% Percentile Bootstrap UCL	9.329
Kolmogorov-Smirnov 5% Critical Value	0.314	90% BCA Bootstrap UCL	9.457
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	12.5
		95% Chebyshev(Mean, Sd) UCL	14.89
		97.5% Chebyshev(Mean, Sd) UCL	18.22
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	24.75
90% Approximate Gamma UCL (Use when n >= 40)	10.84		
90% Adjusted Gamma UCL (Use when n < 40)	12.01		
Potential UCL to Use		Recommendation Provided only for 95% Confidence Coefficient	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (arsenic_discrete)

General Statistics

Number of Valid Data	18	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	1
		Percent Non-Detects	5.56%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.47	Minimum Detected	0.904
Maximum Detected	36.2	Maximum Detected	3.589
Mean of Detected	8.101	Mean of Detected	1.813
SD of Detected	7.95	SD of Detected	0.716
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.629	Shapiro Wilk Test Statistic	0.912
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

DL/2 Substitution Method		DL/2 Substitution Method	
Mean	7.664	Mean	1.635
SD	7.931	SD	1.025
90% DL/2 (t) UCL	10.16	90% H-Stat (DL/2) UCL	14.11
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	7.431	Mean in Log Scale	1.717
SD	8.035	SD in Log Scale	0.804
90% MLE (t) UCL	9.957	Mean in Original Scale	7.712
90% MLE (Tiku) UCL	9.832	SD in Original Scale	7.887
		90% t UCL	10.19
		90% Percentile Bootstrap UCL	10.19
		90% BCA Bootstrap UCL	11.26
		90% H UCL	10.81
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.639	Data Follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	4.944		
nu star	55.71		
A-D Test Statistic	0.792	Nonparametric Statistics	
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.75	Mean	7.788
5% K-S Critical Value	0.212	SD	7.605
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	1.848
		90% KM (t) UCL	10.25
Assuming Gamma Distribution		90% KM (z) UCL	10.16
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	10.24
Minimum	1.00E-06	90% KM (bootstrap t) UCL	13.02
Maximum	36.2	90% KM (BCA) UCL	10.51
Mean	7.651	90% KM (Percentile Bootstrap) UCL	10.1
Median	5.35	90% KM (Chebyshev) UCL	13.33
SD	7.945	95% KM (Chebyshev) UCL	15.84
k star	0.513	97.5% KM (Chebyshev) UCL	19.33
Theta star	14.92	99% KM (Chebyshev) UCL	26.17
Nu star	18.46		
AppChi2	11.23	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	12.58	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	13.07	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)anthracene_composite)

General Statistics			
Number of Valid Observations	7	Number of Distinct Observations	7
Raw Statistics		Log-transformed Statistics	
Minimum	0.0032	Minimum of Log Data	-5.745
Maximum	0.336	Maximum of Log Data	-1.091
Mean	0.104	Mean of log Data	-3.023
Geometric Mean	0.0487	SD of log Data	1.561
Median	0.0664		
SD	0.119		
Std. Error of Mean	0.0451		
Coefficient of Variation	1.148		
Skewness	1.517		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.826	Shapiro Wilk Test Statistic	0.963
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.169	90% H-UCL	1.534
		90% Chebyshev (MVUE) UCL	0.337
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.434
90% Adjusted-CLT UCL (Chen-1995)	0.18	97.5% Chebyshev (MVUE) UCL	0.568
90% Modified-t UCL (Johnson-1978)	0.173	99% Chebyshev (MVUE) UCL	0.832
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.543	Data appear Normal at 5% Significance Level	
Theta Star	0.191		
MLE of Mean	0.104		
MLE of Standard Deviation	0.141		
nu star	7.603		
Approximate Chi Square Value (.05)	3.227	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.162
Adjusted Chi Square Value	2.59	90% Jackknife UCL	0.169
		90% Standard Bootstrap UCL	0.159
Anderson-Darling Test Statistic	0.158	90% Bootstrap-t UCL	0.21
Anderson-Darling 5% Critical Value	0.735	90% Hall's Bootstrap UCL	0.188
Kolmogorov-Smirnov Test Statistic	0.157	90% Percentile Bootstrap UCL	0.157
Kolmogorov-Smirnov 5% Critical Value	0.322	90% BCA Bootstrap UCL	0.173
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.239
		95% Chebyshev(Mean, Sd) UCL	0.301
		97.5% Chebyshev(Mean, Sd) UCL	0.386
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.553
90% Approximate Gamma UCL (Use when n >= 40)	0.245		
90% Adjusted Gamma UCL (Use when n < 40)	0.305		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (benzo(a)anthracene_discrete)

General Statistics

Number of Valid Data	13	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	5
		Percent Non-Detects	38.46%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0163	Minimum Detected	-4.117
Maximum Detected	0.568	Maximum Detected	-0.566
Mean of Detected	0.172	Mean of Detected	-2.186
SD of Detected	0.173	SD of Detected	1.057
Minimum Non-Detect	0.022	Minimum Non-Detect	-3.817
Maximum Non-Detect	0.168	Maximum Non-Detect	-1.784

Note: Data have multiple DLs - Use of KM Method is recommended — Number treated as Non-Detect 10

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	76.92%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.968
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.123	Mean	-2.666
SD	0.149	SD	1.168
90% DL/2 (t) UCL	0.179	90% H-Stat (DL/2) UCL	0.293
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.721
		SD in Log Scale	1.11
		Mean in Original Scale	0.118
		SD in Original Scale	0.151
		90% t UCL	0.175
		90% Percentile Bootstrap UCL	0.173
		90% BCA Bootstrap UCL	0.201
		90% H-UCL	0.244
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.905	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.19		
nu star	14.48		
A-D Test Statistic	0.237	Nonparametric Statistics	
5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.731	Mean	0.12
5% K-S Critical Value	0.3	SD	0.145
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0436
		90% KM (t) UCL	0.179
Assuming Gamma Distribution		90% KM (z) UCL	0.175
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.172
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.223
Maximum	0.568	90% KM (BCA) UCL	0.199
Mean	0.114	90% KM (Percentile Bootstrap) UCL	0.182
Median	0.0691	90% KM (Chebyshev) UCL	0.25
SD	0.155	95% KM (Chebyshev) UCL	0.31
k star	0.208	97.5% KM (Chebyshev) UCL	0.392
Theta star	0.546	99% KM (Chebyshev) UCL	0.553
Nu star	5.412		
AppChi2	1.852	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.332	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.376	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)pyrene_composite)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Raw Statistics		Log-transformed Statistics	
Minimum	0.0052	Minimum of Log Data	-5.259
Maximum	0.512	Maximum of Log Data	-0.669
Mean	0.144	Mean of log Data	-2.785
Geometric Mean	0.0617	SD of log Data	1.561
Median	0.0619		
SD	0.185		
Std. Error of Mean	0.07		
Coefficient of Variation	1.289		
Skewness	1.691		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Test Statistic	0.964
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.244	90% H-UCL	1.944
		90% Chebyshev (MVUE) UCL	0.428
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.551
90% Adjusted-CLT UCL (Chen-1995)	0.265	97.5% Chebyshev (MVUE) UCL	0.721
90% Modified-t UCL (Johnson-1978)	0.252	99% Chebyshev (MVUE) UCL	1.055

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.503	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.285		
MLE of Mean	0.144		
MLE of Standard Deviation	0.202		
nu star	7.043		
Approximate Chi Square Value (.05)	2.862	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.233
Adjusted Chi Square Value	2.271	90% Jackknife UCL	0.244
		90% Standard Bootstrap UCL	0.229
Anderson-Darling Test Statistic	0.286	90% Bootstrap-t UCL	0.303
Anderson-Darling 5% Critical Value	0.738	90% Hall's Bootstrap UCL	0.817
Kolmogorov-Smirnov Test Statistic	0.232	90% Percentile Bootstrap UCL	0.238
Kolmogorov-Smirnov 5% Critical Value	0.323	90% BCA Bootstrap UCL	0.268
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.354
		95% Chebyshev(Mean, Sd) UCL	0.449
		97.5% Chebyshev(Mean, Sd) UCL	0.581
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.84
90% Approximate Gamma UCL (Use when n >= 40)	0.353		
90% Adjusted Gamma UCL (Use when n < 40)	0.445		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

StdResult (benzo(a)pyrene_discrete)

General Statistics			
Number of Valid Data	13	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	15.38%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0366	Minimum Detected	-3.308
Maximum Detected	0.589	Maximum Detected	-0.529
Mean of Detected	0.237	Mean of Detected	-1.662
SD of Detected	0.153	SD of Detected	0.768
Minimum Non-Detect	0.0134	Minimum Non-Detect	-4.313
Maximum Non-Detect	0.022	Maximum Non-Detect	-3.817
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	2
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	15.38%
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.922	Shapiro Wilk Test Statistic	0.937
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.202	Mean	-2.138
SD	0.164	SD	1.361
90% DL/2 (t) UCL	0.264	90% H-Stat (DL/2) UCL	0.791
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.189	Mean in Log Scale	-1.928
SD	0.178	SD in Log Scale	0.955
90% MLE (t) UCL	0.256	Mean in Original Scale	0.206
90% MLE (Tiku) UCL	0.257	SD in Original Scale	0.16
		90% t UCL	0.266
		90% Percentile Bootstrap UCL	0.258
		90% BCA Bootstrap UCL	0.268
		90% H UCL	0.397
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.801	Data appear Normal at 5% Significance Level	
Theta Star	0.132		
nu star	39.61		
A-D Test Statistic	0.237	Nonparametric Statistics	
5% A-D Critical Value	0.737	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.737	Mean	0.206
5% K-S Critical Value	0.258	SD	0.153
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0444
		90% KM (t) UCL	0.267
Assuming Gamma Distribution		90% KM (z) UCL	0.263
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.263
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.279
Maximum	0.589	90% KM (BCA) UCL	0.275
Mean	0.201	90% KM (Percentile Bootstrap) UCL	0.269
Median	0.182	90% KM (Chebyshev) UCL	0.34
SD	0.166	95% KM (Chebyshev) UCL	0.4
k star	0.32	97.5% KM (Chebyshev) UCL	0.484
Theta star	0.627	99% KM (Chebyshev) UCL	0.649
Nu star	8.318		
AppChi2	3.704	Potential UCL to Use	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

90% Gamma Approximate UCL (Use when n >= 40)	0.451	Recommendation Provided only
90% Adjusted Gamma UCL (Use when n < 40)	0.495	for 95% Confidence Coeficient

Note: DL/2 is not a recommended method.

StdResult (benzo(b)fluoranthene_composite)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	0.0052	Minimum of Log Data	-5.259
Maximum	0.675	Maximum of Log Data	-0.393
Mean	0.156	Mean of log Data	-2.896
Geometric Mean	0.0553	SD of log Data	1.632
Median	0.0546		
SD	0.243		
Std. Error of Mean	0.0917		
Coefficient of Variation	1.556		
Skewness	2.14		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.678	Shapiro Wilk Test Statistic	0.972
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.288	90% H-UCL	2.365
		90% Chebyshev (MVUE) UCL	0.424
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.547
90% Adjusted-CLT UCL (Chen-1995)	0.326	97.5% Chebyshev (MVUE) UCL	0.718
90% Modified-t UCL (Johnson-1978)	0.3	99% Chebyshev (MVUE) UCL	1.054

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.436	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.357		
MLE of Mean	0.156		
MLE of Standard Deviation	0.236		
nu star	6.106		
Approximate Chi Square Value (.05)	2.271	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.273
Adjusted Chi Square Value	1.76	90% Jackknife UCL	0.288
		90% Standard Bootstrap UCL	0.265
Anderson-Darling Test Statistic	0.398	90% Bootstrap-t UCL	1.316
Anderson-Darling 5% Critical Value	0.746	90% Hall's Bootstrap UCL	0.661
Kolmogorov-Smirnov Test Statistic	0.296	90% Percentile Bootstrap UCL	0.273
Kolmogorov-Smirnov 5% Critical Value	0.325	90% BCA Bootstrap UCL	0.334
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.431
		95% Chebyshev(Mean, Sd) UCL	0.555
		97.5% Chebyshev(Mean, Sd) UCL	0.728

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.068
90% Approximate Gamma UCL (Use when n >= 40)	0.419		
90% Adjusted Gamma UCL (Use when n < 40)	0.541		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (benzo(b)fluoranthene_discrete)

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0427	Minimum Detected	-3.154
Maximum Detected	0.782	Maximum Detected	-0.246
Mean of Detected	0.262	Mean of Detected	-1.607
SD of Detected	0.209	SD of Detected	0.811
Minimum Non-Detect	0.0134	Minimum Non-Detect	-4.313
Maximum Non-Detect	0.0134	Maximum Non-Detect	-4.313
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.798	Shapiro Wilk Test Statistic	0.931
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.239	Mean	-1.916
SD	0.213	SD	1.282
90% DL/2 (t) UCL	0.327	90% H-Stat (DL/2) UCL	0.918
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.229	Mean in Log Scale	-1.781
SD	0.218	SD in Log Scale	0.961
90% MLE (t) UCL	0.319	Mean in Original Scale	0.241
90% MLE (Tiku) UCL	0.318	SD in Original Scale	0.21
		90% t UCL	0.328
		90% Percentile Bootstrap UCL	0.317
		90% BCA Bootstrap UCL	0.347
		90% H UCL	0.501
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.473	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.178		
nu star	29.46		
A-D Test Statistic	0.435	Nonparametric Statistics	
5% A-D Critical Value	0.736	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.736	Mean	0.242
5% K-S Critical Value	0.27	SD	0.199
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0634
		90% KM (t) UCL	0.329
Assuming Gamma Distribution		90% KM (z) UCL	0.324
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.327
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.413
Maximum	0.782	90% KM (BCA) UCL	0.322

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Mean	0.238	90% KM (Percentile Bootstrap) UCL	0.33
Median	0.194	90% KM (Chebyshev) UCL	0.432
SD	0.214	95% KM (Chebyshev) UCL	0.519
k star	0.421	97.5% KM (Chebyshev) UCL	0.638
Theta star	0.566	99% KM (Chebyshev) UCL	0.873
Nu star	9.262		
AppChi2	4.35	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.508	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.561	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (copper_composite)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	17.5	Minimum of Log Data	2.862
Maximum	13500	Maximum of Log Data	9.51
Mean	2075	Mean of log Data	5.014
Geometric Mean	150.5	SD of log Data	2.321
Median	51.9		
SD	5045		
Std. Error of Mean	1907		
Coefficient of Variation	2.432		
Skewness	2.631		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.488	Shapiro Wilk Test Statistic	0.846
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	4820	90% H-UCL	262366
		90% Chebyshev (MVUE) UCL	3263
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4294
90% Adjusted-CLT UCL (Chen-1995)	5872	97.5% Chebyshev (MVUE) UCL	5725
90% Modified-t UCL (Johnson-1978)	5136	99% Chebyshev (MVUE) UCL	8535

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.248	Data appear Lognormal at 5% Significance Level	
Theta Star	8358		
MLE of Mean	2075		
MLE of Standard Deviation	4164		
nu star	3.475		
Approximate Chi Square Value (.05)	0.809	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	4518
Adjusted Chi Square Value	0.556	90% Jackknife UCL	4820
		90% Standard Bootstrap UCL	4302

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Anderson-Darling Test Statistic	1.046	90% Bootstrap-t UCL	39342
Anderson-Darling 5% Critical Value	0.796	90% Hall's Bootstrap UCL	38623
Kolmogorov-Smirnov Test Statistic	0.345	90% Percentile Bootstrap UCL	4086
Kolmogorov-Smirnov 5% Critical Value	0.337	90% BCA Bootstrap UCL	5906
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	7795
		95% Chebyshev(Mean, Sd) UCL	10386
		97.5% Chebyshev(Mean, Sd) UCL	13982
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	21047
90% Approximate Gamma UCL (Use when n >= 40)	8915		
90% Adjusted Gamma UCL (Use when n < 40)	12964		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (copper_discrete)

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		Log-transformed Statistics	
Minimum	18.6	Minimum of Log Data	2.923
Maximum	47500	Maximum of Log Data	10.77
Mean	2738	Mean of log Data	4.605
Geometric Mean	100	SD of log Data	1.801
Median	68.5		
SD	11172		
Std. Error of Mean	2633		
Coefficient of Variation	4.08		
Skewness	4.242		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.259	Shapiro Wilk Test Statistic	0.726
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	6249	90% H-UCL	1761
		90% Chebyshev (MVUE) UCL	1053
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1342
90% Adjusted-CLT UCL (Chen-1995)	7993	97.5% Chebyshev (MVUE) UCL	1742
90% Modified-t UCL (Johnson-1978)	6688	99% Chebyshev (MVUE) UCL	2528

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.22	Data do not follow a Discernable Distribution (0.05)	
Theta Star	12463		
MLE of Mean	2738		
MLE of Standard Deviation	5841		
nu star	7.908		
Approximate Chi Square Value (.05)	3.429	Nonparametric Statistics	
Adjusted Level of Significance	0.0838	90% CLT UCL	6112
Adjusted Chi Square Value	3.213	90% Jackknife UCL	6249
		90% Standard Bootstrap UCL	6018
Anderson-Darling Test Statistic	4.381	90% Bootstrap-t UCL	369555
Anderson-Darling 5% Critical Value	0.876	90% Hall's Bootstrap UCL	118097
Kolmogorov-Smirnov Test Statistic	0.472	90% Percentile Bootstrap UCL	5393
Kolmogorov-Smirnov 5% Critical Value	0.224	90% BCA Bootstrap UCL	8015
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	10637
		95% Chebyshev(Mean, Sd) UCL	14215
		97.5% Chebyshev(Mean, Sd) UCL	19182

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	28937
90% Approximate Gamma UCL (Use when n >= 40)	6314		
90% Adjusted Gamma UCL (Use when n < 40)	6738		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (dibenzo(a,h)anthracene_composite)

General Statistics

Number of Valid Observations	7	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	9.10E-04	Minimum of Log Data	-7.002
Maximum	0.0856	Maximum of Log Data	-2.458
Mean	0.0227	Mean of log Data	-4.59
Geometric Mean	0.0102	SD of log Data	1.504
Median	0.0121		
SD	0.03		
Std. Error of Mean	0.0113		
Coefficient of Variation	1.321		
Skewness	1.978		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.746	Shapiro Wilk Test Statistic	0.983
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.039	90% H-UCL	0.253
		90% Chebyshev (MVUE) UCL	0.0649
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.0833
90% Adjusted-CLT UCL (Chen-1995)	0.0432	97.5% Chebyshev (MVUE) UCL	0.109
90% Modified-t UCL (Johnson-1978)	0.0404	99% Chebyshev (MVUE) UCL	0.159

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.521	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.0435		
MLE of Mean	0.0227		
MLE of Standard Deviation	0.0314		
nu star	7.294		
Approximate Chi Square Value (.05)	3.024	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	0.0372
Adjusted Chi Square Value	2.413	90% Jackknife UCL	0.039
		90% Standard Bootstrap UCL	0.0359
Anderson-Darling Test Statistic	0.225	90% Bootstrap-t UCL	0.0587

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Anderson-Darling 5% Critical Value	0.736	90% Hall's Bootstrap UCL	0.0936
Kolmogorov-Smirnov Test Statistic	0.214	90% Percentile Bootstrap UCL	0.0366
Kolmogorov-Smirnov 5% Critical Value	0.323	90% BCA Bootstrap UCL	0.0425
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.0567
		95% Chebyshev(Mean, Sd) UCL	0.0721
		97.5% Chebyshev(Mean, Sd) UCL	0.0934
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.135
90% Approximate Gamma UCL (Use when n >= 40)	0.0547		
90% Adjusted Gamma UCL (Use when n < 40)	0.0686		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (dibenzo(a,h)anthracene_discrete)

General Statistics

Number of Valid Data	13	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	8
		Percent Non-Detects	61.54%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0147	Minimum Detected	-4.22
Maximum Detected	0.127	Maximum Detected	-2.064
Mean of Detected	0.0565	Mean of Detected	-3.093
SD of Detected	0.0419	SD of Detected	0.766
Minimum Non-Detect	0.0134	Minimum Non-Detect	-4.313
Maximum Non-Detect	0.168	Maximum Non-Detect	-1.784

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.833	Shapiro Wilk Test Statistic	0.925
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0533	Mean	-3.193
SD	0.0342	SD	0.848
90% DL/2 (t) UCL	0.0662	90% H-Stat (DL/2) UCL	0.093
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.578
		SD in Log Scale	0.729
		Mean in Original Scale	0.0362
		SD in Original Scale	0.0311
		90% t UCL	0.0479
		90% Percentile Bootstrap UCL	0.0472
		90% BCA Bootstrap UCL	0.0512
		90% H-UCL	0.0527

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.104	Data appear Normal at 5% Significance Level	
Theta Star	0.0512		
nu star	11.04		
A-D Test Statistic	0.39	Nonparametric Statistics	
5% A-D Critical Value	0.684	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.684	Mean	0.0404
5% K-S Critical Value	0.36	SD	0.0327
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0122
		90% KM (t) UCL	0.057
Assuming Gamma Distribution		90% KM (z) UCL	0.0561
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.0547
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.0589
Maximum	0.127	90% KM (BCA) UCL	0.067
Mean	0.0347	90% KM (Percentile Bootstrap) UCL	0.0616
Median	0.0226	90% KM (Chebyshev) UCL	0.077
SD	0.0351	95% KM (Chebyshev) UCL	0.0936
k star	0.276	97.5% KM (Chebyshev) UCL	0.117
Theta star	0.126	99% KM (Chebyshev) UCL	0.162
Nu star	7.189		
AppChi2	2.956	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.0844	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.0936	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (lead_composite)

General Statistics			
Number of Valid Observations	7	Number of Distinct Observations	7
Raw Statistics		Log-transformed Statistics	
Minimum	11.6	Minimum of Log Data	2.451
Maximum	1150	Maximum of Log Data	7.048
Mean	309.7	Mean of log Data	4.845
Geometric Mean	127	SD of log Data	1.55
Median	126		
SD	421.9		
Std. Error of Mean	159.5		
Coefficient of Variation	1.362		
Skewness	1.718		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.739	Shapiro Wilk Test Statistic	0.969
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

90% Student's-t UCL	539.3	90% H-UCL	3825
		90% Chebyshev (MVUE) UCL	867.5
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1115
90% Adjusted-CLT UCL (Chen-1995)	588	97.5% Chebyshev (MVUE) UCL	1459
90% Modified-t UCL (Johnson-1978)	556.6	99% Chebyshev (MVUE) UCL	2135

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.484	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	639.6		
MLE of Mean	309.7		
MLE of Standard Deviation	445.1		
nu star	6.78		
Approximate Chi Square Value (.05)	2.693	Nonparametric Statistics	
Adjusted Level of Significance	0.0549	90% CLT UCL	514.1
Adjusted Chi Square Value	2.124	90% Jackknife UCL	539.3
		90% Standard Bootstrap UCL	493.6
Anderson-Darling Test Statistic	0.358	90% Bootstrap-t UCL	669.8
Anderson-Darling 5% Critical Value	0.74	90% Hall's Bootstrap UCL	2044
Kolmogorov-Smirnov Test Statistic	0.281	90% Percentile Bootstrap UCL	531
Kolmogorov-Smirnov 5% Critical Value	0.324	90% BCA Bootstrap UCL	560
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	788.1
		95% Chebyshev(Mean, Sd) UCL	1005
		97.5% Chebyshev(Mean, Sd) UCL	1306
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1896
90% Approximate Gamma UCL (Use when n >= 40)	779.7		
90% Adjusted Gamma UCL (Use when n < 40)	988.6		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (lead_discrete)

General Statistics			
Number of Valid Observations	16	Number of Distinct Observations	16
Raw Statistics		Log-transformed Statistics	
Minimum	1.49	Minimum of Log Data	0.399
Maximum	3090	Maximum of Log Data	8.036
Mean	397.2	Mean of log Data	4.756
Geometric Mean	116.3	SD of log Data	1.836
Median	146		
SD	760.2		
Std. Error of Mean	190.1		
Coefficient of Variation	1.914		
Skewness	3.349		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.527	Shapiro Wilk Test Statistic	0.97
Shapiro Wilk Critical Value	0.887	Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	652	90% H-UCL	2572
		90% Chebyshev (MVUE) UCL	1306
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1671
90% Adjusted-CLT UCL (Chen-1995)	754.4	97.5% Chebyshev (MVUE) UCL	2177
90% Modified-t UCL (Johnson-1978)	678.5	99% Chebyshev (MVUE) UCL	3172
Gamma Distribution Test		Data Distribution	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

k star (bias corrected)	0.46	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	863.5		
MLE of Mean	397.2		
MLE of Standard Deviation	585.6		
nu star	14.72		
Approximate Chi Square Value (.05)	8.333	Nonparametric Statistics	
Adjusted Level of Significance	0.0809	90% CLT UCL	640.7
Adjusted Chi Square Value	7.908	90% Jackknife UCL	652
		90% Standard Bootstrap UCL	626.1
Anderson-Darling Test Statistic	0.416	90% Bootstrap-t UCL	1177
Anderson-Darling 5% Critical Value	0.795	90% Hall's Bootstrap UCL	1716
Kolmogorov-Smirnov Test Statistic	0.179	90% Percentile Bootstrap UCL	642.1
Kolmogorov-Smirnov 5% Critical Value	0.227	90% BCA Bootstrap UCL	818.5
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	967.3
		95% Chebyshev(Mean, Sd) UCL	1226
		97.5% Chebyshev(Mean, Sd) UCL	1584
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2288
90% Approximate Gamma UCL (Use when n >= 40)	701.5		
90% Adjusted Gamma UCL (Use when n < 40)	739.2		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (thallium_composite)

General Statistics

Number of Valid Data	7	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	1
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.044	Minimum Detected	-3.124
Maximum Detected	0.085	Maximum Detected	-2.465
Mean of Detected	0.062	Mean of Detected	-2.804
SD of Detected	0.0149	SD of Detected	0.238
Minimum Non-Detect	0.652	Minimum Non-Detect	-0.428
Maximum Non-Detect	0.652	Maximum Non-Detect	-0.428

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Test Statistic	0.987
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0997	Mean	-2.564
SD	0.101	SD	0.672
90% DL/2 (t) UCL	0.155	90% H-Stat (DL/2) UCL	0.164
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.804

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

		SD in Log Scale	0.217
		Mean in Original Scale	0.0618
		SD in Original Scale	0.0136
		90% t UCL	0.0692
		90% Percentile Bootstrap UCL	0.0683
		90% BCA Bootstrap UCL	0.0687
		90% H-UCL	0.0705
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	10.77	Data appear Normal at 5% Significance Level	
Theta Star	0.00576		
nu star	129.2		
A-D Test Statistic	0.177	Nonparametric Statistics	
5% A-D Critical Value	0.697	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.697	Mean	0.062
5% K-S Critical Value	0.332	SD	0.0136
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00607
		90% KM (t) UCL	0.0707
Assuming Gamma Distribution		90% KM (z) UCL	0.0698
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.0709
Minimum	0.044	90% KM (bootstrap t) UCL	0.0728
Maximum	0.085	90% KM (BCA) UCL	0.07
Mean	0.0623	90% KM (Percentile Bootstrap) UCL	0.0692
Median	0.064	90% KM (Chebyshev) UCL	0.0802
SD	0.0136	95% KM (Chebyshev) UCL	0.0885
k star	14.24	97.5% KM (Chebyshev) UCL	0.0999
Theta star	0.00438	99% KM (Chebyshev) UCL	0.122
Nu star	199.3		
AppChi2	174.2	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.0713	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.0737	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (thallium_discrete)

General Statistics			
Number of Valid Data	13	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	1
		Percent Non-Detects	7.69%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.021	Minimum Detected	-3.863
Maximum Detected	0.072	Maximum Detected	-2.631
Mean of Detected	0.0541	Mean of Detected	-2.975
SD of Detected	0.0162	SD of Detected	0.387
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693
UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.88	Shapiro Wilk Test Statistic	0.792
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0692	Mean	-2.853
SD	0.0565	SD	0.575
90% DL/2 (t) UCL	0.0904	90% H-Stat (DL/2) UCL	0.089
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

MLE method failed to converge properly		Mean in Log Scale	-2.975
		SD in Log Scale	0.37
		Mean in Original Scale	0.0539
		SD in Original Scale	0.0156
		90% t UCL	0.0597
		90% Percentile Bootstrap UCL	0.0589
		90% BCA Bootstrap UCL	0.0582
		90% H-UCL	0.0639

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	6.697	Data appear Normal at 5% Significance Level	
Theta Star	0.00808		
nu star	160.7		
A-D Test Statistic	0.918	Nonparametric Statistics	
5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.731	Mean	0.0541
5% K-S Critical Value	0.246	SD	0.0155
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00468
		90% KM (t) UCL	0.0604
Assuming Gamma Distribution		90% KM (z) UCL	0.0601
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.0605
Minimum	0.021	90% KM (bootstrap t) UCL	0.0593
Maximum	0.072	90% KM (BCA) UCL	0.0598
Mean	0.0543	90% KM (Percentile Bootstrap) UCL	0.0597
Median	0.058	90% KM (Chebyshev) UCL	0.0681
SD	0.0156	95% KM (Chebyshev) UCL	0.0745
k star	7.406	97.5% KM (Chebyshev) UCL	0.0833
Theta star	0.00733	99% KM (Chebyshev) UCL	0.101
Nu star	192.6		
AppChi2	167.9	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.0623	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.0633	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (total bapeq_composite)

General Statistics			
Number of Valid Observations	7	Number of Distinct Observations	7
Raw Statistics		Log-transformed Statistics	
Minimum	0.00734	Minimum of Log Data	-4.915
Maximum	0.729	Maximum of Log Data	-0.316
Mean	0.2	Mean of log Data	-2.453
Geometric Mean	0.086	SD of log Data	1.554
Median	0.0873		
SD	0.261		
Std. Error of Mean	0.0988		
Coefficient of Variation	1.306		
Skewness	1.775		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.757	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.342	90% H-UCL	2.63
		90% Chebyshev (MVUE) UCL	0.591
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.759
90% Adjusted-CLT UCL (Chen-1995)	0.374	97.5% Chebyshev (MVUE) UCL	0.994
90% Modified-t UCL (Johnson-1978)	0.353	99% Chebyshev (MVUE) UCL	1.454

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.503	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.398	
MLE of Mean	0.2	
MLE of Standard Deviation	0.282	
nu star	7.044	
Approximate Chi Square Value (.05)	2.863	Nonparametric Statistics
Adjusted Level of Significance	0.0549	90% CLT UCL 0.327
Adjusted Chi Square Value	2.272	90% Jackknife UCL 0.342
		90% Standard Bootstrap UCL 0.32
Anderson-Darling Test Statistic	0.277	90% Bootstrap-t UCL 0.451
Anderson-Darling 5% Critical Value	0.738	90% Hall's Bootstrap UCL 0.405
Kolmogorov-Smirnov Test Statistic	0.231	90% Percentile Bootstrap UCL 0.332
Kolmogorov-Smirnov 5% Critical Value	0.323	90% BCA Bootstrap UCL 0.353
Data appear Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL 0.497
		95% Chebyshev(Mean, Sd) UCL 0.631
		97.5% Chebyshev(Mean, Sd) UCL 0.817
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.183
90% Approximate Gamma UCL (Use when n >= 40)	0.492	
90% Adjusted Gamma UCL (Use when n < 40)	0.621	

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (total bapeq_discrete)

General Statistics

Number of Valid Observations	13	Number of Distinct Observations	13

Raw Statistics		Log-transformed Statistics	
Minimum	3.10E-05	Minimum of Log Data	-10.38
Maximum	0.885	Maximum of Log Data	-0.122
Mean	0.265	Mean of log Data	-2.482
Geometric Mean	0.0836	SD of log Data	2.843
Median	0.245		
SD	0.237		
Std. Error of Mean	0.0657		
Coefficient of Variation	0.892		
Skewness	1.447		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.879	Shapiro Wilk Test Statistic	0.691
Shapiro Wilk Critical Value	0.866	Shapiro Wilk Critical Value	0.866
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Appendix C-3 ProUCL Output for East Parcel Upland Exposure Unit

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	0.354	90% H-UCL	210.9
		90% Chebyshev (MVUE) UCL	6.273
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.284
90% Adjusted-CLT UCL (Chen-1995)	0.368	97.5% Chebyshev (MVUE) UCL	11.07
90% Modified-t UCL (Johnson-1978)	0.359	99% Chebyshev (MVUE) UCL	16.56
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.469	Data appear Normal at 5% Significance Level	
Theta Star	0.566		
MLE of Mean	0.265		
MLE of Standard Deviation	0.388		
nu star	12.19		
Approximate Chi Square Value (.05)	6.443	Nonparametric Statistics	
Adjusted Level of Significance	0.0767	90% CLT UCL	0.35
Adjusted Chi Square Value	5.987	90% Jackknife UCL	0.354
		90% Standard Bootstrap UCL	0.345
Anderson-Darling Test Statistic	1.009	90% Bootstrap-t UCL	0.386
Anderson-Darling 5% Critical Value	0.787	90% Hall's Bootstrap UCL	0.441
Kolmogorov-Smirnov Test Statistic	0.278	90% Percentile Bootstrap UCL	0.344
Kolmogorov-Smirnov 5% Critical Value	0.249	90% BCA Bootstrap UCL	0.372
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	0.462
		95% Chebyshev(Mean, Sd) UCL	0.552
		97.5% Chebyshev(Mean, Sd) UCL	0.675
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.919
90% Approximate Gamma UCL (Use when n >= 40)	0.502		
90% Adjusted Gamma UCL (Use when n < 40)	0.54		
Potential UCL to Use		Recommendation Provided only for 95% Confidence Coefficient	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	InnerCove_Input .wst
Full Precision	OFF
Confidence Coefficient	90%
Number of Bootstrap Operations	2000

StdResult (antimony_composite)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (antimony_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (antimony_discrete)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10
Raw Statistics		Log-transformed Statistics	
Minimum	0.0507	Minimum of Log Data	-2.982
Maximum	154	Maximum of Log Data	5.037
Mean	16.79	Mean of log Data	0.201
Geometric Mean	1.222	SD of log Data	2.133
Median	0.775		
SD	48.26		
Std. Error of Mean	15.26		
Coefficient of Variation	2.875		
Skewness	3.15		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.397	Shapiro Wilk Test Statistic	0.894
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	37.89	90% H-UCL	191.9
		90% Chebyshev (MVUE) UCL	21.98
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.67
90% Adjusted-CLT UCL (Chen-1995)	47.2	97.5% Chebyshev (MVUE) UCL	37.96
90% Modified-t UCL (Johnson-1978)	40.43	99% Chebyshev (MVUE) UCL	56.22
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.254	Data appear Lognormal at 5% Significance Level	
Theta Star	66.01		
MLE of Mean	16.79		
MLE of Standard Deviation	33.29		
nu star	5.086		
Approximate Chi Square Value (.05)	1.663	Nonparametric Statistics	
Adjusted Level of Significance	0.0724	90% CLT UCL	36.35
Adjusted Chi Square Value	1.419	90% Jackknife UCL	37.89
		90% Standard Bootstrap UCL	35.24
Anderson-Darling Test Statistic	1.577	90% Bootstrap-t UCL	903.4
Anderson-Darling 5% Critical Value	0.826	90% Hall's Bootstrap UCL	359.5
Kolmogorov-Smirnov Test Statistic	0.341	90% Percentile Bootstrap UCL	32.56

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Kolmogorov-Smirnov 5% Critical Value	0.29	90% BCA Bootstrap UCL	48.04
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	62.57
		95% Chebyshev(Mean, Sd) UCL	83.31
		97.5% Chebyshev(Mean, Sd) UCL	112.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	168.6
90% Approximate Gamma UCL (Use when n >= 40)	51.35		
90% Adjusted Gamma UCL (Use when n < 40)	60.17		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (aroclor 1254_composite)

General Statistics

Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
		Percent Non-Detects	33.33%

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (aroclor 1254_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (aroclor 1254_discrete)

General Statistics

Number of Valid Data	6	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	4
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.363	Minimum Detected	-1.013
Maximum Detected	207	Maximum Detected	5.333
Mean of Detected	103.7	Mean of Detected	2.16
SD of Detected	146.1	SD of Detected	4.487
Minimum Non-Detect	0.0026	Minimum Non-Detect	-5.952
Maximum Non-Detect	0.139	Maximum Non-Detect	-1.973

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	4
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	66.67%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lognormal Distribution Test with Detected Values Only

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	34.58	Mean	-2.253
SD	84.47	SD	4.252
90% DL/2 (t) UCL	85.48	90% H-Stat (DL/2) UCL	1.93E+11
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		90% t UCL	N/A
		90% Percentile Bootstrap UCL	N/A
		90% BCA Bootstrap UCL	N/A
		90% H-UCL	N/A
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	34.8
5% K-S Critical Value	N/A	SD	77.01
Data not Gamma Distributed at 5% Significance Level		SE of Mean	44.46
		90% KM (t) UCL	100.4
Assuming Gamma Distribution		90% KM (z) UCL	91.78
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	116.3
Minimum	N/A	90% KM (bootstrap t) UCL	34.8
Maximum	N/A	90% KM (BCA) UCL	207
Mean	N/A	90% KM (Percentile Bootstrap) UCL	207
Median	N/A	90% KM (Chebyshev) UCL	168.2
SD	N/A	95% KM (Chebyshev) UCL	228.6
k star	N/A	97.5% KM (Chebyshev) UCL	312.5
Theta star	N/A	99% KM (Chebyshev) UCL	477.2
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (aroclors_composite)

General Statistics			
Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
		Percent Non-Detects	33.33%

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (aroclors_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (aroclors_discrete)

General Statistics

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Number of Valid Data	6	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	4
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.363	Minimum Detected	-1.013
Maximum Detected	207	Maximum Detected	5.333
Mean of Detected	103.7	Mean of Detected	2.16
SD of Detected	146.1	SD of Detected	4.487
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.25	Maximum Non-Detect	-1.386

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	4
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	66.67%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	34.6	Mean	-1.845
SD	84.46	SD	3.992
90% DL/2 (t) UCL	85.49	90% H-Stat (DL/2) UCL	9.76E+09

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		90% t UCL	N/A
		90% Percentile Bootstrap UCL	N/A
		90% BCA Bootstrap UCL	N/A
		90% H-UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)
Theta Star	N/A	
nu star	N/A	

		Nonparametric Statistics	
A-D Test Statistic	N/A	Kaplan-Meier (KM) Method	
5% A-D Critical Value	N/A	Mean	34.8
K-S Test Statistic	N/A	SD	77.01
5% K-S Critical Value	N/A	SE of Mean	44.46
Data not Gamma Distributed at 5% Significance Level		90% KM (t) UCL	100.4
		90% KM (z) UCL	91.78
Assuming Gamma Distribution		90% KM (jackknife) UCL	116.3
Gamma ROS Statistics using Extrapolated Data		90% KM (bootstrap t) UCL	34.8
Minimum	N/A		

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Maximum	N/A	90% KM (BCA) UCL	N/A
Mean	N/A	90% KM (Percentile Bootstrap) UCL	207
Median	N/A	90% KM (Chebyshev) UCL	168.2
SD	N/A	95% KM (Chebyshev) UCL	228.6
k star	N/A	97.5% KM (Chebyshev) UCL	312.5
Theta star	N/A	99% KM (Chebyshev) UCL	477.2
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (arsenic_composite)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (arsenic_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (arsenic_discrete)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	1.55	Minimum of Log Data	0.438
Maximum	39	Maximum of Log Data	3.664
Mean	11.24	Mean of log Data	1.751
Geometric Mean	5.763	SD of log Data	1.223
Median	3.065		
SD	13.23		
Std. Error of Mean	4.183		
Coefficient of Variation	1.177		
Skewness	1.353		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.763	Shapiro Wilk Test Statistic	0.846
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	17.03	90% H-UCL	33.42
		90% Chebyshev (MVUE) UCL	24.23
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	30.28
90% Adjusted-CLT UCL (Chen-1995)	17.88	97.5% Chebyshev (MVUE) UCL	38.67
90% Modified-t UCL (Johnson-1978)	17.32	99% Chebyshev (MVUE) UCL	55.14
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.681	Data appear Lognormal at 5% Significance Level	
Theta Star	16.5		
MLE of Mean	11.24		
MLE of Standard Deviation	13.62		
nu star	13.62		
Approximate Chi Square Value (.05)	7.506	Nonparametric Statistics	
Adjusted Level of Significance	0.0724	90% CLT UCL	16.6
Adjusted Chi Square Value	6.908	90% Jackknife UCL	17.03

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

		90% Standard Bootstrap UCL	16.36
Anderson-Darling Test Statistic	0.863	90% Bootstrap-t UCL	18.9
Anderson-Darling 5% Critical Value	0.753	90% Hall's Bootstrap UCL	18.98
Kolmogorov-Smirnov Test Statistic	0.295	90% Percentile Bootstrap UCL	16.13
Kolmogorov-Smirnov 5% Critical Value	0.275	90% BCA Bootstrap UCL	17.8
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	23.79
		95% Chebyshev(Mean, Sd) UCL	29.47
		97.5% Chebyshev(Mean, Sd) UCL	37.36
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	52.86
90% Approximate Gamma UCL (Use when n >= 40)	20.4		
90% Adjusted Gamma UCL (Use when n < 40)	22.17		

Potential UCL to Use

Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (benzo(a)anthracene_composite)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(a)anthracene_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (benzo(a)anthracene_discrete)

General Statistics

Number of Valid Data	6	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	3
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.103	Minimum Detected	-2.273
Maximum Detected	2.82	Maximum Detected	1.037
Mean of Detected	1.108	Mean of Detected	-0.717
SD of Detected	1.49	SD of Detected	1.664
Minimum Non-Detect	0.427	Minimum Non-Detect	-0.851
Maximum Non-Detect	32.8	Maximum Non-Detect	3.49

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.831	Shapiro Wilk Test Statistic	0.989
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Data appear Normal at 5% Significance Level

Assuming Normal Distribution	
DL/2 Substitution Method	
Mean	3.456
SD	6.42
90% DL/2 (t) UCL	7.325
Maximum Likelihood Estimate(MLE) Method	N/A
MLE method failed to converge properly	
Gamma Distribution Test with Detected Values Only	
k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A
Data not Gamma Distributed at 5% Significance Level	
Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
90% Gamma Approximate UCL (Use when n >= 40)	N/A
90% Adjusted Gamma UCL (Use when n < 40)	N/A

Note: DL/2 is not a recommended method.

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution	
DL/2 Substitution Method	
Mean	-0.187
SD	1.851
90% H-Stat (DL/2) UCL	190.9
Log ROS Method	
Mean in Log Scale	-1.076
SD in Log Scale	1.135
Mean in Original Scale	0.676
SD in Original Scale	1.056
90% t UCL	1.312
90% Percentile Bootstrap UCL	1.142
90% BCA Bootstrap UCL	1.496
90% H-UCL	2.857
Data Distribution Test with Detected Values Only	
Data appear Normal at 5% Significance Level	
Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.766
SD	1.036
SE of Mean	0.572
90% KM (t) UCL	1.61
90% KM (z) UCL	1.499
90% KM (jackknife) UCL	1.568
90% KM (bootstrap t) UCL	4.181
90% KM (BCA) UCL	2.82
90% KM (Percentile Bootstrap) UCL	1.852
90% KM (Chebyshev) UCL	2.482
95% KM (Chebyshev) UCL	3.259
97.5% KM (Chebyshev) UCL	4.338
99% KM (Chebyshev) UCL	6.457
Potential UCL to Use	
Recommendation Provided only	
for 95% Confidence Coeficient	

StdResult (benzo(a)pyrene_composite)

General Statistics			
Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(a)pyrene_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (benzo(a)pyrene_discrete)

General Statistics			
Number of Valid Data	6	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	3
		Percent Non-Detects	50.00%

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0777	Minimum Detected	-2.555
Maximum Detected	0.849	Maximum Detected	-0.164
Mean of Detected	0.383	Mean of Detected	-1.408
SD of Detected	0.41	SD of Detected	1.199
Minimum Non-Detect	0.427	Minimum Non-Detect	-0.851
Maximum Non-Detect	32.8	Maximum Non-Detect	3.49

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.885	Shapiro Wilk Test Statistic	0.995
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.094	Mean	-0.532
SD	6.527	SD	1.864
90% DL/2 (t) UCL	7.026	90% H-Stat (DL/2) UCL	146.1

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.579
		SD in Log Scale	0.795
		Mean in Original Scale	0.28
		SD in Original Scale	0.284
		90% t UCL	0.451
		90% Percentile Bootstrap UCL	0.412
		90% BCA Bootstrap UCL	0.481
		90% H-UCL	0.63

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level
Theta Star	N/A	
nu star	N/A	

		Nonparametric Statistics	
A-D Test Statistic	N/A	Kaplan-Meier (KM) Method	
5% A-D Critical Value	N/A	Mean	0.325
K-S Test Statistic	N/A	SD	0.309
5% K-S Critical Value	N/A	SE of Mean	0.191
Data not Gamma Distributed at 5% Significance Level		90% KM (t) UCL	0.607
		90% KM (z) UCL	0.57
Assuming Gamma Distribution		90% KM (jackknife) UCL	0.612
Gamma ROS Statistics using Extrapolated Data		90% KM (bootstrap t) UCL	1.127
Minimum	N/A	90% KM (BCA) UCL	0.692
Maximum	N/A	90% KM (Percentile Bootstrap) UCL	0.64
Mean	N/A	90% KM (Chebyshev) UCL	0.898
Median	N/A	95% KM (Chebyshev) UCL	1.158
SD	N/A	97.5% KM (Chebyshev) UCL	1.519
k star	N/A	99% KM (Chebyshev) UCL	2.227
Theta star	N/A		
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient

Note: DL/2 is not a recommended method.

StdResult (benzo(b)fluoranthene_composite)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(b)fluoranthene_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (benzo(b)fluoranthene_discrete)

General Statistics

Number of Valid Data	6	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	3
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.123	Minimum Detected	-2.096
Maximum Detected	1.76	Maximum Detected	0.565
Mean of Detected	0.798	Mean of Detected	-0.735
SD of Detected	0.856	SD of Detected	1.331
Minimum Non-Detect	0.427	Minimum Non-Detect	-0.851
Maximum Non-Detect	32.8	Maximum Non-Detect	3.49

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.915	Shapiro Wilk Test Statistic	0.998
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.301	Mean	-0.196
SD	6.444	SD	1.743
90% DL/2 (t) UCL	7.184	90% H-Stat (DL/2) UCL	103.8

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.192
		SD in Log Scale	1.018
		Mean in Original Scale	0.501
		SD in Original Scale	0.633
		90% t UCL	0.883

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

90% Percentile Bootstrap UCL	0.811
90% BCA Bootstrap UCL	1.019
90% H-UCL	1.728

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.554
5% K-S Critical Value	N/A	SD	0.625
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.346
		90% KM (t) UCL	1.064
Assuming Gamma Distribution		90% KM (z) UCL	0.997
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	1.006
Minimum	N/A	90% KM (bootstrap t) UCL	1.529
Maximum	N/A	90% KM (BCA) UCL	1.01
Mean	N/A	90% KM (Percentile Bootstrap) UCL	1.214
Median	N/A	90% KM (Chebyshev) UCL	1.592
SD	N/A	95% KM (Chebyshev) UCL	2.062
k star	N/A	97.5% KM (Chebyshev) UCL	2.715
Theta star	N/A	99% KM (Chebyshev) UCL	3.998
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (copper_composite)

General Statistics			
Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (copper_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (copper_discrete)

General Statistics			
Number of Valid Observations	10	Number of Distinct Observations	10
Raw Statistics		Log-transformed Statistics	
Minimum	25.5	Minimum of Log Data	3.239
Maximum	1400	Maximum of Log Data	7.244
Mean	303.5	Mean of log Data	4.663
Geometric Mean	106	SD of log Data	1.488
Median	61.2		
SD	464.6		
Std. Error of Mean	146.9		
Coefficient of Variation	1.531		
Skewness	1.845		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.68	Shapiro Wilk Test Statistic	0.841
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Data not Normal at 5% Significance Level

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	506.7	90% H-UCL	1337
		90% Chebyshev (MVUE) UCL	663.3
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	843.2
90% Adjusted-CLT UCL (Chen-1995)	553	97.5% Chebyshev (MVUE) UCL	1093
90% Modified-t UCL (Johnson-1978)	521	99% Chebyshev (MVUE) UCL	1583
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.479	Data do not follow a Discernable Distribution (0.05)	
Theta Star	633.9		
MLE of Mean	303.5		
MLE of Standard Deviation	438.6		
nu star	9.576		
Approximate Chi Square Value (.05)	4.569	Nonparametric Statistics	
Adjusted Level of Significance	0.0724	90% CLT UCL	491.8
Adjusted Chi Square Value	4.119	90% Jackknife UCL	506.7
		90% Standard Bootstrap UCL	482
Anderson-Darling Test Statistic	0.998	90% Bootstrap-t UCL	656.8
Anderson-Darling 5% Critical Value	0.77	90% Hall's Bootstrap UCL	529.1
Kolmogorov-Smirnov Test Statistic	0.304	90% Percentile Bootstrap UCL	492.4
Kolmogorov-Smirnov 5% Critical Value	0.279	90% BCA Bootstrap UCL	533.3
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	744.3
		95% Chebyshev(Mean, Sd) UCL	943.9
		97.5% Chebyshev(Mean, Sd) UCL	1221
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1765
90% Approximate Gamma UCL (Use when n >= 40)	636.3		
90% Adjusted Gamma UCL (Use when n < 40)	705.7		
Potential UCL to Use		Recommendation Provided only for 95% Confidence Coefficient	

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (dibenzo(a,h)anthracene_composite)

General Statistics			
Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
		Percent Non-Detects	33.33%

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (dibenzo(a,h)anthracene_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (dibenzo(a,h)anthracene_discrete)

General Statistics			
Number of Valid Data	6	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	3
		Percent Non-Detects	50.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0128	Minimum Detected	-4.358
Maximum Detected	0.233	Maximum Detected	-1.457
Mean of Detected	0.127	Mean of Detected	-2.603
SD of Detected	0.11	SD of Detected	1.543
Minimum Non-Detect	0.427	Minimum Non-Detect	-0.851

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Maximum Non-Detect	32.8	Maximum Non-Detect	3.49

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	6
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.995	Shapiro Wilk Test Statistic	0.883
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.966	Mean	-1.13
SD	6.587	SD	2.353
90% DL/2 (t) UCL	6.935	90% H-Stat (DL/2) UCL	1975

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.603
		SD in Log Scale	0.976
		Mean in Original Scale	0.101
		SD in Original Scale	0.0756
		90% t UCL	0.146
		90% Percentile Bootstrap UCL	0.137
		90% BCA Bootstrap UCL	0.143
		90% H-UCL	0.37

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level
Theta Star	N/A	
nu star	N/A	

		Nonparametric Statistics	
A-D Test Statistic	N/A	Kaplan-Meier (KM) Method	
5% A-D Critical Value	N/A	Mean	0.127
K-S Test Statistic	N/A	SD	0.0901
5% K-S Critical Value	N/A	SE of Mean	0.0637
Data not Gamma Distributed at 5% Significance Level		90% KM (t) UCL	0.221
		90% KM (z) UCL	0.209
Assuming Gamma Distribution		90% KM (jackknife) UCL	0.232
Gamma ROS Statistics using Extrapolated Data		90% KM (bootstrap t) UCL	0.222
Minimum	N/A	90% KM (BCA) UCL	0.201
Maximum	N/A	90% KM (Percentile Bootstrap) UCL	0.201
Mean	N/A	90% KM (Chebyshev) UCL	0.318
Median	N/A	95% KM (Chebyshev) UCL	0.405
SD	N/A	97.5% KM (Chebyshev) UCL	0.525
k star	N/A	99% KM (Chebyshev) UCL	0.761
Theta star	N/A		
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (diesel range hydrocarbons (silica gel treated)_composite)

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

General Statistics

Number of Valid Observations	2	Number of Distinct Observations	2

Warning: This data set only has 2 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (diesel range hydrocarbons (silica gel treated)_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (diesel range hydrocarbons (silica gel treated)_discrete)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (diesel range hydrocarbons (silica gel treated)_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (diesel range hydrocarbons_discrete)

General Statistics

Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	89.4	Minimum Detected	4.493
Maximum Detected	91300	Maximum Detected	11.42
Mean of Detected	15324	Mean of Detected	8.125
SD of Detected	28133	SD of Detected	2.097
Minimum Non-Detect	25	Minimum Non-Detect	3.219
Maximum Non-Detect	25	Maximum Non-Detect	3.219

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.598	Shapiro Wilk Test Statistic	0.984
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	13932	Mean	7.616
SD	27086	SD	2.609
90% DL/2 (t) UCL	25138	90% H-Stat (DL/2) UCL	2561491

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	12291	Mean in Log Scale	7.654
SD	27545	SD in Log Scale	2.528
90% MLE (t) UCL	23687	Mean in Original Scale	13933
90% MLE (Tiku) UCL	22882	SD in Original Scale	27085
		90% t UCL	25139
		90% Percentile Bootstrap UCL	24090
		90% BCA Bootstrap UCL	30862
		90% H UCL	1736735

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.368	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	41677		
nu star	7.354		
A-D Test Statistic	0.297	Nonparametric Statistics	
5% A-D Critical Value	0.79	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.79	Mean	13939
5% K-S Critical Value	0.283	SD	25821
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	8207
		90% KM (t) UCL	25200
Assuming Gamma Distribution		90% KM (z) UCL	24456
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	25122
Minimum	1.00E-06	90% KM (bootstrap t) UCL	53269
Maximum	91300	90% KM (BCA) UCL	23218
Mean	13931	90% KM (Percentile Bootstrap) UCL	23599
Median	4500	90% KM (Chebyshev) UCL	38559
SD	27086	95% KM (Chebyshev) UCL	49711
k star	0.216	97.5% KM (Chebyshev) UCL	65189
Theta star	64532	99% KM (Chebyshev) UCL	95594
Nu star	4.749		
AppChi2	1.471	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	44965	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	52571	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (lead_composite)

General Statistics			
Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (lead_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (lead_discrete)

General Statistics			
Number of Valid Observations	10	Number of Distinct Observations	10
Raw Statistics		Log-transformed Statistics	
Minimum	35.4	Minimum of Log Data	3.567
Maximum	8660	Maximum of Log Data	9.066
Mean	1455	Mean of log Data	5.364
Geometric Mean	213.6	SD of log Data	2.121
Median	64.7		
SD	2804		
Std. Error of Mean	886.6		
Coefficient of Variation	1.927		
Skewness	2.339		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.602	Shapiro Wilk Test Statistic	0.814
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
90% Student's-t UCL	2682	90% H-UCL	31705

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

		90% Chebyshev (MVUE) UCL	3760
90% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4904
90% Adjusted-CLT UCL (Chen-1995)	3060	97.5% Chebyshev (MVUE) UCL	6492
90% Modified-t UCL (Johnson-1978)	2791	99% Chebyshev (MVUE) UCL	9611

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.312	Data do not follow a Discernable Distribution (0.05)	
Theta Star	4666		
MLE of Mean	1455		
MLE of Standard Deviation	2606		
nu star	6.238		
Approximate Chi Square Value (.05)	2.353	Nonparametric Statistics	
Adjusted Level of Significance	0.0724	90% CLT UCL	2592
Adjusted Chi Square Value	2.05	90% Jackknife UCL	2682
		90% Standard Bootstrap UCL	2524
Anderson-Darling Test Statistic	1.046	90% Bootstrap-t UCL	7887
Anderson-Darling 5% Critical Value	0.804	90% Hall's Bootstrap UCL	8217
Kolmogorov-Smirnov Test Statistic	0.333	90% Percentile Bootstrap UCL	2595
Kolmogorov-Smirnov 5% Critical Value	0.286	90% BCA Bootstrap UCL	3148
Data not Gamma Distributed at 5% Significance Level		90% Chebyshev(Mean, Sd) UCL	4115
		95% Chebyshev(Mean, Sd) UCL	5320
		97.5% Chebyshev(Mean, Sd) UCL	6992
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	10277
90% Approximate Gamma UCL (Use when n >= 40)	3859		
90% Adjusted Gamma UCL (Use when n < 40)	4428		

Potential UCL to Use — Recommendation Provided only for 95% Confidence Coefficient

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

StdResult (mercury_composite)

General Statistics

Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
		Percent Non-Detects	33.33%

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (mercury_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (mercury_discrete)

General Statistics

Number of Valid Data	10	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	4
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.085	Minimum Detected	-2.465
Maximum Detected	113	Maximum Detected	4.727
Mean of Detected	22.84	Mean of Detected	0.685
SD of Detected	44.55	SD of Detected	2.91
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Warning: There are only 6 Detected Values in this data

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.601	Shapiro Wilk Test Statistic	0.89
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	13.72	Mean	-0.787
SD	35.23	SD	2.884
90% DL/2 (t) UCL	29.13	90% H-Stat (DL/2) UCL	4170
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.131
		SD in Log Scale	3.332
		Mean in Original Scale	13.72
		SD in Original Scale	35.23
		90% t UCL	29.13
		90% Percentile Bootstrap UCL	25.96
		90% BCA Bootstrap UCL	36.3
		90% H-UCL	59637
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.253	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	90.1		
nu star	3.041		
A-D Test Statistic	0.467	Nonparametric Statistics	
5% A-D Critical Value	0.772	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.772	Mean	13.74
5% K-S Critical Value	0.358	SD	33.41
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	11.58
		90% KM (t) UCL	29.74
Assuming Gamma Distribution		90% KM (z) UCL	28.57
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	29.1
Minimum	1.00E-06	90% KM (bootstrap t) UCL	111.4
Maximum	113	90% KM (BCA) UCL	26.01
Mean	13.7	90% KM (Percentile Bootstrap) UCL	26.74
Median	0.141	90% KM (Chebyshev) UCL	48.46
SD	35.24	95% KM (Chebyshev) UCL	64.19
k star	0.14	97.5% KM (Chebyshev) UCL	86.02
Theta star	98.02	99% KM (Chebyshev) UCL	128.9
Nu star	2.796		
AppChi2	0.509	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	75.2	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	94.91	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (thallium_composite)

General Statistics

Number of Valid Observations	2	Number of Distinct Observations	2

Warning: This data set only has 2 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (thallium_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (thallium_discrete)

General Statistics

Number of Valid Data	7	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	1
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0571	Minimum Detected	-2.863
Maximum Detected	0.18	Maximum Detected	-1.715
Mean of Detected	0.099	Mean of Detected	-2.38
SD of Detected	0.0431	SD of Detected	0.389
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Warning: There are only 6 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.849	Shapiro Wilk Test Statistic	0.949
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0884	Mean	-2.567
SD	0.0482	SD	0.609
90% DL/2 (t) UCL	0.115	90% H-Stat (DL/2) UCL	0.146

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0884	Mean in Log Scale	-2.519
SD	0.0454	SD in Log Scale	0.51
90% MLE (t) UCL	0.113	Mean in Original Scale	0.0898
90% MLE (Tiku) UCL	0.113	SD in Original Scale	0.0461
		90% t UCL	0.115
		90% Percentile Bootstrap UCL	0.112
		90% BCA Bootstrap UCL	0.116
		90% H UCL	0.131

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.905	Data appear Normal at 5% Significance Level
Theta Star	0.0253	
nu star	46.86	

		Nonparametric Statistics	
A-D Test Statistic	0.342		
5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.698	Mean	0.093
5% K-S Critical Value	0.333	SD	0.0392
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0162
		90% KM (t) UCL	0.116
Assuming Gamma Distribution		90% KM (z) UCL	0.114
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.115
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.137
Maximum	0.18	90% KM (BCA) UCL	0.114
Mean	0.0848	90% KM (Percentile Bootstrap) UCL	0.115
Median	0.08	90% KM (Chebyshev) UCL	0.142

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

SD	0.0543	95% KM (Chebyshev) UCL	0.164
k star	0.336	97.5% KM (Chebyshev) UCL	0.194
Theta star	0.252	99% KM (Chebyshev) UCL	0.255
Nu star	4.708		
AppChi2	1.448	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.276	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	0.374	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (total bapeq_composite)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (total bapeq_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (total bapeq_discrete)

General Statistics

Number of Valid Data	6	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	3
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.117	Minimum Detected	-2.143
Maximum Detected	1.579	Maximum Detected	0.457
Mean of Detected	0.722	Mean of Detected	-0.814
SD of Detected	0.763	SD of Detected	1.301
Minimum Non-Detect	0.427	Minimum Non-Detect	-0.851
Maximum Non-Detect	32.8	Maximum Non-Detect	3.49

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Test Statistic	0.999
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.263	Mean	-0.236
SD	6.457	SD	1.749
90% DL/2 (t) UCL	7.154	90% H-Stat (DL/2) UCL	103.1

Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method

Appendix C-4 ProUCL Output for Inner Cove Beach Exposure Unit

MLE method failed to converge properly

Mean in Log Scale	-1.172
SD in Log Scale	0.986
Mean in Original Scale	0.481
SD in Original Scale	0.554
90% t UCL	0.815
90% Percentile Bootstrap UCL	0.752
90% BCA Bootstrap UCL	0.907
90% H-UCL	1.598

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
90% Gamma Approximate UCL (Use when n >= 40)	N/A
90% Adjusted Gamma UCL (Use when n < 40)	N/A

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	0.571
SD	0.599
SE of Mean	0.367
90% KM (t) UCL	1.112
90% KM (z) UCL	1.041
90% KM (jackknife) UCL	1.085
90% KM (bootstrap t) UCL	1.86
90% KM (BCA) UCL	1.209
90% KM (Percentile Bootstrap) UCL	1.301
90% KM (Chebyshev) UCL	1.672
95% KM (Chebyshev) UCL	2.171
97.5% KM (Chebyshev) UCL	2.863
99% KM (Chebyshev) UCL	4.223

Potential UCL to Use

Recommendation Provided only

for 95% Confidence Coeficient

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

General UCL Statistics for Data Sets with Non-Detects

User Selected Options	
From File	Central Beach_input.wst
Full Precision	OFF
Confidence Coefficient	90%
Number of Bootstrap Operations	2000

StdResult (benzo(a)anthracene_composite)

General Statistics

Number of Valid Data	5	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0079	Minimum Detected	-4.841
Maximum Detected	0.663	Maximum Detected	-0.411
Mean of Detected	0.235	Mean of Detected	-2.313
SD of Detected	0.291	SD of Detected	1.845
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.802	Shapiro Wilk Test Statistic	0.916
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.189	Mean	-3.049
SD	0.273	SD	2.293
90% DL/2 (t) UCL	0.376	90% H-Stat (DL/2) UCL	1028

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.153	Mean in Log Scale	-3.242
SD	0.288	SD in Log Scale	2.621
90% MLE (t) UCL	0.35	Mean in Original Scale	0.189
90% MLE (Tiku) UCL	0.349	SD in Original Scale	0.273
		90% t UCL	0.376
		90% Percentile Bootstrap UCL	0.321
		90% BCA Bootstrap UCL	0.35
		90% H UCL	17513

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.341	Data appear Normal at 5% Significance Level
Theta Star	0.69	
nu star	2.729	

		Nonparametric Statistics	
A-D Test Statistic	0.308		
5% A-D Critical Value	0.673	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.673	Mean	0.19
5% K-S Critical Value	0.406	SD	0.243
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.126

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

		90% KM (t) UCL	0.383
Assuming Gamma Distribution		90% KM (z) UCL	0.351
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.369
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.716
Maximum	0.663	90% KM (BCA) UCL	0.348
Mean	0.188	90% KM (Percentile Bootstrap) UCL	0.345
Median	0.13	90% KM (Chebyshev) UCL	0.567
SD	0.273	95% KM (Chebyshev) UCL	0.738
k star	0.23	97.5% KM (Chebyshev) UCL	0.975
Theta star	0.818	99% KM (Chebyshev) UCL	1.44
Nu star	2.303		
AppChi2	0.328	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.323	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)anthracene_discrete)

General Statistics

Number of Valid Data	4	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	1
		Percent Non-Detects	25.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(a)anthracene_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (benzo(a)pyrene_composite)

General Statistics

Number of Valid Data	5	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0064	Minimum Detected	-5.051
Maximum Detected	0.494	Maximum Detected	-0.705
Mean of Detected	0.236	Mean of Detected	-2.2
SD of Detected	0.203	SD of Detected	1.946
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.99	Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.19	Mean	-2.958

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

SD	0.204	SD	2.391
90% DL/2 (t) UCL	0.33	90% H-Stat (DL/2) UCL	2658

Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.165	Mean in Log Scale	-3.118
SD	0.218	SD in Log Scale	2.656
90% MLE (t) UCL	0.314	Mean in Original Scale	0.189
90% MLE (Tiku) UCL	0.317	SD in Original Scale	0.205
		90% t UCL	0.33
		90% Percentile Bootstrap UCL	0.298
		90% BCA Bootstrap UCL	0.304
		90% H UCL	28052

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.363	Data appear Normal at 5% Significance Level	
Theta Star	0.651		
nu star	2.904		
A-D Test Statistic	0.391	Nonparametric Statistics	
5% A-D Critical Value	0.67	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.67	Mean	0.19
5% K-S Critical Value	0.405	SD	0.182
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.094
		90% KM (t) UCL	0.334
Assuming Gamma Distribution		90% KM (z) UCL	0.311
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.328
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.304
Maximum	0.494	90% KM (BCA) UCL	0.351
Mean	0.189	90% KM (Percentile Bootstrap) UCL	0.323
Median	0.18	90% KM (Chebyshev) UCL	0.472
SD	0.205	95% KM (Chebyshev) UCL	0.6
k star	0.233	97.5% KM (Chebyshev) UCL	0.777
Theta star	0.812	99% KM (Chebyshev) UCL	1.125
Nu star	2.328		
AppChi2	0.336	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.309	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(a)pyrene_discrete)

General Statistics			
Number of Valid Data	4	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	1
		Percent Non-Detects	25.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(a)pyrene_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (benzo(b)fluoranthene_composite)

General Statistics			
Number of Valid Data	5	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
		Percent Non-Detects	20.00%
Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

Maximum Detected	0.307	Maximum Detected	-1.181
Mean of Detected	0.162	Mean of Detected	-2.348
SD of Detected	0.121	SD of Detected	1.533
Minimum Non-Detect	7.60E-04	Minimum Non-Detect	-7.182
Maximum Non-Detect	7.60E-04	Maximum Non-Detect	-7.182

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.792
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.129	Mean	-3.453
SD	0.128	SD	2.806
90% DL/2 (t) UCL	0.217	90% H-Stat (DL/2) UCL	93871
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.114	Mean in Log Scale	-3.055
SD	0.137	SD in Log Scale	2.065
90% MLE (t) UCL	0.208	Mean in Original Scale	0.13
90% MLE (Tiku) UCL	0.211	SD in Original Scale	0.127
		90% t UCL	0.217
		90% Percentile Bootstrap UCL	0.191
		90% BCA Bootstrap UCL	0.193
		90% H UCL	157.2
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.438	Data appear Normal at 5% Significance Level	
Theta Star	0.369		
nu star	3.507		
A-D Test Statistic	0.497	Nonparametric Statistics	
5% A-D Critical Value	0.666	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.666	Mean	0.131
5% K-S Critical Value	0.402	SD	0.112
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0578
		90% KM (t) UCL	0.22
Assuming Gamma Distribution		90% KM (z) UCL	0.205
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.219
Minimum	0.00332	90% KM (bootstrap t) UCL	0.181
Maximum	0.307	90% KM (BCA) UCL	0.225
Mean	0.13	90% KM (Percentile Bootstrap) UCL	0.221
Median	0.16	90% KM (Chebyshev) UCL	0.305
SD	0.127	95% KM (Chebyshev) UCL	0.383
k star	0.384	97.5% KM (Chebyshev) UCL	0.492
Theta star	0.339	99% KM (Chebyshev) UCL	0.706
Nu star	3.839		
AppChi2	0.987	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	0.506	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (benzo(b)fluoranthene_discrete)

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

General Statistics

Number of Valid Data	4	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	1
		Percent Non-Detects	25.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (benzo(b)fluoranthene_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (cadmium_composite)

General Statistics

Number of Valid Observations	2	Number of Distinct Observations	2

Warning: This data set only has 2 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (cadmium_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (cadmium_discrete)

General Statistics

Number of Valid Data	4	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	3
		Percent Non-Detects	75.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (cadmium_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (dibenzo(a,h)anthracene_composite)

General Statistics

Number of Valid Data	5	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	2
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.02	Minimum Detected	-3.912
Maximum Detected	0.0442	Maximum Detected	-3.119
Mean of Detected	0.0309	Mean of Detected	-3.53
SD of Detected	0.0123	SD of Detected	0.397
Minimum Non-Detect	0.0038	Minimum Non-Detect	-5.573
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Note: Data have multiple DLs - Use of KM Method is recommendec	Number treated as Non-Detect	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	40.00%

Warning: There are only 3 Distinct Detected Values in this data set

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Test Statistic	0.996
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0194	Mean	-4.569
SD	0.018	SD	1.454
90% DL/2 (t) UCL	0.0317	90% H-Stat (DL/2) UCL	0.612
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.031	Mean in Log Scale	-4.018
SD	0.01	SD in Log Scale	0.726
90% MLE (t) UCL	0.0379	Mean in Original Scale	0.022
90% MLE (Tiku) UCL	0.0398	SD in Original Scale	0.015
		90% t UCL	0.0323
		90% Percentile Bootstrap UCL	0.03
		90% BCA Bootstrap UCL	0.0291
		90% H UCL	0.0547
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.0265
5% K-S Critical Value	N/A	SD	0.00942
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00516
		90% KM (t) UCL	0.0345
Assuming Gamma Distribution		90% KM (z) UCL	0.0332
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.0334
Minimum	N/A	90% KM (bootstrap t) UCL	0.0341
Maximum	N/A	90% KM (BCA) UCL	0.0379
Mean	N/A	90% KM (Percentile Bootstrap) UCL	0.0379
Median	N/A	90% KM (Chebyshev) UCL	0.042
SD	N/A	95% KM (Chebyshev) UCL	0.049
k star	N/A	97.5% KM (Chebyshev) UCL	0.0588
Theta star	N/A	99% KM (Chebyshev) UCL	0.0779
Nu star	N/A		
AppChi2	N/A	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	N/A	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (dibenzo(a,h)anthracene_discrete)

General Statistics

Number of Valid Data	4	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	4
		Percent Non-Detects	100.00%

Warning: This data set only has 4 observations!

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (dibenzo(a,h)anthracene_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (lead_composite)

General Statistics

Number of Valid Observations	2	Number of Distinct Observations	2

Warning: This data set only has 2 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (lead_composite) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (lead_discrete)

General Statistics

Number of Valid Observations	4	Number of Distinct Observations	4

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (lead_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

StdResult (total bapeq_composite)

General Statistics

Number of Valid Data	5	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0094	Minimum Detected	-4.667
Maximum Detected	0.65	Maximum Detected	-0.431
Mean of Detected	0.31	Mean of Detected	-1.899
SD of Detected	0.265	SD of Detected	1.89
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.985	Shapiro Wilk Test Statistic	0.821
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748

Appendix C-5 ProUCL Output for Central Beach Exposure Unit

Data appear Normal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.249	Mean	-2.718
SD	0.268	SD	2.455
90% DL/2 (t) UCL	0.432	90% H-Stat (DL/2) UCL	6085
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.216	Mean in Log Scale	-2.791
SD	0.285	SD in Log Scale	2.579
90% MLE (t) UCL	0.412	Mean in Original Scale	0.248
90% MLE (Tiku) UCL	0.415	SD in Original Scale	0.268
		90% t UCL	0.432
		90% Percentile Bootstrap UCL	0.394
		90% BCA Bootstrap UCL	0.395
		90% H UCL	18321
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.37	Data appear Normal at 5% Significance Level	
Theta Star	0.838		
nu star	2.96		
A-D Test Statistic	0.394	Nonparametric Statistics	
5% A-D Critical Value	0.669	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.669	Mean	0.25
5% K-S Critical Value	0.404	SD	0.238
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.123
		90% KM (t) UCL	0.438
Assuming Gamma Distribution		90% KM (z) UCL	0.407
Gamma ROS Statistics using Extrapolated Data		90% KM (jackknife) UCL	0.43
Minimum	1.00E-06	90% KM (bootstrap t) UCL	0.412
Maximum	0.65	90% KM (BCA) UCL	0.459
Mean	0.248	90% KM (Percentile Bootstrap) UCL	0.425
Median	0.244	90% KM (Chebyshev) UCL	0.619
SD	0.268	95% KM (Chebyshev) UCL	0.786
k star	0.232	97.5% KM (Chebyshev) UCL	1.017
Theta star	1.069	99% KM (Chebyshev) UCL	1.473
Nu star	2.319		
AppChi2	0.333	Potential UCL to Use	
90% Gamma Approximate UCL (Use when n >= 40)	1.726	Recommendation Provided only	
90% Adjusted Gamma UCL (Use when n < 40)	N/A	for 95% Confidence Coeficient	

Note: DL/2 is not a recommended method.

StdResult (total bapeq_discrete)

General Statistics			
Number of Valid Data	4	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	1
		Percent Non-Detects	25.00%

Warning: This data set only has 4 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable StdResult (total bapeq_discrete) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

APPENDIX D

Human Health Soil Summary and Risk Screening for all EUs

APPENDIX D-1-1 Human Health Soil Summary and Concentration Risk Screening - West Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
11096-82-5	Aroclor 1260	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	2	33%	0.049	0.1	0.111	0.111	NA	NA	0.220	0.111	5.0E-01	NA	No	1.9E-03	No
11097-69-1	Aroclor 1254	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.049	0.1			NA	NA	0.220	0.100	4.5E-01	NA	No	1.7E-03	No
11104-28-2	Aroclor 1221	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.0985	0.103			NA	NA	0.140	0.103	7.4E-01	NA	No	2.8E-03	No
11141-16-5	Aroclor 1232	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.049	0.1			NA	NA	0.140	0.100	7.1E-01	NA	No	2.7E-03	No
12672-29-6	Aroclor 1248	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.049	0.1			NA	NA	0.220	0.100	4.5E-01	NA	No	1.7E-03	No
12674-11-2	Aroclor 1016	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.049	0.1			NA	NA	3.900	0.100	2.6E-02	NA	No	9.6E-05	No
12767-79-2	Aroclors	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	2	33%	0.0985	0.1	0.111	0.111	NA	NA	0.310	0.111	3.6E-01	NA	No	1.3E-03	No
53469-21-9	Aroclor 1242	Aroclors	mg/kg	10/20/1995	12/21/2005	0	3.8	3	3	0%	0.049	0.1			NA	NA	0.220	0.100	4.5E-01	NA	No	1.7E-03	No
88-85-7	Dinoseb	Herbicides	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	1	2			NA	NA	6.1	2.0	3.3E-01	NA	No	1.2E-03	No
7439-92-1	Lead	Metals	mg/kg	10/19/1995	5/10/2001	0	4	5	0	100%			9.81	95	79.0	**Yes**	40.0	95.0	2.4E+00	NA	**Yes**	8.9E-03	**Yes**
7439-97-6	Mercury	Metals	mg/kg	10/19/1995	5/10/2001	0	4	5	4	20%	0.1	0.1	3.5	3.5	0.2	**Yes**	4.7	3.5	7.4E-01	NA	No	2.8E-03	No
7440-02-0	Nickel	Metals	mg/kg	10/19/1995	5/10/2001	0	4	4	0	100%			16.5	24	47.000	No	310.000	24.000	7.7E-02	NA	No	2.9E-04	No
7440-22-4	Silver	Metals	mg/kg	10/19/1995	5/10/2001	0	3.8	3	3	0%	0.5	2			0.8	**Yes**	78.0	2.0	2.6E-02	NA	No	9.6E-05	No
7440-28-0	Thallium	Metals	mg/kg	10/19/1995	5/10/2001	0	3.8	3	3	0%	0.5	1			5.200	No	0.078	1.000	1.3E+01	NA	**Yes**	4.8E-02	**Yes**
7440-36-0	Antimony	Metals	mg/kg	10/19/1995	5/10/2001	0	3.8	3	3	0%	0.5	10			0.560	**Yes**	3.100	10.000	3.2E+00	NA	**Yes**	1.2E-02	**Yes**
7440-38-2	Arsenic	Metals	mg/kg	10/19/1995	5/10/2001	0	4	5	0	100%			2.63	5.36	8.8	No	1.0	5.4	5.4E+00	NA	**Yes**	2.0E-02	**Yes**
7440-41-7	Beryllium	Metals	mg/kg	10/19/1995	5/10/2001	0	3.8	3	3	0%	0.5	5			2.000	**Yes**	31.000	5.000	1.6E-01	NA	No	6.0E-04	No
7440-43-9	Cadmium	Metals	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	1	42.7			0.630	**Yes**	7.800	42.700	5.5E+00	NA	**Yes**	2.0E-02	**Yes**
7440-47-3	Chromium	Metals	mg/kg	10/19/1995	5/10/2001	0	4	4	0	100%			13.7	20.6	76.000	No	23000.000	20.600	9.0E-04	NA	No	3.4E-06	No
7440-50-8	Copper	Metals	mg/kg	10/19/1995	5/10/2001	0	4	5	0	100%			18.5	31	34.000	No	620.000	31.000	5.0E-02	NA	No	1.9E-04	No
7440-66-6	Zinc	Metals	mg/kg	10/19/1995	5/10/2001	0	4	5	0	100%			71.1	173	180.000	No	2300.000	173.000	7.5E-02	NA	No	2.8E-04	No
7782-49-2	Selenium	Metals	mg/kg	10/19/1995	5/10/2001	0	3.8	3	3	0%	0.5	1			0.710	**Yes**	39.000	1.000	2.6E-02	NA	No	9.6E-05	No
120-12-7	Anthracene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	5	29%	0.0134	0.067	0.0353	0.102	NA	NA	4700.000	0.102	2.2E-05	NA	No	8.1E-08	No
129-00-0	Pyrene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.104	0.716	NA	NA	340.000	0.716	2.1E-03	NA	No	7.9E-06	No
130498-29-2	Total PAHs	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.7712	7.105	NA	NA	NA	7.105	NA	**?PRG**	No	NA	No
BAPEQ	Total BaPEq	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.1172	1.2671	NA	NA	0.034	1.267	3.7E+01	NA	**Yes**	1.4E-01	**Yes**
HPAH	High Molecular Weight PAH	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.7712	6.351	NA	NA	NA	6.351	NA	**?PRG**	No	NA	No
LPAH	Low Molecular Weight PAH	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	1	86%	0.067	0.067	0.0473	0.754	NA	NA	NA	0.754	NA	**?PRG**	No	NA	No
191-24-2	Benzo(g,h,i)perylene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.0938	0.915	NA	NA	340.000	0.915	2.7E-03	NA	No	1.0E-05	No
193-39-5	Indeno(1,2,3-cd)pyrene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.0704	0.724	NA	NA	0.340	0.724	2.1E+00	NA	**Yes**	8.0E-03	**Yes**
205-99-2	Benzo(b)fluoranthene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.0919	0.726	NA	NA	0.340	0.726	2.1E+00	NA	**Yes**	8.0E-03	**Yes**
206-44-0	Fluoranthene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.105	0.727	NA	NA	460.000	0.727	1.6E-03	NA	No	5.9E-06	No
207-08-9	Benzo(k)fluoranthene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.0829	0.802	NA	NA	3.400	0.802	2.4E-01	NA	No	8.8E-04	No
208-96-8	Acenaphthylene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	5	29%	0.0134	0.067	0.152	0.243	NA	NA	940.000	0.243	2.6E-04	NA	No	9.7E-07	No
218-01-9	Chrysene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.0893	0.554	NA	NA	32.000	0.554	1.7E-02	NA	No	6.5E-05	No
50-32-8	Benzo(a)pyrene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	0	100%			0.1	0.927	NA	NA	0.034	0.927	2.7E+01	NA	**Yes**	1.0E-01	**Yes**
53-70-3	Dibenzo(a,h)anthracene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	1	86%	0.067	0.067	0.0266	0.159	NA	NA	0.034	0.159	4.7E+00	NA	**Yes**	1.8E-02	**Yes**
56-55-3	Benzo(a)anthracene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	1	86%	0.067	0.067	0.0737	0.295	NA	NA	0.340	0.295	8.7E-01	NA	No	3.2E-03	No
83-32-9	Acenaphthene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	7	0%	0.0134	0.067			NA	NA	940.000	0.067	7.1E-05	NA	No	2.7E-07	No
85-01-8	Phenanthrene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	1	86%	0.067	0.067	0.0473	0.409	NA	NA	460.000	0.409	8.9E-04	NA	No	3.3E-06	No
86-73-7	Fluorene	PAHs	mg/kg	4/17/2001	1/17/2002	0	4	7	7	0%	0.0134	0.067			NA	NA	630.000	0.067	1.1E-04	NA	No	4.0E-07	No
91-20-3	Naphthalene	PAHs	mg/kg	10/19/1995	1/17/2002	0	4	11	10	9%	0.0134	0.2	0.228	0.228	NA	NA	25.000	0.228	9.1E-03	NA	No	3.4E-05	No
91-57-6	2-Methylnaphthalene	PAHs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	23.000	1.650	7.2E-02	NA	No	2.7E-04	No
BKBFLANTH	Benzo(b+k)fluoranthene	PAHs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	0.340	1.650	4.9E+00	NA	**Yes**	1.8E-02	**Yes**
50-00-0	Formaldehyde	Pesticides	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	2	2			NA	NA	31000.000	2.000	6.5E-05	NA	No	2.4E-07	No
DRH	Diesel Range Hydrocarbons	Petroleum	mg/kg	4/17/2001	5/10/2001	0	4	12	12	0%	25	250			NA	NA	220.000	250.000	1.1E+00	NA	**Yes**	4.3E-03	No
ORH	Oil Range Hydrocarbons	Petroleum	mg/kg	4/17/2001	5/10/2001	0	4	12	5	58%	50	50	52.5	1040	NA	NA	NA	1040.000	NA	**?PRG**	No	NA	No
100-02-7	4-Nitrophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	5			NA	NA	NA	5.000	NA	**?PRG**	No	NA	No
105-67-9	2,4-Dimethylphenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	5			NA	NA	120.000	5.000	4.2E-02	NA	No	1.6E-04	No
108-95-2	Phenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	1800.000	2.000	1.1E-03	NA	No	4.2E-06	No

APPENDIX D-1-1 Human Health Soil Summary and Concentration Risk Screening - West Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
120-83-2	2,4-Dichlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	18.000	2.000	1.1E-01	NA	No	4.2E-04	No
1319-77-3	Cresol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	2	4			NA	NA	610.000	4.000	6.6E-03	NA	No	2.5E-05	No
25167-83-3	Tetrachlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	1	2			NA	NA	180.000	2.000	1.1E-02	NA	No	4.2E-05	No
51-28-5	2,4-Dinitrophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	2.5	10			NA	NA	12.000	10.000	8.3E-01	NA	No	3.1E-03	No
534-52-1	4,6-Dinitro-2-methylphenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	1	2			NA	NA	NA	2.000	NA	**?PRG**	No	NA	No
59-50-7	4-Chloro-3-methylphenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	NA	2.000	NA	**?PRG**	No	NA	No
87-65-0	2,6-Dichlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	1	2			NA	NA	18.000	2.000	1.1E-01	NA	No	4.2E-04	No
87-86-5	Pentachlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	5			NA	NA	2.400	5.000	2.1E+00	NA	**Yes**	7.8E-03	**Yes**
88-06-2	2,4,6-Trichlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	12.000	2.000	1.7E-01	NA	No	6.2E-04	No
88-75-5	2-Nitrophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	NA	2.000	NA	**?PRG**	No	NA	No
95-48-7	2-Methylphenol	Phenols	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	310.000	1.650	5.3E-03	NA	No	2.0E-05	No
95-57-8	2-Chlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	NA	2.000	NA	**?PRG**	No	NA	No
95-95-4	2,4,5-Trichlorophenol	Phenols	mg/kg	4/17/2001	5/10/2001	1.5	4	3	3	0%	1	2			NA	NA	610.000	2.000	3.3E-03	NA	No	1.2E-05	No
C_3+4MPHN	3- and 4-Methylphenol Coelution	Phenols	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
117-81-7	Bis(2-ethylhexyl) phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	10	10			NA	NA	93.000	10.000	1.1E-01	NA	No	4.0E-04	No
117-84-0	Di-n-octyl phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900.000	1.650	3.4E-04	NA	No	1.3E-06	No
131-11-3	Dimethyl phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900.000	1.650	3.4E-04	NA	No	1.3E-06	No
84-66-2	Diethyl phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900.000	1.650	3.4E-04	NA	No	1.3E-06	No
84-74-2	Dibutyl phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	610.000	5.000	8.2E-03	NA	No	3.1E-05	No
85-68-7	Butylbenzyl phthalate	Phthalates	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	260.000	1.650	6.3E-03	NA	No	2.4E-05	No
100-01-6	4-Nitroaniline	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	24.000	1.650	6.9E-02	NA	No	2.6E-04	No
100-51-6	Benzyl alcohol	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	610.000	1.650	2.7E-03	NA	No	1.0E-05	No
101-55-3	4-Bromophenyl phenyl ether	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
106-46-7	1,4-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.005	5			NA	NA	62.000	5.000	8.1E-02	NA	No	3.0E-04	No
106-47-8	4-Chloroaniline	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	10	10			NA	NA	2.400	10.000	4.2E+00	NA	**Yes**	1.6E-02	**Yes**
111-44-4	Bis(2-chloroethyl) ether	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	0.210	1.650	7.9E+00	NA	**Yes**	2.9E-02	**Yes**
111-91-1	Bis(2-chloroethoxy) methane	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	18.000	1.650	9.2E-02	NA	No	3.4E-04	No
118-74-1	Hexachlorobenzene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	0.840	1.650	2.0E+00	NA	**Yes**	7.4E-03	**Yes**
120-82-1	1,2,4-Trichlorobenzene	SVOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.02	1.65			NA	NA	2.200	1.650	7.5E-01	NA	No	2.8E-03	No
121-14-2	2,4-Dinitrotoluene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	2.5	2.5			NA	NA	1.600	2.500	1.6E+00	NA	**Yes**	5.8E-03	No
132-64-9	Dibenzofuran	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	7.800	1.650	2.1E-01	NA	No	7.9E-04	No
39638-32-9	Bis(2-chloroisopropyl) ether	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4.600	1.650	3.6E-01	NA	No	1.3E-03	No
541-73-1	1,3-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.005	5			NA	NA	4400.000	5.000	1.1E-03	NA	No	4.3E-06	No
606-20-2	2,6-Dinitrotoluene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	2.5	2.5			NA	NA	12.000	2.500	2.1E-01	NA	No	7.8E-04	No
621-64-7	N-Nitrosodipropylamine	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
65-85-0	Benzoic acid	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	24000.000	5.000	2.1E-04	NA	No	7.8E-07	No
67-72-1	Hexachloroethane	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	6.600	5.000	7.6E-01	NA	No	2.8E-03	No
7005-72-3	4-Chlorophenyl phenyl ether	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
77-47-4	Hexachlorocyclopentadiene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	37.000	5.000	1.4E-01	NA	No	5.1E-04	No
78-59-1	Isophorone	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	510.000	1.650	3.2E-03	NA	No	1.2E-05	No
86-30-6	N-Nitrosodiphenylamine	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	99.000	1.650	1.7E-02	NA	No	6.2E-05	No
87-68-3	Hexachlorobutadiene	SVOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.02	5			NA	NA	0.620	5.000	8.1E+00	NA	**Yes**	3.0E-02	**Yes**
88-74-4	2-Nitroaniline	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	61.000	1.650	2.7E-02	NA	No	1.0E-04	No
91-58-7	2-Chloronaphthalene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	630.000	1.650	2.6E-03	NA	No	9.8E-06	No
91-94-1	3,3'-Dichlorobenzidine	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	1.100	5.000	4.5E+00	NA	**Yes**	1.7E-02	**Yes**
95-50-1	1,2-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.005	5			NA	NA	440.000	5.000	1.1E-02	NA	No	4.3E-05	No
98-95-3	Nitrobenzene	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4.800	1.650	3.4E-01	NA	No	1.3E-03	No
99-09-2	3-Nitroaniline	SVOCs	mg/kg	4/17/2001	4/17/2001	1.5	2	1	1	0%	5	5			NA	NA	61.000	5.000	8.2E-02	NA	No	3.1E-04	No
100-41-4	Ethylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	110.000	0.100	9.1E-04	NA	No	3.4E-06	No
100-42-5	Styrene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1600.000	0.100	6.3E-05	NA	No	2.3E-07	No

APPENDIX D-1-1 Human Health Soil Summary and Concentration Risk Screening - West Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
10061-01-5	cis-1,3-Dichloropropene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1.700	0.100	5.9E-02	NA	No	2.2E-04	No
10061-02-6	trans-1,3-Dichloropropene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1.700	0.100	5.9E-02	NA	No	2.2E-04	No
103-65-1	n-Propylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	340.000	0.100	2.9E-04	NA	No	1.1E-06	No
104-51-8	n-Butylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.5			NA	NA	390.000	0.500	1.3E-03	NA	No	4.8E-06	No
106-43-4	4-Chlorotoluene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	160.000	0.100	6.3E-04	NA	No	2.3E-06	No
106-93-4	Ethylene dibromide	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	0.034	0.100	2.9E+00	NA	**Yes**	1.1E-02	**Yes**
107-06-2	1,2-Dichloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	12.000	0.100	8.3E-03	NA	No	3.1E-05	No
108-10-1	Methyl isobutyl ketone	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.5			NA	NA	530.000	0.500	9.4E-04	NA	No	3.5E-06	No
108-67-8	1,3,5-Trimethylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	160.000	0.100	6.3E-04	NA	No	2.3E-06	No
108-86-1	Bromobenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	30.000	0.100	3.3E-03	NA	No	1.2E-05	No
108-88-3	Toluene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1200.000	0.100	8.3E-05	NA	No	3.1E-07	No
108-90-7	Chlorobenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	110.000	0.100	9.1E-04	NA	No	3.4E-06	No
124-48-1	Chlorodibromomethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	12.000	0.100	8.3E-03	NA	No	3.1E-05	No
127-18-4	Tetrachloroethene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	54.000	0.100	1.9E-03	NA	No	6.9E-06	No
1330-20-7	Xylene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.2			NA	NA	290.000	0.200	6.9E-04	NA	No	2.6E-06	No
135-98-8	Sec-butylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	390.000	0.100	2.6E-04	NA	No	9.6E-07	No
142-28-9	1,3-Dichloropropane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	160.000	0.100	6.3E-04	NA	No	2.3E-06	No
156-59-2	cis-1,2-Dichloroethene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	31.000	0.100	3.2E-03	NA	No	1.2E-05	No
156-60-5	trans-1,2-Dichloroethene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	120.000	0.100	8.3E-04	NA	No	3.1E-06	No
1634-04-4	Methyl tert-butyl ether	VOCs	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	0.1	0.1			NA	NA	720.000	0.100	1.4E-04	NA	No	5.2E-07	No
179601-23-1	m,p-Xylene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.2			NA	NA	290.000	0.200	6.9E-04	NA	No	2.6E-06	No
56-23-5	Carbon tetrachloride	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	20.000	0.100	5.0E-03	NA	No	1.9E-05	No
563-58-6	1,1-Dichloropropene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1.700	0.100	5.9E-02	NA	No	2.2E-04	No
591-78-6	Methyl n-butyl ketone	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	5	5	0%	0.02	5			NA	NA	21.000	5.000	2.4E-01	NA	No	8.9E-04	No
594-20-7	2,2-Dichloropropane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	NA	0.100	NA	**?PRG**	No	NA	No
630-20-6	1,1,1,2-Tetrachloroethane	VOCs	mg/kg	4/17/2001	5/10/2001	1.5	4	2	2	0%	0.1	0.1			NA	NA	1.900	0.100	5.3E-02	NA	No	2.0E-04	No
67-64-1	Acetone	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.05	1			NA	NA	6100.000	1.000	1.6E-04	NA	No	6.1E-07	No
67-66-3	Chloroform	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	22.000	0.100	4.5E-03	NA	No	1.7E-05	No
71-43-2	Benzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	24.000	0.100	4.2E-03	NA	No	1.6E-05	No
71-55-6	1,1,1-Trichloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	11000.000	0.100	9.1E-06	NA	No	3.4E-08	No
74-83-9	Bromomethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.5			NA	NA	9.200	0.500	5.4E-02	NA	No	2.0E-04	No
74-87-3	Chloromethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.5			NA	NA	290.000	0.500	1.7E-03	NA	No	6.5E-06	No
74-95-3	Methylene bromide	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	2.500	0.100	4.0E-02	NA	No	1.5E-04	No
74-97-5	Bromochloromethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1.200	0.100	8.3E-02	NA	No	3.1E-04	No
75-00-3	Chloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	32000.000	0.100	3.1E-06	NA	No	1.2E-08	No
75-01-4	Vinyl chloride	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.760	0.100	1.3E-01	NA	No	4.9E-04	No
75-09-2	Methylene chloride	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	3	25%	0.01	0.5	0.013	0.013	NA	NA	5.600	0.013	2.3E-03	NA	No	8.7E-06	No
75-15-0	Carbon disulfide	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	1			NA	NA	82.000	1.000	1.2E-02	NA	No	4.6E-05	No
75-25-2	Bromoform	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	170.000	0.100	5.9E-04	NA	No	2.2E-06	No
75-27-4	Bromodichloromethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.270	0.100	3.7E-01	NA	No	1.4E-03	No
75-34-3	1,1-Dichloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	190.000	0.100	5.3E-04	NA	No	2.0E-06	No
75-35-4	1,1-Dichloroethene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	350.000	0.100	2.9E-04	NA	No	1.1E-06	No
75-69-4	Trichlorofluoromethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	1500.000	0.100	6.7E-05	NA	No	2.5E-07	No
75-71-8	Dichlorodifluoromethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.5			NA	NA	9.400	0.500	5.3E-02	NA	No	2.0E-04	No
78-87-5	1,2-Dichloropropane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.940	0.100	1.1E-01	NA	No	4.0E-04	No
78-93-3	Methylethyl ketone	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	1			NA	NA	2800.000	1.000	3.6E-04	NA	No	1.3E-06	No
79-00-5	1,1,2-Trichloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.630	0.100	1.6E-01	NA	No	5.9E-04	No
79-01-6	Trichloroethene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	17.000	0.100	5.9E-03	NA	No	2.2E-05	No
79-34-5	1,1,2,2-Tetrachloroethane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.560	0.100	1.8E-01	NA	No	6.7E-04	No
87-61-6	1,2,3-Trichlorobenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	4.900	0.100	2.0E-02	NA	No	7.6E-05	No
95-47-6	o-Xylene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	69.000	0.100	1.4E-03	NA	No	5.4E-06	No

APPENDIX D-1-1 Human Health Soil Summary and Concentration Risk Screening - West Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
95-49-8	2-Chlorotoluene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	160.000	0.100	6.3E-04	NA	No	2.3E-06	No
95-63-6	1,2,4-Trimethylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	22.000	0.100	4.5E-03	NA	No	1.7E-05	No
96-12-8	1,2-Dibromo-3-chloropropane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.5			NA	NA	0.005	0.500	9.3E+01	NA	**Yes**	3.5E-01	**Yes**
96-18-4	1,2,3-Trichloropropane	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.005	0.1			NA	NA	0.005	0.100	2.0E+01	NA	**Yes**	7.5E-02	**Yes**
98-06-6	tert-Butylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.1			NA	NA	390.000	0.100	2.6E-04	NA	No	9.6E-07	No
98-82-8	Isopropylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.2			NA	NA	700.000	0.200	2.9E-04	NA	No	1.1E-06	No
99-87-6	1-Methyl-4-isopropylbenzene	VOCs	mg/kg	10/19/1995	5/10/2001	0	4	4	4	0%	0.02	0.2			NA	NA	NA	0.200	NA	**?PRG**	No	NA	No

Notes:

Refer to tables and figures for a description of the soil locations included for each exposure unit.

1 - Refer to Table 2-1 for background and screening level source information.

2 - Chemicals were only flageed with "?PRG" if there was neither an DEQ RBC value or an EPA residential RSL value.

Tj = Sum of toxicity ratios for all COIs in medium j 267.208

Nij = Number of i COIs in medium j 143.000

1/Nij= 0.007

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available
<5%D - less than 5% detection frequency
?PRG - no criteria available

SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

APPENDIX D-1-2 Human Health Soil Summary with 90UCLs and Concentration Risk Screening- West Parcel Upland Exposure Unit

Candidate COPCs			Depth Range (ft)		Number of Samples	Number of Non-detects	Detected Concentrations		COI Conc. Max[1]	Background Levels[2]	Selected SLV (mg/kg)[2]	COI Concentration (90UCL) - based on information from Composite Samples				Risk Ratio for Individual COI	Max COI Conc. Exceeds SLV - Individual COI Risk? (HQ=1)	COI Concentration (90UCL) - based on information from Discrete Samples				Risk Ratio for Individual COI	Max COI Conc. Exceeds SLV - Individual COI Risk? (HQ=1)
			Min	Max			Min	Max		Natural Background Soil Concs (mg/kg)	Urban Resident (DEQ)/ Resident (RSL)												
CASNo	Analyte	Units										n	Cij	Dist.	Estimation Method	Rij		n	Cij	Dist.	Estimation Method	Rij	
96-18-4	1,2,3-Trichloropropane	mg/kg	0	4	4	4	--	--	0.1	NA	0.005	0	nc	--	No data	--	--	4	nc	--	No detected values	--	--
96-12-8	1,2-Dibromo-3-chloropropane	mg/kg	0	4	4	4	--	--	0.5	NA	0.005	0	nc	--	No data	--	--	4	nc	--	No detected values	--	--
121-14-2	2,4-Dinitrotoluene	mg/kg	1.5	2	1	1	--	--	2.5	NA	1.6	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--
91-94-1	3,3'-Dichlorobenzidine	mg/kg	1.5	2	1	1	--	--	5	NA	1.1	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--
106-47-8	4-Chloroaniline	mg/kg	1.5	2	1	1	--	--	10	NA	2.4	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--
7440-36-0	Antimony	mg/kg	0	3.8	3	3	--	--	10	0.56	3.1	0	nc	--	No data	--	--	3	nc	--	No detected values	--	--
7440-38-2	Arsenic	mg/kg	0	4	5	0	2.63	5.36	5.36	8.8	1	0	nc	--	No data	--	--	5	4.35	Normal	90% Student's-t UCL	4.35	**Yes**
BAPEQ	Total BaPEq	mg/kg	0	4	7	0	0.1172	1.267	1.267134	NA	0.034	0	nc	--	No data	--	--	7	0.66	Normal	90% Student's-t UCL	19.38	**Yes**
50-32-8	Benzo(a)pyrene	mg/kg	0	4	7	0	0.1	0.927	0.927	NA	0.034	0	nc	--	No data	--	--	7	0.54	Gamma	90% Approx. Gamma UCL	15.85	**Yes**
205-99-2	Benzo(b)fluoranthene	mg/kg	0	4	7	0	0.0919	0.726	0.726	NA	0.34	0	nc	--	No data	--	--	7	0.40	Normal	90% Student's-t UCL	1.19	**Yes**
111-44-4	Bis(2-chloroethyl) ether	mg/kg	1.5	2	1	1	--	--	1.65	NA	0.21	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--
7440-43-9	Cadmium	mg/kg	0	4	4	4	--	--	42.7	0.63	7.8	0	nc	--	No data	--	--	4	nc	--	No detected values	--	--
53-70-3	Dibenzo(a,h)anthracene	mg/kg	0	4	7	1	0.0266	0.159	0.159	NA	0.034	0	nc	--	No data	--	--	7	0.09	Normal	90% KM (t) UCL	2.76	**Yes**
DRH	Diesel Range Hydrocarbons	mg/kg	0	4	12	12	--	--	250	NA	220	0	nc	--	No data	--	--	12	nc	--	No detected values	--	--
106-93-4	Ethylene dibromide	mg/kg	0	4	4	4	--	--	0.1	NA	0.034	0	nc	--	No data	--	--	4	nc	--	No detected values	--	--
118-74-1	Hexachlorobenzene	mg/kg	1.5	2	1	1	--	--	1.65	NA	0.840	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--
87-68-3	Hexachlorobutadiene	mg/kg	0	4	5	5	--	--	5	NA	0.62	0	nc	--	No data	--	--	5	nc	--	No detected values	--	--
193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	0	4	7	0	0.0704	0.724	0.724	NA	0.34	0	nc	--	No data	--	--	7	0.39	Normal	90% Student's-t UCL	1.13	**Yes**
7439-92-1	Lead	mg/kg	0	4	5	0	9.81	95	95	79	40	0	nc	--	No data	--	--	5	103.40	Gamma	90% Approx. Gamma UCL	2.59	**Yes**
87-86-5	Pentachlorophenol	mg/kg	1.5	4	3	3	--	--	5	NA	2.4	0	nc	--	No data	--	--	3	nc	--	No detected values	--	--
7440-28-0	Thallium	mg/kg	0	3.8	3	3	--	--	1	5.2	0.078	0	nc	--	No data	--	--	3	nc	--	No detected values	--	--

Notes:

1 - Maximum detected concentration presented, if available. If not, maximum non-detected concentration presented.

2 - Refer to Table 2-1 for background and screening level source information.

3 - Benzo(b+k)fluoranthene was not further analyzed due to the low sample number (1); it was better represented by Benzo(k)fluoranthene and Benzo(b)fluoranthene.

Data summary (minimums and maximums) based on all available samples (i.e., discrete and composite samples).

90UCLs calculated separately using available discrete or composite soil data. 90UCL values are not provided in cases where: 1) all concentrations were non-detected 2) There were too few samples for proUCL to calculate a 90UCL.

If a candidate COPC didn't have any detected values, then no 90UCL was calculated.

90UCLs were calculated using USEPA ProUCL software, version 4.1.01.

90UCL - 90th upper confidence limit
mg/kg - milligram per kilogram
min - minimum
max - maximum
COI - constituent of interest

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Level
n - sample size

APPENDIX D-2-1 Human Health Soil Summary and Concentration Risk Screening- Central Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLVs (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without Criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
11096-82-5	Aroclor 1260	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	18	10%	0.0058	0.134	0.13	0.21	NA	NA	0.22	0.210	9.5E-01	NA	No	2.3E-04	No
11097-69-1	Aroclor 1254	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.0029	0.134			NA	NA	0.22	0.134	6.1E-01	NA	No	1.5E-04	No
11100-14-4	Aroclor 1268	Aroclors	mg/kg	12/27/2007	10/4/2010	0	0.8	14	14	0%	0.0016	0.01			NA	NA	0.22	0.010	4.5E-02	NA	No	1.1E-05	No
11104-28-2	Aroclor 1221	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.0027	0.3			NA	NA	0.14	0.300	2.1E+00	NA	**Yes**	5.2E-04	No
11141-16-5	Aroclor 1232	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.0037	0.1			NA	NA	0.14	0.100	7.1E-01	NA	No	1.7E-04	No
12672-29-6	Aroclor 1248	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.0047	0.1			NA	NA	0.22	0.100	4.5E-01	NA	No	1.1E-04	No
12674-11-2	Aroclor 1016	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.004	0.1			NA	NA	3.9	0.100	2.6E-02	NA	No	6.2E-06	No
12767-79-2	Aroclors	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	18	10%	0.0058	0.3	0.13	0.21	NA	NA	0.31	0.210	6.8E-01	NA	No	1.6E-04	No
37324-23-5	Aroclor 1262	Aroclors	mg/kg	12/27/2007	10/4/2010	0	0.8	14	14	0%	0.0034	0.01			NA	NA	0.22	0.0	4.5E-02	NA	No	1.1E-05	No
53469-21-9	Aroclor 1242	Aroclors	mg/kg	10/19/1995	10/4/2010	0	0.8	20	20	0%	0.005	0.1			NA	NA	0.22	0.1	4.5E-01	NA	No	1.1E-04	No
30402-14-3	Tetrachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			0.000079	0.016	NA	NA	NA	0.0		NA	No	0.0E+00	No
30402-15-4	Pentachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			0.00014	0.15	NA	NA	NA	0.150		NA	No	0.0E+00	No
3268-87-9	Octachlorodibenzo-p-dioxin	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			2.40E-04	6.30E-04	NA	NA	NA	0.0		NA	No	0.0E+00	No
34465-46-8	Hexachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			6.00E-04	7.30E-03	NA	NA	0.000094	0.007		NA	No	0.0E+00	No
36088-22-9	Pentachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			5.30E-05	3.70E-03	NA	NA	NA	0.004		NA	No	0.0E+00	No
37871-00-4	Heptachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			2.60E-03	6.00E-03	NA	NA	NA	0.0		NA	No	0.0E+00	No
38998-75-3	Heptachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			5.00E-04	6.30E-03	NA	NA	NA	0.006		NA	No	0.0E+00	No
39001-02-0	Octachlorodibenzofuran	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			7.50E-03	2.70E-02	NA	NA	NA	0.027		NA	No	0.0E+00	No
41903-57-5	Tetrachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			3.50E-05	8.90E-04	NA	NA	NA	0.001		NA	No	0.0E+00	No
55684-94-1	Hexachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			5.70E-04	9.30E-02	NA	NA	NA	0.093		NA	No	0.0E+00	No
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	1	75%	1.90E-06	1.90E-06	1.00E-06	2.40E-05	NA	NA	0.000012	0.000		NA	No	0.0E+00	No
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			2.90E-05	4.30E-04	NA	NA	NA	0.000		NA	No	0.0E+00	No
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			0.0012	0.0031	NA	NA	NA	0.003		NA	No	0.0E+00	No
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			0.000015	0.00015	NA	NA	NA	0.000		NA	No	0.0E+00	No
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			8.50E-06	2.40E-04	NA	NA	NA	0.000		NA	No	0.0E+00	No
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	3	25%	1.60E-06	5.30E-06	5.00E-06	5.00E-06	NA	NA	NA	0.000		NA	No	0.0E+00	No
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			0.000016	0.00034	NA	NA	NA	0.000		NA	No	0.0E+00	No
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			8.30E-06	1.60E-02	NA	NA	NA	0.016		NA	No	0.0E+00	No
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	3	25%	9.58E-07	5.70E-06	5.80E-06	5.80E-06	NA	NA	NA	0.000		NA	No	0.0E+00	No
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	3	25%	5.00E-07	4.60E-06	1.30E-05	1.30E-05	NA	NA	NA	0.000		NA	No	0.0E+00	No
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			1.10E-04	6.80E-04	NA	NA	NA	0.001		NA	No	0.0E+00	No
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			1.30E-05	3.20E-03	NA	NA	NA	0.003		NA	No	0.0E+00	No
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			2.10E-04	2.30E-03	NA	NA	NA	0.002		NA	No	0.0E+00	No
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			2.20E-05	1.40E-03	NA	NA	NA	0.001		NA	No	0.0E+00	No
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			1.40E-05	1.00E-03	NA	NA	NA	0.001		NA	No	0.0E+00	No
TEQ_DIOXIN.0	Dioxin/furan TCDD toxicity equivalent (ND = 0)	Dioxins_Furans	mg/kg	10/1/2010	10/1/2010	0.25	0.8	4	0	100%			8.00E-05	5.70E-03	NA	NA	0.000012	0.006		NA	No	0.0E+00	No
7439-92-1	Lead	Metals	mg/kg	10/19/1995	10/4/2010	0	4	76	1	99%	20	20	2.57E+00	4.04E+03	79	**Yes**	40	4040.000	1.0E+02	NA	**Yes**	2.4E-02	**Yes**
7439-97-6	Mercury	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	63	9	86%	9.41E-02	1.09E-01	3.30E-02	2.02E+01	0.23	**Yes**	4.7	20.200	4.3E+00	NA	**Yes**	1.0E-03	No
7440-02-0	Nickel	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	53	0	100%			1.42E+01	1.44E+02	47	**Yes**	310	144.000	4.6E-01	NA	No	1.1E-04	No
7440-22-4	Silver	Metals	mg/kg	4/17/2001	10/4/2010	0	2.5	29	4	86%	0.5	1	7.40E-02	2.80E+00	0.82	**Yes**	78	2.800	3.6E-02	NA	No	8.7E-06	No
7440-28-0	Thallium	Metals	mg/kg	4/17/2001	10/4/2010	0	2.5	29	4	86%	0.5	0.5	0.039	0.77	5.2	No	0.078	0.770	9.9E+00	NA	**Yes**	2.4E-03	No
7440-36-0	Antimony	Metals	mg/kg	4/17/2001	10/4/2010	0	2.5	29	9	69%	0.18	0.5	0.21	29.9	0.56	**Yes**	3.1	29.900	9.6E+00	NA	**Yes**	2.3E-03	No
7440-38-2	Arsenic	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	63	0	100%			1.76	40.3	8.8	**Yes**	1	40.300	4.0E+01	NA	**Yes**	9.7E-03	**Yes**
7440-41-7	Beryllium	Metals	mg/kg	4/17/2001	10/4/2010	0	2.5	29	3	90%	0.5	0.5	0.19	3.33	2	**Yes**	31	3.330	1.1E-01	NA	No	2.6E-05	No
7440-43-9	Cadmium	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	40	17	58%	0.017	5	0.057	1.9	0.63	**Yes**	7.8	1.900	2.4E-01	NA	No	5.9E-05	No
7440-47-3	Chromium	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	62	0	100%			11	110	76	**Yes**	23000	110.000	4.8E-03	NA	No	1.2E-06	No
7440-50-8	Copper	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	63	0	100%			15	5440	34	**Yes**	620	5440.000	8.8E+00	NA	**Yes**	2.1E-03	No
7440-66-6	Zinc	Metals	mg/kg	4/16/2001	10/4/2010	0	2.5	63	0	100%			46.4	1460	180	**Yes**	2300	1460.000	6.3E-01	NA	No	1.5E-04	No
7782-49-2	Selenium	Metals	mg/kg	4/17/2001	10/4/2010	0	2.5	29	13	55%	0.1	0.5	0.096	1.8	0.71	**Yes**	39	1.800	4.6E-02	NA	No	1.1E-05	No
120-12-7	Anthracene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	15	67%	0.005	0.195	0.0017	8.65	NA	NA	4700	8.650	1.8E-03	NA	No	4.4E-07	No
129-00-0	Pyrene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.0082	52.1	NA	NA	340	52.100	1.5E-01	NA	No	3.7E-05	No
130498-29-2	Total PAHs	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.05651	367.08	NA	NA	NA	367.080	NA	**?PRG**	No	NA	No
BAPEQ	Total BaPEq	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.008017	63.6111	NA	NA	0.034	63.611	1.9E+03	NA	**Yes**	4.5E-01	**Yes**
HPAH	High Molecular Weight PAH	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.04971	324.43	NA	NA	NA	324.430	NA	**?PRG**	No	NA	No
LPAH	Low Molecular Weight PAH	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	5	89%	0.005	0.067	0.004	45.78	NA	NA	NA	45.780	NA	**?PRG**	No	NA	No
191-24-2	Benzo(g,h,i)perylene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	3	93%	0.005	0.0154	0.0065	44.3	NA	NA	340	44.300	1.3E-01	NA	No	3.1E-05	No
193-39-5	Indeno(1,2,3-cd)pyrene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	3	93%	0.005	0.0154	0.0035	27.9	NA	NA	0.34	27.900	8.2E+01	NA	**Yes**	2.0E-02	**Yes**
205-99-2	Benzo(b)fluoranthene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.00076	0.0154	0.0045	27.5	NA	NA	0.34	27.500	8.1E+01	NA	**Yes**	2.0E-02	**Yes**
206-44-0	Fluoranthene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.0073	30.3	NA	NA	460	30.300	6.6E-02	NA	No	1.6E-05	No
207-08-9	Benzo(k)fluoranthene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	5	89%	0.005	0.67	0.0043	24.2	NA	NA	3.4	24.200	7.1E+00	NA	**Yes**	1.7E-03	No
208-96-8	Acenaphthylene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	16	65%	0.00088	0.195	0.0012	12.2	NA	NA	940	12.200	1.3E-02	NA	No	3.1E-06	No

APPENDIX D-2-1 Human Health Soil Summary and Concentration Risk Screening- Central Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLVs (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without Criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
218-01-9	Chrysene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.0041	39.1	NA	NA	32	39.100	1.2E+00	NA	**Yes**	2.9E-04	No
50-32-8	Benzo(a)pyrene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	2	96%	0.005	0.0154	0.0059	46.3	NA	NA	0.034	46.300	1.4E+03	NA	**Yes**	3.3E-01	**Yes**
53-70-3	Dibenzo(a,h)anthracene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	9	80%	0.005	0.195	0.00081	9.13	NA	NA	0.034	9.130	2.7E+02	NA	**Yes**	6.5E-02	**Yes**
56-55-3	Benzo(a)anthracene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	4	91%	0.005	0.168	0.0046	23.6	NA	NA	0.34	23.600	6.9E+01	NA	**Yes**	1.7E-02	**Yes**
83-32-9	Acenaphthene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	35	24%	0.0016	8.38	0.0021	0.137	NA	NA	940	0.137	1.5E-04	NA	No	3.5E-08	No
85-01-8	Phenanthrene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	6	87%	0.005	0.067	0.0039	21.8	NA	NA	460	21.800	4.7E-02	NA	No	1.1E-05	No
86-73-7	Fluorene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	46	33	28%	0.0019	8.38	0.0025	0.37	NA	NA	630	0.370	5.9E-04	NA	No	1.4E-07	No
90-12-0	1-Methylnaphthalene	PAHs	mg/kg	10/1/2010	10/4/2010	0	2.5	16	5	69%	0.0009	0.005	0.0015	0.0838	NA	NA	16	0.084	5.2E-03	NA	No	1.3E-06	No
91-20-3	Naphthalene	PAHs	mg/kg	4/16/2001	10/4/2010	0	2.5	48	23	52%	0.0019	8.38	0.002	1.07	NA	NA	25	1.070	4.3E-02	NA	No	1.0E-05	No
91-57-6	2-Methylnaphthalene	PAHs	mg/kg	4/17/2001	10/4/2010	0	2.5	18	5	72%	0.0019	0.66	0.0019	3.13	NA	NA	23	3.130	1.4E-01	NA	No	3.3E-05	No
BKBFLANTH	Benzo(b+k)fluoranthene	PAHs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	1	50%	0.66	0.66	18.89	18.89	NA	NA	0.34	18.890	5.6E+01	NA	**Yes**	1.3E-02	**Yes**
1024-57-3	Heptachlor epoxide	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.14	0.007	4.8E-02	NA	No	1.2E-05	No
1031-07-8	Endosulfan sulfate	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	73	0.007	9.2E-05	NA	No	2.2E-08	No
12789-03-6	Chlordane (technical)	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.15	0.15			NA	NA	4.2	0.150	3.6E-02	NA	No	8.6E-06	No
309-00-2	Aldrin	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.072	0.007	9.3E-02	NA	No	2.2E-05	No
319-84-6	alpha-Hexachlorocyclohexane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.2	0.007	3.4E-02	NA	No	8.1E-06	No
319-85-7	beta-Hexachlorocyclohexane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.27	0.007	2.5E-02	NA	No	6.0E-06	No
319-86-8	delta-Hexachlorocyclohexane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	NA	0.007	NA	**?PRG**	No	NA	No
33213-65-9	beta-Endosulfan	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	73	0.007	9.2E-05	NA	No	2.2E-08	No
50-29-3	4,4'-DDT	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	4.5	0.007	1.5E-03	NA	No	3.6E-07	No
PP_DDT3ISO	Total of 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	4.5	0.007	1.5E-03	NA	No	3.6E-07	No
5103-71-9	cis-Chlordane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	1.6	0.007	4.2E-03	NA	No	1.0E-06	No
53494-70-5	Endrin ketone	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	1.8	0.007	3.7E-03	NA	No	9.0E-07	No
5566-34-7	gamma-Chlordane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	1.6	0.007	4.2E-03	NA	No	1.0E-06	No
58-89-9	gamma-Hexachlorocyclohexane	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	1.1	0.007	6.1E-03	NA	No	1.5E-06	No
60-57-1	Dieldrin	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.08	0.007	8.4E-02	NA	No	2.0E-05	No
72-20-8	Endrin	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	3.7	0.007	1.8E-03	NA	No	4.4E-07	No
72-43-5	Methoxychlor	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	31	0.007	2.2E-04	NA	No	5.2E-08	No
72-54-8	4,4'-DDD	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	6.4	0.007	1.0E-03	NA	No	2.5E-07	No
72-55-9	4,4'-DDE	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	4.5	0.007	1.5E-03	NA	No	3.6E-07	No
7421-93-4	Endrin aldehyde	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	1.8	0.007	3.7E-03	NA	No	9.0E-07	No
76-44-8	Heptachlor	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	0.28	0.007	2.4E-02	NA	No	5.8E-06	No
8001-35-2	Toxaphene	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.2	0.2			NA	NA	1.2	0.200	1.7E-01	NA	No	4.0E-05	No
959-98-8	alpha-Endosulfan	Pesticides	mg/kg	4/17/2001	5/7/2001	0	2	3	3	0%	0.0067	0.0067			NA	NA	73	0.007	9.2E-05	NA	No	2.2E-08	No
DRH	Diesel Range Hydrocarbons	Petroleum	mg/kg	4/16/2001	10/1/2010	0	4	20	12	40%	25	125	30.8	2390	NA	NA	220	2390.000	1.1E+01	NA	**Yes**	2.6E-03	No
DRH (SGT)	Diesel Range Hydrocarbons (silica gel treated)	Petroleum	mg/kg	10/1/2010	10/1/2010	0.25	0.8	1	0	100%			72.3	72.3	NA	NA	220	72.300	3.3E-01	NA	No	7.9E-05	No
GRH	Gasoline Range Hydrocarbons	Petroleum	mg/kg	10/1/2010	10/1/2010	0.25	0.8	1	1	0%	20.5	20.5			NA	NA	250	20.500	8.2E-02	NA	No	2.0E-05	No
M09800000	Motor oil	Petroleum	mg/kg	10/1/2010	10/1/2010	0.25	0.8	1	0	100%			738	738	NA	NA	NA	738.000	NA	**?PRG**	No	NA	No
M09800000 (SGT	Motor oil (silica gel treated)	Petroleum	mg/kg	10/1/2010	10/1/2010	0.25	0.8	1	0	100%			388	388	NA	NA	NA	388.000	NA	**?PRG**	No	NA	No
ORH	Oil Range Hydrocarbons	Petroleum	mg/kg	4/16/2001	1/17/2002	0	4	19	5	74%	50	50	69.6	5960	NA	NA	NA	5960.000	NA	**?PRG**	No	NA	No
100-02-7	4-Nitrophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2	5			NA	NA	NA	5.000	NA	**?PRG**	No	NA	No
105-67-9	2,4-Dimethylphenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2	5			NA	NA	120	5.000	4.2E-02	NA	No	1.0E-05	No
108-95-2	Phenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	1800	1.650	9.2E-04	NA	No	2.2E-07	No
120-83-2	2,4-Dichlorophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	18	1.650	9.2E-02	NA	No	2.2E-05	No
51-28-5	2,4-Dinitrophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	4	10			NA	NA	12	10.000	8.3E-01	NA	No	2.0E-04	No
59-50-7	4-Chloro-3-methylphenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
87-86-5	Pentachlorophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2	5			NA	NA	2.4	5.000	2.1E+00	NA	**Yes**	5.0E-04	No
88-06-2	2,4,6-Trichlorophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	12	1.650	1.4E-01	NA	No	3.3E-05	No
88-75-5	2-Nitrophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
95-48-7	2-Methylphenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65E+00			NA	NA	310	1.650	5.3E-03	NA	No	1.3E-06	No
95-57-8	2-Chlorophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
95-95-4	2,4,5-Trichlorophenol	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	610	1.650	2.7E-03	NA	No	6.5E-07	No
C_3+4MPHN	3- and 4-Methylphenol Coelution	Phenols	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
117-81-7	Bis(2-ethylhexyl) phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	4	10			NA	NA	93	10.000	1.1E-01	NA	No	2.6E-05	No
117-84-0	Di-n-octyl phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	3.3			NA	NA	4900	3.300	6.7E-04	NA	No	1.6E-07	No
131-11-3	Dimethyl phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	4900	1.650	3.4E-04	NA	No	8.1E-08	No
84-66-2	Diethyl phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	4900	1.650	3.4E-04	NA	No	8.1E-08	No
84-74-2	Dibutyl phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2	5			NA	NA	610	5.000	8.2E-03	NA	No	2.0E-06	No
85-68-7	Butylbenzyl phthalate	Phthalates	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	260	1.650	6.3E-03	NA	No	1.5E-06	No
100-01-6	4-Nitroaniline	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	24	1.650	6.9E-02	NA	No	1.7E-05	No
100-51-6	Benzyl alcohol	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	610	1.650	2.7E-03	NA	No	6.5E-07	No

APPENDIX D-2-1 Human Health Soil Summary and Concentration Risk Screening- Central Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLVs (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without Criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
101-55-3	4-Bromophenyl phenyl ether	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
106-46-7	1,4-Dichlorobenzene	SVOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	1.00E-01	5			NA	NA	62	5.000	8.1E-02	NA	No	1.9E-05	No
106-47-8	4-Chloroaniline	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	4.00E+00	10			NA	NA	2.4	10.000	4.2E+00	NA	**Yes**	1.0E-03	No
111-44-4	Bis(2-chloroethyl) ether	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	0.21	1.650	7.9E+00	NA	**Yes**	1.9E-03	No
111-91-1	Bis(2-chloroethoxy) methane	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	18	1.650	9.2E-02	NA	No	2.2E-05	No
118-74-1	Hexachlorobenzene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	0.84	1.650	2.0E+00	NA	**Yes**	4.7E-04	No
120-82-1	1,2,4-Trichlorobenzene	SVOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	1.00E-01	1.65			NA	NA	2.2	1.650	7.5E-01	NA	No	1.8E-04	No
121-14-2	2,4-Dinitrotoluene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	1	2.5			NA	NA	1.6	2.500	1.6E+00	NA	**Yes**	3.8E-04	No
132-64-9	Dibenzofuran	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	7.8	1.650	2.1E-01	NA	No	5.1E-05	No
39638-32-9	Bis(2-chloroisopropyl) ether	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	4.6	1.650	3.6E-01	NA	No	8.7E-05	No
541-73-1	1,3-Dichlorobenzene	SVOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	0.1	5			NA	NA	4400	5.000	1.1E-03	NA	No	2.7E-07	No
606-20-2	2,6-Dinitrotoluene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	1.00E+00	2.5			NA	NA	12	2.500	2.1E-01	NA	No	5.0E-05	No
621-64-7	N-Nitrosodipropylamine	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
65-85-0	Benzoic acid	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2.00E+00	5			NA	NA	24000	5.000	2.1E-04	NA	No	5.0E-08	No
67-72-1	Hexachloroethane	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2.00E+00	5			NA	NA	6.6	5.000	7.6E-01	NA	No	1.8E-04	No
7005-72-3	4-Chlorophenyl phenyl ether	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	NA	1.650	NA	**?PRG**	No	NA	No
77-47-4	Hexachlorocyclopentadiene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2.00E+00	5			NA	NA	37	5.000	1.4E-01	NA	No	3.3E-05	No
78-59-1	Isophorone	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	6.60E-01	1.65			NA	NA	510	1.650	3.2E-03	NA	No	7.8E-07	No
86-30-6	N-Nitrosodiphenylamine	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	99	1.650	1.7E-02	NA	No	4.0E-06	No
87-68-3	Hexachlorobutadiene	SVOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	2.00E-01	5			NA	NA	0.62	5.000	8.1E+00	NA	**Yes**	1.9E-03	No
88-74-4	2-Nitroaniline	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	61	1.650	2.7E-02	NA	No	6.5E-06	No
91-58-7	2-Chloronaphthalene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	630	1.650	2.6E-03	NA	No	6.3E-07	No
91-94-1	3,3'-Dichlorobenzidine	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2.00E+00	5			NA	NA	1.1	5.000	4.5E+00	NA	**Yes**	1.1E-03	No
95-50-1	1,2-Dichlorobenzene	SVOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	1.00E-01	5			NA	NA	440	5.000	1.1E-02	NA	No	2.7E-06	No
98-95-3	Nitrobenzene	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	0.66	1.65			NA	NA	4.8	1.650	3.4E-01	NA	No	8.3E-05	No
99-09-2	3-Nitroaniline	SVOCs	mg/kg	4/17/2001	5/18/2001	0	0.5	2	2	0%	2	5			NA	NA	61	5.000	8.2E-02	NA	No	2.0E-05	No
100-41-4	Ethylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1.00E-01	0.1			NA	NA	110	0.100	9.1E-04	NA	No	2.2E-07	No
100-42-5	Styrene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1600	0.100	6.3E-05	NA	No	1.5E-08	No
10061-01-5	cis-1,3-Dichloropropene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1.7	0.100	5.9E-02	NA	No	1.4E-05	No
10061-02-6	trans-1,3-Dichloropropene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1.7	0.100	5.9E-02	NA	No	1.4E-05	No
103-65-1	n-Propylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	340	0.100	2.9E-04	NA	No	7.1E-08	No
104-51-8	n-Butylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	390	0.500	1.3E-03	NA	No	3.1E-07	No
106-43-4	4-Chlorotoluene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1.00E-01	0.1			NA	NA	160	0.100	6.3E-04	NA	No	1.5E-07	No
106-93-4	Ethylene dibromide	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.034	0.100	2.9E+00	NA	**Yes**	7.1E-04	No
107-06-2	1,2-Dichloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	12	0.100	8.3E-03	NA	No	2.0E-06	No
108-10-1	Methyl isobutyl ketone	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	530	0.500	9.4E-04	NA	No	2.3E-07	No
108-67-8	1,3,5-Trimethylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	160	0.100	6.3E-04	NA	No	1.5E-07	No
108-86-1	Bromobenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	30	0.100	3.3E-03	NA	No	8.0E-07	No
108-88-3	Toluene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1200	0.100	8.3E-05	NA	No	2.0E-08	No
108-90-7	Chlorobenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	110	0.100	9.1E-04	NA	No	2.2E-07	No
124-48-1	Chlorodibromomethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	12	0.100	8.3E-03	NA	No	2.0E-06	No
127-18-4	Tetrachloroethene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	54	0.100	1.9E-03	NA	No	4.5E-07	No
1330-20-7	Xylene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.2	0.2			NA	NA	290	0.200	6.9E-04	NA	No	1.7E-07	No
135-98-8	Sec-butylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	390	0.100	2.6E-04	NA	No	6.2E-08	No
142-28-9	1,3-Dichloropropane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	160	0.100	6.3E-04	NA	No	1.5E-07	No
156-59-2	cis-1,2-Dichloroethene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	31	0.100	3.2E-03	NA	No	7.8E-07	No
156-60-5	trans-1,2-Dichloroethene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	120	0.100	8.3E-04	NA	No	2.0E-07	No
1634-04-4	Methyl tert-butyl ether	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	720	0.100	1.4E-04	NA	No	3.4E-08	No
179601-23-1	m,p-Xylene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.2	0.2			NA	NA	290	0.200	6.9E-04	NA	No	1.7E-07	No
56-23-5	Carbon tetrachloride	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	20	0.100	5.0E-03	NA	No	1.2E-06	No
563-58-6	1,1-Dichloropropene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1.7	0.100	5.9E-02	NA	No	1.4E-05	No
591-78-6	Methyl n-butyl ketone	VOCs	mg/kg	4/16/2001	5/18/2001	0	2	4	4	0%	1	5			NA	NA	21	5.000	2.4E-01	NA	No	5.7E-05	No
594-20-7	2,2-Dichloropropane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	NA	0.100	NA	**?PRG**	No	NA	No
630-20-6	1,1,1,2-Tetrachloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1.9	0.100	5.3E-02	NA	No	1.3E-05	No
67-64-1	Acetone	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1	1			NA	NA	6100	1.000	1.6E-04	NA	No	4.0E-08	No
67-66-3	Chloroform	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	22	0.100	4.5E-03	NA	No	1.1E-06	No
71-43-2	Benzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	24	0.100	4.2E-03	NA	No	1.0E-06	No
71-55-6	1,1,1-Trichloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	11000	0.100	9.1E-06	NA	No	2.2E-09	No
74-83-9	Bromomethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	9.2	0.500	5.4E-02	NA	No	1.3E-05	No
74-87-3	Chloromethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	290	0.500	1.7E-03	NA	No	4.2E-07	No
74-95-3	Methylene bromide	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	2.5	0.100	4.0E-02	NA	No	9.7E-06	No

APPENDIX D-2-1 Human Health Soil Summary and Concentration Risk Screening- Central Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLVs (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without Criteria[2]	COPC due to Individual Risk?	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
74-97-5	Bromochloromethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1.2	0.100	8.3E-02	NA	No	2.0E-05	No
75-00-3	Chloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	32000	0.100	3.1E-06	NA	No	7.5E-10	No
75-01-4	Vinyl chloride	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.76	0.100	1.3E-01	NA	No	3.2E-05	No
75-09-2	Methylene chloride	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	5.6	0.500	8.9E-02	NA	No	2.2E-05	No
75-15-0	Carbon disulfide	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1	1			NA	NA	82	1.000	1.2E-02	NA	No	2.9E-06	No
75-25-2	Bromoform	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	170	0.100	5.9E-04	NA	No	1.4E-07	No
75-27-4	Bromodichloromethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.27	0.100	3.7E-01	NA	No	8.9E-05	No
75-34-3	1,1-Dichloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	190	0.100	5.3E-04	NA	No	1.3E-07	No
75-35-4	1,1-Dichloroethene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	350	0.100	2.9E-04	NA	No	6.9E-08	No
75-69-4	Trichlorofluoromethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	1500	0.100	6.7E-05	NA	No	1.6E-08	No
75-71-8	Dichlorodifluoromethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	9.4	0.500	5.3E-02	NA	No	1.3E-05	No
78-87-5	1,2-Dichloropropane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.94	0.100	1.1E-01	NA	No	2.6E-05	No
78-93-3	Methylethyl ketone	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1	1			NA	NA	2800	1.000	3.6E-04	NA	No	8.6E-08	No
79-00-5	1,1,2-Trichloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.63	0.100	1.6E-01	NA	No	3.8E-05	No
79-01-6	Trichloroethene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	17	0.100	5.9E-03	NA	No	1.4E-06	No
79-34-5	1,1,2,2-Tetrachloroethane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.56	0.100	1.8E-01	NA	No	4.3E-05	No
87-61-6	1,2,3-Trichlorobenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	4.9	0.100	2.0E-02	NA	No	4.9E-06	No
95-47-6	o-Xylene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	69	0.100	1.4E-03	NA	No	3.5E-07	No
95-49-8	2-Chlorotoluene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	160	0.100	6.3E-04	NA	No	1.5E-07	No
95-63-6	1,2,4-Trimethylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	1.00E-01	0.1			NA	NA	22	0.100	4.5E-03	NA	No	1.1E-06	No
96-12-8	1,2-Dibromo-3-chloropropane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.5	0.5			NA	NA	0.0054	0.500	9.3E+01	NA	**Yes**	2.2E-02	**Yes**
96-18-4	1,2,3-Trichloropropane	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	0.005	0.100	2.0E+01	NA	**Yes**	4.8E-03	No
98-06-6	tert-Butylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.1	0.1			NA	NA	390	0.100	2.6E-04	NA	No	6.2E-08	No
98-82-8	Isopropylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.2	0.2			NA	NA	700	0.200	2.9E-04	NA	No	6.9E-08	No
99-87-6	1-Methyl-4-isopropylbenzene	VOCs	mg/kg	4/16/2001	4/17/2001	1.5	2	2	2	0%	0.2	0.2			NA	NA	NA	0.200	NA	**?PRG**	No	NA	No

Notes:

Refer to tables and figures for a description of the soil locations included for each exposure unit.

1 - Refer to Table 2-1 for background and screening level source information.

2 - Chemicals were only flageed with "?PRG" if there was neither an DEQ RBC value or an EPA residential RSL value.

Rj = Sum of toxicity ratios for all COIs in medium j 4143.417

Nij = Number of i COIs in medium j 165

1/Nij= 0.006

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available
<5%D - less than 5% detection frequency
?PRG - no criteria available

SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

APPENDIX D-2-2 Human Health Soil Summary with 90UCLs and Concentration Risk Screening- Central Parcel Upland Exposure Unit

Candidate COPCs			Depth Range (ft)		Number of Samples	Number of Non-detects	Detected Concentrations		COI Conc. Max[1]	Background Levels[2]	Selected SLV (mg/kg)[2]	COI Concentration (90UCL) - based on information from Composite Samples				Risk Ratio for Individual COI	90UCL/ Max Exceeds SLV - Individual COI Risk? (HQ=1)	COI Concentration (90UCL) - based on information from Discrete Samples				Risk Ratio for Individual COI	90UCL/ Max Exceeds SLV - Individual COI Risk? (HQ=1)
			Min	Max			Min	Max		Natural Background Soil Concs (mg/kg)	Urban Resident (DEQ)/ Resident (RSL)	n	Cij	Dist.	Estimation Method	Rij		n	Cij	Dist.	Estimation Method	Rij	
CASNo	Analyte	Units																					
96-18-4	1,2,3-Trichloropropane	mg/kg	1.5	2	2	2	--	--	1.00E-01	NA	0.005	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
96-12-8	1,2-Dibromo-3-chloropropane	mg/kg	1.5	2	2	2	--	--	5.00E-01	NA	0.0054	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dio	mg/kg	0.25	0.8	4	1	1.00E-06	2.40E-05	2.40E-05	NA	1.20E-05	1	nc	--	Only 1 detected value	--	--	3	nc	--	Only 2 detected values	--	--
51-28-5	2,4-Dinitrotoluene	mg/kg	0	0.5	2	2	--	--	2.50E+00	NA	1.6	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
91-94-1	3,3'-Dichlorobenzidine	mg/kg	0	0.5	2	2	--	--	5.00E+00	NA	1.1	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
106-47-8	4-Chloroaniline	mg/kg	0	0.5	2	2	--	--	1.00E+01	NA	2.4	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
7440-36-0	Antimony	mg/kg	0	2.5	29	9	0.21	29.9	29.9	0.56	3.1	6	2.78	Normal	90 % KM (t) UCL	0.9	No	16	7.44	Gamma	90% KM (Chebyshev) UCL	2.4	**Yes**
11104-28-2	Aroclor 1221	mg/kg	0	0.8	20	20	--	--	3.00E-01	NA	0.14	12	nc	--	No detected values	--	--	8	nc	--	No detected values	--	--
7440-38-2	Arsenic	mg/kg	0	2.5	63	0	1.76	40.3	40.3	8.8	1	6	8.41	Normal	90% Student's-t UCL	8.4	**Yes**	48	11.85	Not discernable	90% Chebyshev (Mean, Sd) UCL	11.9	**Yes**
BAPEQ	Total BaPEq	mg/kg	0	2.5	46	2	0.0080171	63.6111	63.6111	NA	0.034	11	2.87	Apprx. Gamma	90% KM (Chebyshev) UCL	84.3	**Yes**	31	10.90	Lognormal	90% KM (Chebyshev) UCL	320.6	**Yes**
56-55-3	Benzo(a)anthracene	mg/kg	0	2.5	46	4	0.0046	23.6	23.6	NA	0.34	11	0.89	Gamma	90% KM (Chebyshev) UCL	2.6	**Yes**	31	4.01	Lognormal	90% KM (Chebyshev) UCL	11.8	**Yes**
50-32-8	Benzo(a)pyrene	mg/kg	0	2.5	46	2	0.0059	46.3	46.3	NA	0.034	11	2.13	Apprx. Gamma	90% KM (Chebyshev) UCL	62.8	**Yes**	31	7.82	Lognormal	90% KM (Chebyshev) UCL	229.9	**Yes**
205-99-2	Benzo(b)fluoranthene	mg/kg	0	2.5	46	2	0.0045	27.5	27.5	NA	0.34	11	1.72	Lognormal	90% KM (Chebyshev) UCL	5.1	**Yes**	31	5.88	Lognormal	90% KM (Chebyshev) UCL	17.3	**Yes**
207-08-9	Benzo(k)fluoranthene	mg/kg	0	2.5	46	5	0.0043	24.2	24.2	NA	3.4	11	1.77	Lognormal	90% KM (Chebyshev) UCL	0.5	No	31	3.91	Lognormal	90% KM (Chebyshev) UCL	1.2	**Yes**
111-44-4	Bis(2-chloroethyl) ether	mg/kg	0	0.5	2	2	--	--	1.65E+00	NA	0.21	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
218-01-9	Chrysene	mg/kg	0	2.5	46	2	0.0041	39.1	39.1	NA	32	11	1.14	Gamma	90% KM (Chebyshev) UCL	0.0	No	31	6.37	Lognormal	90% KM (Chebyshev) UCL	0.2	No
7440-50-8	Copper	mg/kg	0	2.5	63	0	15	5440	5440	34	620	6	1400.00	Gamma	90% Approximate Gamma	2.3	**Yes**	48	621.10	Not discernable	90% Chebyshev (Mean, Sd) UCL	1.0	**Yes**
53-70-3	Dibenzo(a,h)anthracene	mg/kg	0	2.5	46	9	0.00081	9.13	9.13	NA	0.034	11	0.37	Lognormal	90% KM (Chebyshev) UCL	10.8	**Yes**	31	1.57	Lognormal	90% KM (Chebyshev) UCL	46.1	**Yes**
DRH	Diesel Range Hydrocarbons	mg/kg	0	4	20	12	30.8	2390	2390	NA	220	1	nc	--	Only 1 detected value; Maximum	10.9	**Yes**	17	424.00	Apprx. Gamma	90 % KM (t) UCL	1.9	**Yes**
106-93-4	Ethylene dibromide	mg/kg	1.5	2	2	2	--	--	1.00E-01	NA	0.034	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
118-74-1	Hexachlorobenzene	mg/kg	0	0.5	2	2	--	--	1.65E+00	NA	0.84	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
87-68-3	Hexachlorobutadiene	mg/kg	0	2	4	4	--	--	5.00E+00	NA	0.62	0	nc	--	No data	--	--	4	nc	--	No detected values	--	--
34465-46-8	Hexachlorodibenzo-p-dioxin hom	mg/kg	0.25	0.8	4	0	6.00E-04	7.30E-03	0.01	NA	9.40E-05	1	nc	--	Only 1 detected value	--	--	3	nc	--	Only 3 detected values	--	--
193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	0	2.5	46	3	0.0035	27.9	27.9	NA	0.34	11	0.88	Lognormal	90% KM (Chebyshev) UCL	2.6	**Yes**	31	5.14	Lognormal	90% KM (Chebyshev) UCL	15.1	**Yes**
7439-92-1	Lead	mg/kg	0	4	76	1	2.57E+00	4.04E+03	4040.00	79	40	6	628.10	Normal	90% Student's-t UCL	15.7	**Yes**	52	632.10	Apprx. Gamma	90% KM (Chebyshev) UCL	15.8	**Yes**
7439-97-6	Mercury	mg/kg	0	2.5	63	9	3.30E-02	2.02E+01	20.20	0.23	4.7	6	3.23	Normal	90% Student's-t UCL	0.7	No	48	3.84	Lognormal	90% KM (Chebyshev) UCL	0.8	No
87-86-5	Pentachlorophenol	mg/kg	0	0.5	2	2	--	--	5.00E+00	NA	2.4	0	nc	--	No data	--	--	2	nc	--	No detected values	--	--
7440-28-0	Thallium	mg/kg	0	2.5	29	4	0.039	0.77	0.77	5.2	0.078	6	0.22	Apprx. Gamma	90% Approximate Gamma	2.8	**Yes**	16	0.18	Not discernable	90% KM (BCA) UCL	2.3	**Yes**

Notes:

1 - Maximum detected concentration presented, if available. If not, maximum non-detected concentration presented.

2 - Refer to Table 2-1 for background and screening level source information.

3 - Benzo(b+k)fluoranthene was not further analyzed due to the low sample number (1); it was better represented by Benzo(k)fluoranthene and Benzo(b)fluoranthene.

Data summary (minimums and maximums) based on all available samples (i.e., discrete and composite samples).

90UCLs calculated separately using available discrete or composite soil data. 90UCL values are not provided in cases where: 1) all concentrations were non-detected 2) There were too few samples for proUCL to calculate a 90UCL.

If a candidate COPC didn't have any detected values, then no 90UCL was calculated.

90UCLs were calculated using USEPA ProUCL software, version 4.1.01.

90UCL - 90th upper confidence limit
mg/kg - milligram per kilogram
min - minimum
max - maximum
COI - constituent of interest

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Level
n - sample size

APPENDIX D-3-1 Human Health Soil Summary and Concentration Risk Screening- East Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
11096-82-5	Aroclor 1260	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	16	30%	0.0052	0.163	0.022	1.85	NA	NA	0.22	1.85	8.4E+00	NA	**Yes**	1.5E-02	**Yes**
11097-69-1	Aroclor 1254	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	20	13%	0.0026	0.403	0.017	7.94	NA	NA	0.22	7.94	3.6E+01	NA	**Yes**	6.6E-02	**Yes**
11100-14-4	Aroclor 1268	Aroclors	mg/kg	12/27/2007	9/30/2010	0	8.5	12	12	0%	0.0014	0.0723			NA	NA	0.22	0.0723	3.3E-01	NA	No	6.0E-04	No
11104-28-2	Aroclor 1221	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	23	0%	0.0024	0.811			NA	NA	0.14	0.811	5.8E+00	NA	**Yes**	1.1E-02	**Yes**
11141-16-5	Aroclor 1232	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	23	0%	0.0033	0.403			NA	NA	0.14	0.403	2.9E+00	NA	**Yes**	5.2E-03	No
12672-29-6	Aroclor 1248	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	23	0%	0.0042	0.403			NA	NA	0.22	0.403	1.8E+00	NA	**Yes**	3.3E-03	No
12674-11-2	Aroclor 1016	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	23	0%	0.0048	0.403			NA	NA	3.9	0.403	1.0E-01	NA	No	1.9E-04	No
12767-79-2	Aroclors	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	15	35%	0.0052	0.141	0.022	7.94	NA	NA	0.31	7.94	2.6E+01	NA	**Yes**	4.7E-02	**Yes**
37324-23-5	Aroclor 1262	Aroclors	mg/kg	12/27/2007	9/30/2010	0	8.5	12	12	0%	0.003	0.0723			NA	NA	0.22	0.0723	3.3E-01	NA	No	6.0E-04	No
53469-21-9	Aroclor 1242	Aroclors	mg/kg	4/16/2001	9/30/2010	0	8.5	23	23	0%	0.0044	0.403			NA	NA	0.22	0.403	1.8E+00	NA	**Yes**	3.3E-03	No
TOC	Total organic carbon	Conventionals	%	10/4/1991	10/4/1991	0	0.2	2	0	100%			0.39	0.41	NA	NA	NA	0.41	NA	**?PRG**	No	NA	No
88-85-7	Dinoseb	Herbicides	mg/kg	4/16/2001	5/7/2001	0	4	5	5	0%	1	2			NA	NA	6.1	2	3.3E-01	NA	No	6.0E-04	No
7440-36-0	Antimony	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	21	2	90%	0.23	0.652	0.36	192	0.56	**Yes**	3.1	192	6.2E+01	NA	**Yes**	1.1E-01	**Yes**
7440-38-2	Arsenic	Metals	mg/kg	10/4/1991	9/30/2010	0	8.5	25	1	96%	0.5	0.5	2.47	36.2	8.8	**Yes**	1	36.2	3.6E+01	NA	**Yes**	6.6E-02	**Yes**
7440-41-7	Beryllium	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	20	2	90%	0.5	0.652	0.2	0.59	2	No	31	0.59	1.9E-02	NA	No	3.5E-05	No
7440-43-9	Cadmium	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	21	10	52%	0.017	1	0.12	1.7	0.63	**Yes**	7.8	1.7	2.2E-01	NA	No	4.0E-04	No
7440-47-3	Chromium	Metals	mg/kg	10/4/1991	9/30/2010	0	8.5	24	0	100%			4.45	145	76	**Yes**	23000	145	6.3E-03	NA	No	1.1E-05	No
7440-50-8	Copper	Metals	mg/kg	10/4/1991	9/30/2010	0	8.5	25	0	100%			17.5	47500	34	**Yes**	620	47500	7.7E+01	NA	**Yes**	1.4E-01	**Yes**
7439-92-1	Lead	Metals	mg/kg	4/16/2001	9/30/2010	0	8.5	23	0	100%			1.49	3090	79	**Yes**	40	3090	7.7E+01	NA	**Yes**	1.4E-01	**Yes**
7439-97-6	Mercury	Metals	mg/kg	4/16/2001	9/30/2010	0	8.5	23	5	78%	0.0703	0.1	0.019	1.1	0.23	**Yes**	4.7	1.1	2.3E-01	NA	No	4.3E-04	No
7440-02-0	Nickel	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	22	0	100%			16.1	306	47	**Yes**	310	306	9.9E-01	NA	No	1.8E-03	No
7782-49-2	Selenium	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	20	7	65%	0.11	0.652	0.11	1.3	0.71	**Yes**	39	1.3	3.3E-02	NA	No	6.1E-05	No
7440-22-4	Silver	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	20	2	90%	0.5	0.652	0.15	8.6	0.82	**Yes**	78	8.6	1.1E-01	NA	No	2.0E-04	No
7440-28-0	Thallium	Metals	mg/kg	5/11/2001	9/30/2010	0	8.5	20	2	90%	0.5	0.652	0.021	0.085	5.2	No	0.078	0.085	1.1E+00	NA	**Yes**	2.0E-03	No
7440-66-6	Zinc	Metals	mg/kg	10/4/1991	9/30/2010	0	8.5	25	0	100%			60.5	1810	180	**Yes**	2300	1810	7.9E-01	NA	No	1.4E-03	No
120-12-7	Anthracene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	8	60%	0.0134	0.168	0.0009	0.328	NA	NA	4700	0.328	7.0E-05	NA	No	1.3E-07	No
129-00-0	Pyrene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	1	95%	0.168	0.168	0.0054	0.798	NA	NA	340	0.798	2.3E-03	NA	No	4.3E-06	No
130498-29-2	Total PAHs	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	0	100%			0.0261	7.3186	NA	NA	NA	7.3186	NA	**?PRG**	No	NA	No
BAPEQ	Total BaPEq	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	0	100%			3E-05	0.8852	NA	NA	0.034	0.885153	2.6E+01	NA	**Yes**	4.7E-02	**Yes**
HPAH	High Molecular Weight PAH	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	0	100%			0.0414	5.58	NA	NA	NA	5.58	NA	**?PRG**	No	NA	No
LPAH	Low Molecular Weight PAH	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	3	85%	0.0134	0.168	0.0051	1.9976	NA	NA	NA	1.9976	NA	**?PRG**	No	NA	No
191-24-2	Benzo(g,h,i)perylene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	3	85%	0.0134	0.168	0.0056	0.343	NA	NA	340	0.343	1.0E-03	NA	No	1.8E-06	No
191-26-4	Anthanthrene	PAHs	mg/kg	10/4/1991	10/4/1991	0	0.2	2	2	0%	0.1	0.11			NA	NA	NA	0.11	NA	**?PRG**	No	NA	No
192-97-2	Benzo(e)pyrene	PAHs	mg/kg	10/4/1991	10/4/1991	0	0.2	2	1	50%	0.022	0.022	0.21	0.21	NA	NA	340	0.21	6.2E-04	NA	No	1.1E-06	No
193-39-5	Indeno(1,2,3-cd)pyrene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	5	75%	0.0134	0.168	0.0035	0.279	NA	NA	0.34	0.279	8.2E-01	NA	No	1.5E-03	No
205-99-2	Benzo(b)fluoranthene	PAHs	mg/kg	4/16/2001	9/30/2010	0	8.5	18	1	94%	0.0134	0.0134	0.0052	0.782	NA	NA	0.34	0.782	2.3E+00	NA	**Yes**	4.2E-03	No
206-44-0	Fluoranthene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	1	95%	0.168	0.168	0.0046	0.745	NA	NA	460	0.745	1.6E-03	NA	No	2.9E-06	No
207-08-9	Benzo(k)fluoranthene	PAHs	mg/kg	4/16/2001	9/30/2010	0	8.5	18	2	89%	0.0134	0.168	0.0031	0.555	NA	NA	3.4	0.555	1.6E-01	NA	No	3.0E-04	No
208-96-8	Acenaphthylene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	8	60%	0.0134	0.168	0.0011	0.289	NA	NA	940	0.289	3.1E-04	NA	No	5.6E-07	No
218-01-9	Chrysene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	0	100%			0.0047	0.803	NA	NA	32	0.803	2.5E-02	NA	No	4.6E-05	No
50-32-8	Benzo(a)pyrene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	2	90%	0.0134	0.022	0.0052	0.589	NA	NA	0.034	0.589	1.7E+01	NA	**Yes**	3.2E-02	**Yes**
53-70-3	Dibenzo(a,h)anthracene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	8	60%	0.0134	0.168	0.0009	0.127	NA	NA	0.034	0.127	3.7E+00	NA	**Yes**	6.8E-03	**Yes**
56-55-3	Benzo(a)anthracene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	5	75%	0.022	0.168	0.0032	0.568	NA	NA	0.34	0.568	1.7E+00	NA	**Yes**	3.0E-03	No
83-32-9	Acenaphthene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	11	45%	0.0016	0.168	0.0042	0.0648	NA	NA	940	0.0648	6.9E-05	NA	No	1.3E-07	No
85-01-8	Phenanthrene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	4	80%	0.0033	0.168	0.0094	0.47	NA	NA	460	0.47	1.0E-03	NA	No	1.9E-06	No
86-73-7	Fluorene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	20	11	45%	0.0019	0.168	0.0059	0.0808	NA	NA	630	0.0808	1.3E-04	NA	No	2.3E-07	No
90-12-0	1-Methylnaphthalene	PAHs	mg/kg	9/28/2010	9/30/2010	0	8.5	11	2	82%	0.0009	0.0009	0.0108	0.0927	NA	NA	16	0.0927	5.8E-03	NA	No	1.1E-05	No
91-20-3	Naphthalene	PAHs	mg/kg	10/4/1991	9/30/2010	0	8.5	23	11	52%	0.0134	0.2	0.003	0.506	NA	NA	25	0.506	2.0E-02	NA	No	3.7E-05	No
91-57-6	2-Methylnaphthalene	PAHs	mg/kg	4/16/2001	9/30/2010	0	8.5	12	3	75%	0.0019	1.65	0.0263	0.259	NA	NA	23	0.259	1.1E-02	NA	No	2.1E-05	No
BKBFLANTH	Benzo(b+k)fluoranthene	PAHs	mg/kg	10/4/1991	4/16/2001	0	2	3	2	33%	0.022	1.65	0.35	0.35	NA	NA	0.34	0.35	1.0E+00	NA	**Yes**	1.9E-03	No
1024-57-3	Heptachlor epoxide	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.14	0.0067	4.8E-02	NA	No	8.7E-05	No
1031-07-8	Endosulfan sulfate	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	73	0.0067	9.2E-05	NA	No	1.7E-07	No
12789-03-6	Chlordane (technical)	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.15	0.15			NA	NA	4.2	0.15	3.6E-02	NA	No	6.5E-05	No

APPENDIX D-3-1 Human Health Soil Summary and Concentration Risk Screening- East Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
309-00-2	Aldrin	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.072	0.0067	9.3E-02	NA	No	1.7E-04	No
319-84-6	alpha-Hexachlorocyclohexane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.2	0.0067	3.4E-02	NA	No	6.1E-05	No
319-85-7	beta-Hexachlorocyclohexane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.27	0.0067	2.5E-02	NA	No	4.5E-05	No
319-86-8	delta-Hexachlorocyclohexane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	NA	0.0067	NA	**?PRG**	No	NA	No
33213-65-9	beta-Endosulfan	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	73	0.0067	9.2E-05	NA	No	1.7E-07	No
50-00-0	Formaldehyde	Pesticides	mg/kg	5/7/2001	5/7/2001	0	4	1	1	0%	2	2			NA	NA	31000	2	6.5E-05	NA	No	1.2E-07	No
50-29-3	4,4'-DDT	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	4	33%	0.0067	0.0067	0.0076	0.0571	NA	NA	4.5	0.0571	1.3E-02	NA	No	2.3E-05	No
PP_DDT3ISO	Total of 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	4	33%	0.0067	0.0067	0.0076	0.0571	NA	NA	4.5	0.0571	1.3E-02	NA	No	2.3E-05	No
5103-71-9	cis-Chlordane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	1.6	0.0067	4.2E-03	NA	No	7.6E-06	No
53494-70-5	Endrin ketone	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	1.8	0.0067	3.7E-03	NA	No	6.8E-06	No
5566-34-7	gamma-Chlordane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	1.6	0.0067	4.2E-03	NA	No	7.6E-06	No
58-89-9	gamma-Hexachlorocyclohexane	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	1.1	0.0067	6.1E-03	NA	No	1.1E-05	No
60-57-1	Dieldrin	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.08	0.0067	8.4E-02	NA	No	1.5E-04	No
72-20-8	Endrin	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	3.7	0.0067	1.8E-03	NA	No	3.3E-06	No
72-43-5	Methoxychlor	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	31	0.0067	2.2E-04	NA	No	3.9E-07	No
72-54-8	4,4'-DDD	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	6.4	0.0067	1.0E-03	NA	No	1.9E-06	No
72-55-9	4,4'-DDE	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	4.5	0.0067	1.5E-03	NA	No	2.7E-06	No
7421-93-4	Endrin aldehyde	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	1.8	0.0067	3.7E-03	NA	No	6.8E-06	No
76-44-8	Heptachlor	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	0.28	0.0067	2.4E-02	NA	No	4.4E-05	No
8001-35-2	Toxaphene	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.2	0.2			NA	NA	1.2	0.2	1.7E-01	NA	No	3.0E-04	No
959-98-8	alpha-Endosulfan	Pesticides	mg/kg	4/16/2001	1/18/2002	0	2	6	6	0%	0.0067	0.0067			NA	NA	73	0.0067	9.2E-05	NA	No	1.7E-07	No
DRH	Diesel Range Hydrocarbons	Petroleum	mg/kg	4/16/2001	5/17/2001	0	4	14	11	21%	25	250	27.9	86.8	NA	NA	220	86.8	3.9E-01	NA	No	7.2E-04	No
DRH (SGT)	Diesel Range Hydrocarbons (silica gel treated)	Petroleum	mg/kg	9/28/2010	9/29/2010	8	8.5	2	0	100%			236	1340	NA	NA	220	1340	6.1E+00	NA	**Yes**	1.1E-02	**Yes**
M09800000 (SGT)	Motor oil (silica gel treated)	Petroleum	mg/kg	9/28/2010	9/29/2010	8	8.5	2	0	100%			1050	1140	NA	NA	NA	1140	NA	**?PRG**	No	NA	No
ORH	Oil Range Hydrocarbons	Petroleum	mg/kg	4/16/2001	5/17/2001	0	4	14	6	57%	50	50	55.2	1830	NA	NA	NA	1830	NA	**?PRG**	No	NA	No
100-02-7	4-Nitrophenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	5			NA	NA	NA	5	NA	**?PRG**	No	NA	No
105-67-9	2,4-Dimethylphenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	5			NA	NA	120	5	4.2E-02	NA	No	7.6E-05	No
108-95-2	Phenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	2			NA	NA	1800	2	1.1E-03	NA	No	2.0E-06	No
120-83-2	2,4-Dichlorophenol	Phenols	mg/kg	10/4/1991	5/7/2001	0	4	8	8	0%	0.2	2			NA	NA	18	2	1.1E-01	NA	No	2.0E-04	No
1319-77-3	Cresol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	5	5	0%	2	4			NA	NA	610	4	6.6E-03	NA	No	1.2E-05	No
25167-83-3	Tetrachlorophenol	Phenols	mg/kg	10/19/1995	5/7/2001	0	4	6	6	0%	0.005	2			NA	NA	180	2	1.1E-02	NA	No	2.0E-05	No
4901-51-3	2,3,4,5-Tetrachlorophenol	Phenols	mg/kg	10/4/1991	10/4/1991	0	0.2	2	2	0%	0.1	0.11			NA	NA	180	0.11	6.1E-04	NA	No	1.1E-06	No
51-28-5	2,4-Dinitrophenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	2.5	10			NA	NA	12	10	8.3E-01	NA	No	1.5E-03	No
534-52-1	4,6-Dinitro-2-methylphenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	5	5	0%	1	2			NA	NA	NA	2	NA	**?PRG**	No	NA	No
58-90-2	2,3,4,6-Tetrachlorophenol	Phenols	mg/kg	10/4/1991	10/4/1991	0	0.2	2	2	0%	0.1	0.11			NA	NA	180	0.11	6.1E-04	NA	No	1.1E-06	No
59-50-7	4-Chloro-3-methylphenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	2			NA	NA	NA	2	NA	**?PRG**	No	NA	No
87-65-0	2,6-Dichlorophenol	Phenols	mg/kg	10/4/1991	5/7/2001	0	4	7	7	0%	0.2	2			NA	NA	18	2	1.1E-01	NA	No	2.0E-04	No
87-86-5	Pentachlorophenol	Phenols	mg/kg	10/4/1991	5/7/2001	0	4	9	8	11%	0.2	5	0.014	0.014	NA	NA	2.4	0.014	5.8E-03	NA	No	1.1E-05	No
88-06-2	2,4,6-Trichlorophenol	Phenols	mg/kg	10/4/1991	5/7/2001	0	4	9	9	0%	0.005	2			NA	NA	12	2	1.7E-01	NA	No	3.0E-04	No
88-75-5	2-Nitrophenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	2			NA	NA	NA	2	NA	**?PRG**	No	NA	No
95-48-7	2-Methylphenol	Phenols	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	310	1.65	5.3E-03	NA	No	9.7E-06	No
95-57-8	2-Chlorophenol	Phenols	mg/kg	4/16/2001	5/7/2001	0	4	6	6	0%	1	2			NA	NA	NA	2	NA	**?PRG**	No	NA	No
95-95-4	2,4,5-Trichlorophenol	Phenols	mg/kg	10/4/1991	5/7/2001	0	4	8	8	0%	0.2	2			NA	NA	610	2	3.3E-03	NA	No	6.0E-06	No
C_3+4MPHN	3- and 4-Methylphenol Coelution	Phenols	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.65	NA	**?PRG**	No	NA	No
117-81-7	Bis(2-ethylhexyl) phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	10	10			NA	NA	93	10	1.1E-01	NA	No	2.0E-04	No
117-84-0	Di-n-octyl phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900	1.65	3.4E-04	NA	No	6.1E-07	No
131-11-3	Dimethyl phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900	1.65	3.4E-04	NA	No	6.1E-07	No
84-66-2	Diethyl phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4900	1.65	3.4E-04	NA	No	6.1E-07	No
84-74-2	Dibutyl phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	610	5	8.2E-03	NA	No	1.5E-05	No
85-68-7	Butylbenzyl phthalate	Phthalates	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	260	1.65	6.3E-03	NA	No	1.2E-05	No
100-01-6	4-Nitroaniline	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	24	1.65	6.9E-02	NA	No	1.3E-04	No
100-51-6	Benzyl alcohol	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	610	1.65	2.7E-03	NA	No	4.9E-06	No
101-55-3	4-Bromophenyl phenyl ether	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.65	NA	**?PRG**	No	NA	No
106-46-7	1,4-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	6	4	33%	0.005	5	0.0058	0.023	NA	NA	62	0.023	3.7E-04	NA	No	6.8E-07	No
106-47-8	4 Chloroaniline	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	10	10			NA	NA	2.4	10	4.2E+00	NA	**Yes**	7.6E-03	**Yes**
111-44-4	Bis(2 chloroethyl) ether	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	0.21	1.65	7.9E+00	NA	**Yes**	1.4E-02	**Yes**
111-91-1	Bis(2-chloroethoxy) methane	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	18	1.65	9.2E-02	NA	No	1.7E-04	No
118-74-1	Hexachlorobenzene	SVOCs	mg/kg	10/4/1991	4/16/2001	0	2	3	3	0%	0.041	1.65			NA	NA	0.84	1.65	2.0E+00	NA	**Yes**	3.6E-03	No
120-82-1	1,2,4-Trichlorobenzene	SVOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	6	6	0%	0.0044	1.65			NA	NA	2.2	1.65	7.5E-01	NA	No	1.4E-03	No
121-14-2	2,4 Dinitrotoluene	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	2.5	2.5			NA	NA	1.6	2.5	1.6E+00	NA	**Yes**	2.8E-03	No

APPENDIX D-3-1 Human Health Soil Summary and Concentration Risk Screening- East Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
132-64-9	Dibenzofuran	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	7.8	1.65	2.1E-01	NA	No	3.9E-04	No
39638-32-9	Bis(2-chloroisopropyl) ether	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4.6	1.65	3.6E-01	NA	No	6.5E-04	No
541-73-1	1,3-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	6	4	33%	0.005	5	0.0034	0.0052	NA	NA	4400	0.0052	1.2E-06	NA	No	2.2E-09	No
606-20-2	2,6-Dinitrotoluene	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	2.5	2.5			NA	NA	12	2.5	2.1E-01	NA	No	3.8E-04	No
621-64-7	N-Nitrosodipropylamine	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.65	NA	**?PRG**	No	NA	No
65-85-0	Benzoic acid	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	24000	5	2.1E-04	NA	No	3.8E-07	No
67-72-1	Hexachloroethane	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	6.6	5	7.6E-01	NA	No	1.4E-03	No
7005-72-3	4-Chlorophenyl phenyl ether	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	NA	1.65	NA	**?PRG**	No	NA	No
77-47-4	Hexachlorocyclopentadiene	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	37	5	1.4E-01	NA	No	2.5E-04	No
78-59-1	Isophorone	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	510	1.65	3.2E-03	NA	No	5.9E-06	No
86-30-6	N-Nitrosodiphenylamine	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	99	1.65	1.7E-02	NA	No	3.0E-05	No
86-74-8	Carbazole	SVOCs	mg/kg	10/4/1991	10/4/1991	0	0.2	2	2	0%	0.044	0.41			NA	NA	630	0.41	6.5E-04	NA	No	1.2E-06	No
87-68-3	Hexachlorobutadiene	SVOCs	mg/kg	10/4/1991	9/29/2010	0	8.5	8	8	0%	0.0196	5			NA	NA	0.62	5	8.1E+00	NA	**Yes**	1.5E-02	**Yes**
88-74-4	2-Nitroaniline	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	61	1.65	2.7E-02	NA	No	4.9E-05	No
91-58-7	2-Chloronaphthalene	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	630	1.65	2.6E-03	NA	No	4.8E-06	No
91-94-1	3,3' Dichlorobenzidine	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	1.1	5	4.5E+00	NA	**Yes**	8.3E-03	**Yes**
95-50-1	1,2-Dichlorobenzene	SVOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	6	6	0%	0.0039	5			NA	NA	440	5	1.1E-02	NA	No	2.1E-05	No
98-95-3	Nitrobenzene	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	1.65	1.65			NA	NA	4.8	1.65	3.4E-01	NA	No	6.3E-04	No
99-09-2	3-Nitroaniline	SVOCs	mg/kg	4/16/2001	4/16/2001	1.5	2	1	1	0%	5	5			NA	NA	61	5	8.2E-02	NA	No	1.5E-04	No
100-41-4	Ethylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.1	0.0055	0.0091	NA	NA	110	0.0091	8.3E-05	NA	No	1.5E-07	No
100-42-5	Styrene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.1	0.0037	0.0054	NA	NA	1600	0.0054	3.4E-06	NA	No	6.1E-09	No
10061-01-5	cis-1,3-Dichloropropene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0039	0.1			NA	NA	1.7	0.1	5.9E-02	NA	No	1.1E-04	No
10061-02-6	trans-1,3-Dichloropropene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0035	0.1			NA	NA	1.7	0.1	5.9E-02	NA	No	1.1E-04	No
103-65-1	n-Propylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.1	0.0071	0.0084	NA	NA	340	0.0084	2.5E-05	NA	No	4.5E-08	No
104-51-8	n-Butylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.5	0.009	0.0131	NA	NA	390	0.0131	3.4E-05	NA	No	6.1E-08	No
106-43-4	4-Chlorotoluene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0044	0.1			NA	NA	160	0.1	6.3E-04	NA	No	1.1E-06	No
106-93-4	Ethylene dibromide	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0044	0.1			NA	NA	0.034	0.1	2.9E+00	NA	**Yes**	5.4E-03	No
107-06-2	1,2-Dichloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	12	0.1	8.3E-03	NA	No	1.5E-05	No
91-20-3	Naphthalene	VOCs	mg/kg	9/28/2010	9/29/2010	8	8.5	2	0	100%			0.0225	0.0362	NA	NA	25	0.0362	1.4E-03	NA	No	2.6E-06	No
108-10-1	Methyl isobutyl ketone	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0073	0.5			NA	NA	530	0.5	9.4E-04	NA	No	1.7E-06	No
108-67-8	1,3,5-Trimethylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0028	0.1			NA	NA	160	0.1	6.3E-04	NA	No	1.1E-06	No
108-86-1	Bromobenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0019	0.1			NA	NA	30	0.1	3.3E-03	NA	No	6.1E-06	No
108-88-3	Toluene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.1	0.069	0.0988	NA	NA	1200	0.0988	8.2E-05	NA	No	1.5E-07	No
108-90-7	Chlorobenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.1	0.0033	0.0043	NA	NA	110	0.0043	3.9E-05	NA	No	7.1E-08	No
124-48-1	Chlorodibromomethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0034	0.1			NA	NA	12	0.1	8.3E-03	NA	No	1.5E-05	No
127-18-4	Tetrachloroethene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	54	0.1	1.9E-03	NA	No	3.4E-06	No
1330-20-7	Xylene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.2	0.0214	0.0268	NA	NA	290	0.0268	9.2E-05	NA	No	1.7E-07	No
135-98-8	Sec-butylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.1	0.0051	0.0069	NA	NA	390	0.0069	1.8E-05	NA	No	3.2E-08	No
142-28-9	1,3-Dichloropropane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	160	0.1	6.3E-04	NA	No	1.1E-06	No
156-59-2	cis-1,2-Dichloroethene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0046	0.1			NA	NA	31	0.1	3.2E-03	NA	No	5.9E-06	No
156-60-5	trans-1,2-Dichloroethene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0039	0.1			NA	NA	120	0.1	8.3E-04	NA	No	1.5E-06	No
1634-04-4	Methyl tert-butyl ether	VOCs	mg/kg	5/7/2001	9/29/2010	0	8.5	4	4	0%	0.0027	0.1			NA	NA	720	0.1	1.4E-04	NA	No	2.5E-07	No
179601-23-1	m,p-Xylene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.2	0.016	0.0208	NA	NA	290	0.0208	7.2E-05	NA	No	1.3E-07	No
56-23-5	Carbon tetrachloride	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	20	0.1	5.0E-03	NA	No	9.1E-06	No
563-58-6	1,1-Dichloropropene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	1.7	0.1	5.9E-02	NA	No	1.1E-04	No
591-78-6	Methyl n-butyl ketone	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	6	6	0%	0.02	5			NA	NA	21	5	2.4E-01	NA	No	4.3E-04	No
594-20-7	2,2-Dichloropropane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	NA	0.1	NA	**?PRG**	No	NA	No
630-20-6	1,1,1,2-Tetrachloroethane	VOCs	mg/kg	5/7/2001	9/29/2010	0	8.5	4	4	0%	0.0046	0.1			NA	NA	1.9	0.1	5.3E-02	NA	No	9.6E-05	No
67-64-1	Acetone	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0352	1			NA	NA	6100	1	1.6E-04	NA	No	3.0E-07	No
67-66-3	Chloroform	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	22	0.1	4.5E-03	NA	No	8.3E-06	No
71-43-2	Benzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.1	0.0071	0.0117	NA	NA	24	0.0117	4.9E-04	NA	No	8.9E-07	No
71-55-6	1,1,1-Trichloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0048	0.1			NA	NA	11000	0.1	9.1E-06	NA	No	1.7E-08	No
74-83-9	Bromomethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.5			NA	NA	9.2	0.5	5.4E-02	NA	No	9.9E-05	No
74-87-3	Chloromethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.005	0.5	0.0115	0.0231	NA	NA	290	0.0231	8.0E-05	NA	No	1.5E-07	No
74-95-3	Methylene bromide	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	2.5	0.1	4.0E-02	NA	No	7.3E-05	No
74-97-5	Bromochloromethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	1.2	0.1	8.3E-02	NA	No	1.5E-04	No
75-00-3	Chloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	32000	0.1	3.1E-06	NA	No	5.7E-09	No
75-01-4	Vinyl chloride	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	0.76	0.1	1.3E-01	NA	No	2.4E-04	No
75-09-2	Methylene chloride	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	4	20%	0.0057	0.5	0.014	0.014	NA	NA	5.6	0.014	2.5E-03	NA	No	4.6E-06	No
75-15-0	Carbon disulfide	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	1			NA	NA	82	1	1.2E-02	NA	No	2.2E-05	No

APPENDIX D-3-1 Human Health Soil Summary and Concentration Risk Screening- East Parcel Upland Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
75-25-2	Bromoform	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	170	0.1	5.9E-04	NA	No	1.1E-06	No
75-27-4	Bromodichloromethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	0.27	0.1	3.7E-01	NA	No	6.7E-04	No
75-34-3	1,1-Dichloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.004	0.1			NA	NA	190	0.1	5.3E-04	NA	No	9.6E-07	No
75-35-4	1,1-Dichloroethene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	350	0.1	2.9E-04	NA	No	5.2E-07	No
75-69-4	Trichlorofluoromethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	1500	0.1	6.7E-05	NA	No	1.2E-07	No
75-71-8	Dichlorodifluoromethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.5			NA	NA	9.4	0.5	5.3E-02	NA	No	9.7E-05	No
78-87-5	1,2-Dichloropropane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	0.94	0.1	1.1E-01	NA	No	1.9E-04	No
78-93-3	Methylethyl ketone	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.02	1			NA	NA	2800	1	3.6E-04	NA	No	6.5E-07	No
79-00-5	1,1,2-Trichloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0047	0.1			NA	NA	0.63	0.1	1.6E-01	NA	No	2.9E-04	No
79-01-6	Trichloroethene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0036	0.1			NA	NA	17	0.1	5.9E-03	NA	No	1.1E-05	No
79-34-5	1,1,2,2-Tetrachloroethane	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	0.56	0.1	1.8E-01	NA	No	3.3E-04	No
87-61-6	1,2,3-Trichlorobenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0062	0.1			NA	NA	4.9	0.1	2.0E-02	NA	No	3.7E-05	No
95-47-6	o-Xylene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	4	20%	0.005	0.1	0.0055	0.0055	NA	NA	69	0.0055	8.0E-05	NA	No	1.5E-07	No
95-49-8	2-Chlorotoluene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0027	0.1			NA	NA	160	0.1	6.3E-04	NA	No	1.1E-06	No
95-63-6	1,2,4-Trimethylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.1	0.0089	0.0132	NA	NA	22	0.0132	6.0E-04	NA	No	1.1E-06	No
96-12-8	**1,2 Dibromo-3 chloropropane**	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.02	0.5			NA	NA	0.0054	0.5	9.3E+01	NA	**Yes**	1.7E-01	**Yes**
96-18-4	**1,2,3 Trichloropropane**	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.005	0.1			NA	NA	0.005	0.1	2.0E+01	NA	**Yes**	3.6E-02	**Yes**
98-06-6	tert-Butylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	5	0%	0.0014	0.1			NA	NA	390	0.1	2.6E-04	NA	No	4.7E-07	No
98-82-8	Isopropylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.2	0.0034	0.0062	NA	NA	700	0.0062	8.9E-06	NA	No	1.6E-08	No
99-87-6	1-Methyl-4-isopropylbenzene	VOCs	mg/kg	10/19/1995	9/29/2010	0	8.5	5	3	40%	0.02	0.2	0.0135	0.0448	NA	NA	NA	0.0448	NA	**?PRG**	No	NA	No

Notes:

Refer to tables and figures for a description of the soil locations included for each exposure unit.

1 - Refer to Table 2-1 for background and screening level source information.

2 - Chemicals were only flageed with "?PRG" if there was neither an DEQ RBC value or an EPA residential RSL value.

Rj = Sum of toxicity ratios for all COIs in medium j 549.130

Nij = Number of i COIs in medium j 174.000

1/Nij= 0.006

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available
<5%D - less than 5% detection frequency
?PRG - no criteria available

SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

APPENDIX D-3-2 Human Health Soil Summary with 90UCLs and Concentration Risk Screening- East Parcel Upland Exposure Unit

Candidate COPCs			Depth Range (ft)		Number of Samples	Number of Non-detects	Detected Concentrations		COI Conc. Max[1]	Background Levels[2]	Selected SLV (mg/kg)[2]	COI Concentration (90UCL) - based on information from Composite Samples				Risk Ratio for Individual COI	90UCL Exceeds SLV - Individual COI Risk? (HQ=1)	COI Concentration (90UCL) - based on information from Discrete Samples				Risk Ratio for Individual COI	90UCL Exceeds SLV - Individual COI Risk? (HQ=1)
			Min	Max			Min	Max		Natural Background Soil Concs (mg/kg)	Urban Resident (DEQ)/ Resident (RSL)												
CASNo	Analyte	Units										n	Cij	Dist.	Estimation Method	Rij		n	Cij	Dist.	Estimation Method	Rij	
96-18-4	1,2,3-Trichloropropane	mg/kg	0	8.5	5	5	--	--	0.1	NA	0.005	2	--	--	No detected values	--	--	3	--	--	No detected values	--	--
96-12-8	1,2-Dibromo-3-chloropropane	mg/kg	0	8.5	5	5	--	--	0.5	NA	0.0054	2	--	--	No detected values	--	--	3	--	--	No detected values	--	--
121-14-2	2,4-Dinitrotoluene	mg/kg	1.5	2	1	1	--	--	2.5	NA	1.6	0	--	--	No data	--	--	1	--	--	No detected values	--	--
91-94-1	3,3'-Dichlorobenzidine	mg/kg	1.5	2	1	1	--	--	5	NA	1.1	0	--	--	No data	--	--	1	--	--	No detected values	--	--
106-47-8	4-Chloroaniline	mg/kg	1.5	2	1	1	--	--	10	NA	2.4	0	--	--	No data	--	--	1	--	--	No detected values	--	--
7440-36-0	Antimony	mg/kg	0	8.5	21	2	0.36	192	192	0.56	31	7	11.94	Normal	90% KM UCL	0.4	No	14	71.39	Gamma	90% Adjusted Gamma UCL	2.3	**Yes**
11104-28-2	Aroclor 1221	mg/kg	0	8.5	23	23	--	--	0.811	NA	0.14	8	--	--	No detected values	--	--	0	--	--	No data	--	--
11141-16-5	Aroclor 1232	mg/kg	0	8.5	23	23	--	--	0.403	NA	0.14	8	--	--	No detected values	--	--	0	--	--	No data	--	--
53469-21-9	Aroclor 1242	mg/kg	0	8.5	23	23	--	--	0.403	NA	0.22	8	--	--	No detected values	--	--	0	--	--	No data	--	--
12672-29-6	Aroclor 1248	mg/kg	0	8.5	23	23	--	--	0.403	NA	0.22	8	--	--	No detected values	--	--	0	--	--	No data	--	--
11097-69-1	Aroclor 1254	mg/kg	0	8.5	23	20	0.017	7.94	7.94	NA	0.22	8	--	--	Only 1 detected value; Maximum	36.1	**Yes**	15	0.02	Not discernable	90% KM (t) UCL	0.1	No
11096-82-5	Aroclor 1260	mg/kg	0	8.5	23	16	0.022	1.85	1.85	NA	0.22	8	--	--	Only 1 detected value, Maximum	8.4	**Yes**	15	0.44	Gamma	90% KM (t) UCL	2.0	**Yes**
12767-79-2	Aroclors	mg/kg	0	8.5	23	15	0.022	7.94	7.94	NA	0.31	8	5.21	Not discernable	(90% KM (Chebyshev) UCL)	16.8	**Yes**	15	0.45	Gamma	90% KM (t) UCL	1.4	**Yes**
7440-38-2	Arsenic	mg/kg	0	8.5	25	1	2.47	36.2	36.2	8.8	1	7	9.74	Normal	90% Student's-t UCL	9.7	**Yes**	18	13.33	Apprx. Gamma	90% KM (Chebyshev) UCL	13.3	**Yes**
BAPEQ	Total BaPEq	mg/kg	0	8.5	20	0	3E-05	0.8852	0.885153	NA	0.034	7	0.49	Gamma	90% Approximate Gamma UCL	14.5	**Yes**	13	0.35	Normal	90% Student's-t UCL	10.4	**Yes**
56-55-3	Benzo(a)anthracene	mg/kg	0	8.5	20	5	0.0032	0.568	0.568	NA	0.34	7	0.17	Normal	90% Student's-t UCL	0.5	No	13	0.20	Gamma	90% KM (BCA) UCL	0.6	No
50-32-8	Benzo(a)pyrene	mg/kg	0	8.5	20	2	0.0052	0.589	0.589	NA	0.034	7	0.35	Gamma	90% Approximate Gamma UCL	10.4	**Yes**	13	0.27	Normal	90% KM (t) UCL	7.9	**Yes**
205-99-2	Benzo(b)fluoranthene	mg/kg	0	8.5	18	1	0.0052	0.782	0.782	NA	0.34	7	0.42	Gamma	90% Approximate Gamma UCL	1.2	**Yes**	11	0.43	Gamma	90% KM (Chebyshev) UCL	1.3	**Yes**
111-44-4	Bis(2-chloroethyl) ether	mg/kg	1.5	2	1	1	--	--	1.65	NA	0.21	0	--	--	No data	--	--	1	--	--	No detected values	--	--
7440-50-8	Copper	mg/kg	0	8.5	25	0	17.5	47500	47500	34	620	7	7795.00	Lognormal	90% Chebyshev (Mean, Sd) UCL	12.6	**Yes**	18	10637.00	Not discernable	90% Chebyshev (Mean, Sd) UCL	17.2	**Yes**
53-70-3	Dibenzo(a,h)anthracene	mg/kg	0	8.5	20	8	0.0009	0.127	0.127	NA	0.034	7	0.05	Gamma	90% Approximate Gamma UCL	1.6	**Yes**	13	0.06	Normal	90% KM (t) UCL	1.7	**Yes**
DRH (SGT)	Diesel Range Hydrocarbons (silica gel treated)	mg/kg	8	8.5	2	0	236	1340	1340	NA	220	2	--	--	Only 2 detected values; Maximum	6.1	**Yes**	0	--	--	No data	--	--
106-93-4	Ethylene dibromide	mg/kg	0	8.5	5	5	--	--	0.1	NA	0.034	2	--	--	No detected values	--	--	3	--	--	No detected values	--	--
118-74-1	Hexachlorobenzene	mg/kg	0	2	3	3	--	--	1.65	NA	0.84	0	--	--	No data	--	--	3	--	--	No detected values	--	--
87-68-3	Hexachlorobutadiene	mg/kg	0	8.5	8	8	--	--	5	NA	0.62	2	--	--	No detected values	--	--	6	--	--	No detected values	--	--
7439-92-1	Lead	mg/kg	0	8.5	23	0	1.49	3090	3090	79	40	7	779.70	Gamma	90% Approximate Gamma UCL	19.5	**Yes**	16	701.50	Gamma	90% Approximate Gamma UCL	17.5	**Yes**
7440-28-0	Thallium	mg/kg	0	8.5	20	2	0.021	0.085	0.085	NA	0.078	7	0.07	Normal	90% KM (t) UCL	0.9	No	13	0.06	Normal	90% KM (t) UCL	0.8	No

Notes:

1 - Maximum detected concentration presented, if available. If not, maximum non-detected concentration presented.

2 - Refer to Table 2-1 for background and screening level source information.

3 - Benzo(b+k)fluoranthene was not further analyzed due to the low sample number (3); Benzo(b)fluoranthene better represents with the maximum concentration out of the three chemicals (Benzo(b+k)fluoranthene, Benzo(b)fluoranthene, Benzo(k)fluoranthene) and an (n) of 18.

Data summary (minimums and maximums) based on all available samples (i.e., discrete and composite samples).

90UCLs calculated separately using available discrete or composite soil data. 90UCL values are not provided in cases where: 1) all concentrations were non-detected 2) There were too few samples for proUCL to calculate a 90UCL.

If a candidate COPC didn't have any detected values, then no 90UCL was calculated.

90UCLs were calculated using USEPA ProUCL software, version 4.1.01.

The risk ratio for individual COIs (Rij) was calculated using the overall maximum detected value for those chemicals with too few samples to calculate a 90 UCL.

Discrete samples: diesel range hydrocarbons (silica gel treated)

90UCL - 90th upper confidence limit	SLV - screening level value
mg/kg - milligram per kilogram	Cij -concentration of COI i in medium j
min - minimum	Rij - risk ratios for COI i in medium j
max - maximum	RSL - Regional Screening Level
COI - constituent of interest	n - sample size

APPENDIX D-4-1 Human Health Soil Summary and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
11096-82-5	Aroclor 1260	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.004	0.25			NA	NA	0.22	0.25	1.1E+00	NA	**Yes**	4.3E-04	No
11097-69-1	Aroclor 1254	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	5	44%	0.0026	0.139	0.0025	207	NA	NA	0.22	207	9.4E+02	NA	**Yes**	3.6E-01	**Yes**
11100-14-4	Aroclor 1268	Aroclors	mg/kg	9/27/2010	9/29/2010	1	8.5	8	8	0%	0.0014	0.111			NA	NA	0.22	0.111	5.0E-01	NA	No	1.9E-04	No
11104-28-2	Aroclor 1221	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.0024	0.222			NA	NA	0.14	0.222	1.6E+00	NA	**Yes**	6.1E-04	No
11141-16-5	Aroclor 1232	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.0033	0.222			NA	NA	0.14	0.222	1.6E+00	NA	**Yes**	6.1E-04	No
12672-29-6	Aroclor 1248	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.004	0.167			NA	NA	0.22	0.167	7.6E-01	NA	No	2.9E-04	No
12674-11-2	Aroclor 1016	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.004	0.111			NA	NA	3.9	0.111	2.8E-02	NA	No	1.1E-05	No
12767-79-2	Aroclors	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	5	44%	0.0052	0.25	0.0025	207	NA	NA	0.31	207	6.7E+02	NA	**Yes**	2.5E-01	**Yes**
37324-23-5	Aroclor 1262	Aroclors	mg/kg	9/27/2010	9/29/2010	1	8.5	8	8	0%	0.003	0.111			NA	NA	0.22	0.111	5.0E-01	NA	No	1.9E-04	No
53469-21-9	Aroclor 1242	Aroclors	mg/kg	10/10/2002	9/29/2010	0	8.5	9	9	0%	0.004	0.167			NA	NA	0.22	0.167	7.6E-01	NA	No	2.9E-04	No
TOC	Total organic carbon	Conventionals	percent	10/10/2002	10/10/2002	0	0.5	1	0	100%			1	1	NA	NA	NA	1	NA	**?PRG**	No	NA	No
TSO	Total solids	Conventionals	percent	10/10/2002	10/10/2002	0	0.5	1	0	100%			86.8	86.8	NA	NA	NA	86.8	NA	**?PRG**	No	NA	No
30402-14-3	Tetrachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			0.000012	0.000012	NA	NA	NA	0.000012		NA	No	0.0E+00	No
30402-15-4	Pentachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			0.000034	0.000034	NA	NA	NA	0.000034		NA	No	0.0E+00	No
3268-87-9	Octachlorodibenzo-p-dioxin	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			2.90E-06	2.90E-06	NA	NA	NA	2.90E-06		NA	No	0.0E+00	No
34465-46-8	Hexachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			4.50E-06	4.50E-06	NA	NA	9.40E-05	4.50E-06		NA	No	0.0E+00	No
36088-22-9	Pentachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	5.40E-07	5.40E-07			NA	NA	NA	5.40E-07		NA	No	0.0E+00	No
37871-00-4	Heptachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			4.90E-06	4.90E-06	NA	NA	NA	4.90E-06		NA	No	0.0E+00	No
38998-75-3	Heptachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			4.60E-06	4.60E-06	NA	NA	NA	4.60E-06		NA	No	0.0E+00	No
39001-02-0	Octachlorodibenzofuran	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			8.50E-06	8.50E-06	NA	NA	NA	8.50E-06		NA	No	0.0E+00	No
41903-57-5	Tetrachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	4.00E-07	4.00E-07			NA	NA	NA	4.00E-07		NA	No	0.0E+00	No
55684-94-1	Hexachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			0.00002	0.00002	NA	NA	NA	0.00002		NA	No	0.0E+00	No
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	4.00E-07	4.00E-07			NA	NA	1.20E-05	4.00E-07		NA	No	0.0E+00	No
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	4.90E-07	4.90E-07			NA	NA	NA	4.90E-07		NA	No	0.0E+00	No
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			2.50E-06	2.50E-06	NA	NA	NA	2.50E-06		NA	No	0.0E+00	No
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	5.50E-07	5.50E-07			NA	NA	NA	5.50E-07		NA	No	0.0E+00	No
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	5.40E-07	5.40E-07			NA	NA	NA	5.40E-07		NA	No	0.0E+00	No
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			5.00E-07	5.00E-07	NA	NA	NA	5.00E-07		NA	No	0.0E+00	No
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	5.80E-07	5.80E-07			NA	NA	NA	5.80E-07		NA	No	0.0E+00	No
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	4.20E-07	4.20E-07			NA	NA	NA	4.20E-07		NA	No	0.0E+00	No
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	1	0%	6.10E-07	6.10E-07			NA	NA	NA	6.10E-07		NA	No	0.0E+00	No
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			2.20E-06	2.20E-06	NA	NA	NA	2.20E-06		NA	No	0.0E+00	No
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			5.10E-07	5.10E-07	NA	NA	NA	5.10E-07		NA	No	0.0E+00	No
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			3.10E-06	3.10E-06	NA	NA	NA	3.10E-06		NA	No	0.0E+00	No
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			2.50E-06	2.50E-06	NA	NA	NA	2.50E-06		NA	No	0.0E+00	No
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			1.40E-06	1.40E-06	NA	NA	NA	1.40E-06		NA	No	0.0E+00	No
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			9.60E-07	9.60E-07	NA	NA	NA	9.60E-07		NA	No	0.0E+00	No
TEQ_DIOXIN.0	Dioxin/furan TCDD toxicity equivalent (ND = 0)	Dioxins_Furans	mg/kg	9/27/2010	9/27/2010	1	1.5	1	0	100%			1.50E-06	1.50E-06	NA	NA	1.20E-05	1.50E-06		NA	No	0.0E+00	No
120-36-5	Dichloroprop	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0064	0.0064			NA	NA	120	0.0064	5.3E-05	NA	No	2.0E-08	No
1918-00-9	Dicamba	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0032	0.0032			NA	NA	180	0.0032	1.8E-05	NA	No	6.8E-09	No
75-99-0	Dalapon	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.016	0.016			NA	NA	180	0.016	8.9E-05	NA	No	3.4E-08	No
88-85-7	Dinoseb	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0032	0.0032			NA	NA	6.1	0.0032	5.2E-04	NA	No	2.0E-07	No
93-65-2	MCPP	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	3.2	3.2			NA	NA	6.1	3.2	5.2E-01	NA	No	2.0E-04	No
93-72-1	Silvex	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0016	0.0016			NA	NA	49	0.0016	3.3E-05	NA	No	1.2E-08	No
93-76-5	2,4,5-T	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0016	0.0016			NA	NA	61	0.0016	2.6E-05	NA	No	1.0E-08	No
94-74-6	MCPA	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	3.2	3.2			NA	NA	6.1	3.2	5.2E-01	NA	No	2.0E-04	No
94-75-7	2,4-D	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0064	0.0064			NA	NA	120	0.0064	5.3E-05	NA	No	2.0E-08	No
94-82-6	2,4-DB	Herbicides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.05	0.05			NA	NA	49	0.05	1.0E-03	NA	No	3.9E-07	No
7429-90-5	Aluminum	Metals	mg/kg	10/10/2002	9/17/2007	0	1.5	4	0	100%			9580	15800	94412	No	7700	15800	2.1E+00	NA	**Yes**	7.8E-04	No
7439-89-6	Iron	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			24200	28300	NA	NA	5500	28300	5.1E+00	NA	**Yes**	2.0E-03	No
7439-92-1	Lead	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			30	8660	79	**Yes**	40	8660	2.2E+02	NA	**Yes**	8.3E-02	**Yes**
7439-95-4	Magnesium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			3310	4160	NA	NA	NA	4160	NA	**?PRG**	No	NA	No
7439-96-5	Manganese	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			206	223	1800	No	360	223	6.2E-01	NA	No	2.4E-04	No
7439-97-6	Mercury	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	5	62%	0.05	0.1	0.054	113	0.23	**Yes**	4.7	113	2.4E+01	NA	**Yes**	9.2E-03	**Yes**
7440-02-0	Nickel	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			12.4	33.9	47	No	310	33.9	1.1E-01	NA	No	4.2E-05	No
744-09-7	Potassium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			465	620	NA	NA	NA	620	NA	**?PRG**	No	NA	No
7440-22-4	Silver	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	10	1	90%	0.02	0.02	0.0983	0.87	0.82	**Yes**	78	0.87	1.1E-02	NA	No	4.3E-06	No
7440-23-5	Sodium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			363	496	NA	NA	NA	496	NA	**?PRG**	No	NA	No
7440-28-0	Thallium	Metals	mg/kg	5/17/2001	9/29/2010	0.5	8.5	9	1	89%	0.05	0.05	0.044	0.18	5.2	No	0.078	0.18	2.3E+00	NA	**Yes**	8.8E-04	No
7440-36-0	Antimony	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			0.0507	154	0.56	**Yes**	3.1	154	5.0E+01	NA	**Yes**	1.9E-02	**Yes**
7440-38-2	Arsenic	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			1.55	39	8.8	**Yes**	1	39	3.9E+01	NA	**Yes**	1.5E-02	**Yes**
7440-39-3	Barium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			131	1060	790	**Yes**	3100	1060	3.4E-01	NA	No	1.3E-04	No

APPENDIX D-4-1 Human Health Soil Summary and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
7440-41-7	Beryllium	Metals	mg/kg	5/17/2001	9/29/2010	0.5	8.5	9	0	100%			0.18	0.535	2	No	31	0.535	1.7E-02	NA	No	6.6E-06	No
7440-43-9	Cadmium	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	10	1	90%	0.05	0.05	0.0908	1	0.63	**Yes**	7.8	1	1.3E-01	NA	No	4.9E-05	No
7440-47-3	Chromium	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			10	33.4	76	No	23000	33.4	1.5E-03	NA	No	5.5E-07	No
7440-48-4	Cobalt	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			13.8	16.1	NA	NA	2.3	16.1	7.0E+00	NA	**Yes**	2.7E-03	No
7440-50-8	Copper	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	13	0	100%			25.5	1400	34	**Yes**	620	1400	2.3E+00	NA	**Yes**	8.6E-04	No
7440-62-2	Vanadium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			47	68.3	180	No	39	68.3	1.8E+00	NA	**Yes**	6.7E-04	No
7440-66-6	Zinc	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	12	0	100%			65.2	684	180	**Yes**	2300	684	3.0E-01	NA	No	1.1E-04	No
7440-70-2	Calcium	Metals	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			3850	5750	NA	NA	NA	5750	NA	**?PRG**	No	NA	No
7782-49-2	Selenium	Metals	mg/kg	5/17/2001	9/29/2010	0	8.5	10	1	90%	0.2	0.2	0.161	0.83	0.71	**Yes**	39	0.83	2.1E-02	NA	No	8.1E-06	No
120-12-7	Anthracene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	5	44%	0.0102	32.8	0.0196	0.519	NA	NA	4700	0.519	1.1E-04	NA	No	4.2E-08	No
129-00-0	Pyrene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.023	3.37	NA	NA	340	3.37	9.9E-03	NA	No	3.8E-06	No
130498-29-2	Total PAHs	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	12	3	75%	0.427	32.8	0.194	22.6181	NA	NA	NA	22.6181	NA	**?PRG**	No	NA	No
BAPEQ	Total BaPEq	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.00599	1.57872	NA	NA	0.034	1.57872	4.6E+01	NA	**Yes**	1.8E-02	**Yes**
HPAH	High Molecular Weight PAH	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.102	18.621	NA	NA	NA	18.621	NA	**?PRG**	No	NA	No
LPAH	Low Molecular Weight PAH	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.092	4.198	NA	NA	NA	4.198	NA	**?PRG**	No	NA	No
191-24-2	Benzo(g,h,i)perylene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0058	0.38	NA	NA	340	0.38	1.1E-03	NA	No	4.3E-07	No
193-39-5	Indeno(1,2,3-cd)pyrene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0048	0.169	NA	NA	0.34	0.169	5.0E-01	NA	No	1.9E-04	No
205-99-2	Benzo(b)fluoranthene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0056	1.76	NA	NA	0.34	1.76	5.2E+00	NA	**Yes**	2.0E-03	No
206-44-0	Fluoranthene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.039	1.26	NA	NA	460	1.26	2.7E-03	NA	No	1.0E-06	No
207-08-9	Benzo(k)fluoranthene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0066	1.56	NA	NA	3.4	1.56	4.6E-01	NA	No	1.8E-04	No
208-96-8	Acenaphthylene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	4	56%	0.019	32.8	0.0169	0.0731	NA	NA	940	0.0731	7.8E-05	NA	No	3.0E-08	No
218-01-9	Chrysene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0079	6.22	NA	NA	32	6.22	1.9E-01	NA	No	7.4E-05	No
50-32-8	Benzo(a)pyrene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0044	0.849	NA	NA	0.034	0.849	2.5E+01	NA	**Yes**	9.5E-03	**Yes**
53-70-3	Dibenzo(a,h)anthracene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	4	56%	0.0019	32.8	0.0081	0.233	NA	NA	0.034	0.233	6.9E+00	NA	**Yes**	2.6E-03	No
56-55-3	Benzo(a)anthracene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.0048	2.82	NA	NA	0.34	2.82	8.3E+00	NA	**Yes**	3.2E-03	No
83-32-9	Acenaphthene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	4	56%	0.019	32.8	0.0051	0.118	NA	NA	940	0.118	1.3E-04	NA	No	4.8E-08	No
85-01-8	Phenanthrene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.051	2.71	NA	NA	460	2.71	5.9E-03	NA	No	2.2E-06	No
86-73-7	Fluorene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	4	56%	0.019	32.8	0.0119	0.577	NA	NA	630	0.577	9.2E-04	NA	No	3.5E-07	No
90-12-0	1-Methylnaphthalene	PAHs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			0.0118	0.108	NA	NA	16	0.108	6.8E-03	NA	No	2.6E-06	No
91-20-3	Naphthalene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	9	3	67%	0.427	32.8	0.041	0.421	NA	NA	25	0.421	1.7E-02	NA	No	6.4E-06	No
91-57-6	2-Methylnaphthalene	PAHs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	1	83%	0.019	0.019	0.018	0.113	NA	NA	23	0.113	4.9E-03	NA	No	1.9E-06	No
CPAH	Total cPAHs	PAHs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	0	100%			0.034	0.034	NA	NA	NA	0.034		NA	No	0.0E+00	No
EPAPAHs	Total EPA 16 Priority Pollutant PAHs (EPAPAHs)	PAHs	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			2.78	5.41	NA	NA	NA	5.41		NA	No	0.0E+00	No
1024-57-3	Heptachlor epoxide	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	0.14	0.0002	1.4E-03	NA	No	5.5E-07	No
1031-07-8	Endosulfan sulfate	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	73	0.0004	5.5E-06	NA	No	2.1E-09	No
2385-85-5	Mirex	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	0.027	0.0004	1.5E-02	NA	No	5.7E-06	No
27304-13-8	Oxychlordane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	1.6	0.0004	2.5E-04	NA	No	9.5E-08	No
309-00-2	Aldrin	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	0.072	0.0002	2.8E-03	NA	No	1.1E-06	No
319-84-6	alpha-Hexachlorocyclohexane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	0.2	0.0002	1.0E-03	NA	No	3.8E-07	No
319-85-7	beta-Hexachlorocyclohexane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.00031	0.00031			NA	NA	0.27	0.00031	1.1E-03	NA	No	4.4E-07	No
319-86-8	delta-Hexachlorocyclohexane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	NA	0.0002	NA	**?PRG**	No	NA	No
33213-65-9	beta-Endosulfan	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	73	0.0004	5.5E-06	NA	No	2.1E-09	No
3424-82-6	2,4'-DDE	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	4.5	0.0004	8.9E-05	NA	No	3.4E-08	No
39765-80-5	trans-Nonachlor	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	4.2	0.0004	9.5E-05	NA	No	3.6E-08	No
50-29-3	4,4'-DDT	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0005	0.0005			NA	NA	4.5	0.0005	1.1E-04	NA	No	4.2E-08	No
5103-71-9	cis-Chlordane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	1.6	0.0002	1.3E-04	NA	No	4.8E-08	No
5103-73-1	cis-Nonachlor	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	4.2	0.0004	9.5E-05	NA	No	3.6E-08	No
5103-74-2	trans-Chlordane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	1.6	0.0002	1.3E-04	NA	No	4.8E-08	No
53-19-0	2,4'-DDD	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	6.4	0.0004	6.3E-05	NA	No	2.4E-08	No
53494-70-5	Endrin ketone	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	1.8	0.0004	2.2E-04	NA	No	8.5E-08	No
58-89-9	gamma-Hexachlorocyclohexane	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	1.1	0.0002	1.8E-04	NA	No	6.9E-08	No
60-57-1	Dieldrin	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	0.08	0.0004	5.0E-03	NA	No	1.9E-06	No
72-20-8	Endrin	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	3.7	0.0004	1.1E-04	NA	No	4.1E-08	No
72-43-5	Methoxychlor	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.002	0.002			NA	NA	31	0.002	6.5E-05	NA	No	2.5E-08	No
72-54-8	4,4'-DDD	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	6.4	0.0004	6.3E-05	NA	No	2.4E-08	No
72-55-9	4,4'-DDE	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.00051	0.00051			NA	NA	4.5	0.00051	1.1E-04	NA	No	4.3E-08	No
7421-93-4	Endrin aldehyde	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	1.8	0.0004	2.2E-04	NA	No	8.5E-08	No
76-44-8	Heptachlor	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	0.28	0.0002	7.1E-04	NA	No	2.7E-07	No
789-02-6	2,4'-DDT	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	4.5	0.0004	8.9E-05	NA	No	3.4E-08	No
8001-35-2	Toxaphene	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.02	0.02			NA	NA	1.2	0.02	1.7E-02	NA	No	6.4E-06	No
959-98-8	alpha-Endosulfan	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	73	0.0002	2.7E-06	NA	No	1.0E-09	No
E17075011	Total of 2,4' and 4,4'-DDD	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	6.4	0.0004	6.3E-05	NA	No	2.4E-08	No

APPENDIX D-4-1 Human Health Soil Summary and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
E17075029	Total of 2,4' and 4,4'-DDE	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.00051	0.00051			NA	NA	4.5	0.00051	1.1E-04	NA	No	4.3E-08	No
E17075037	Total of 2,4' and 4,4'-DDT	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0005	0.0005			NA	NA	4.5	0.0005	1.1E-04	NA	No	4.2E-08	No
E966176	Total of 2,4' and 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.00051	0.00051			NA	NA	NA	0.00051	NA	**?PRG**	No	NA	No
PP_DDT3ISO	Total of 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.00051	0.00051			NA	NA	4.5	0.00051	1.1E-04	NA	No	4.3E-08	No
TOTCHLDANE	Total Chlordanes	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	1.6	0.0004	2.5E-04	NA	No	9.5E-08	No
TOTENDOSLFN	Total Endosulfan	Pesticides	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0004	0.0004			NA	NA	37	0.0004	1.1E-05	NA	No	4.1E-09	No
DRH	Diesel Range Hydrocarbons	Petroleum	mg/kg	5/17/2001	9/27/2010	0.5	3	11	1	91%	25	25	89.4	91300	NA	NA	220	91300	4.2E+02	NA	**Yes**	1.6E-01	**Yes**
DRH (SGT)	Diesel Range Hydrocarbons (silica gel treated)	Petroleum	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			236	18500	NA	NA	220	18500	8.4E+01	NA	**Yes**	3.2E-02	**Yes**
GRH	Gasoline Range Hydrocarbons	Petroleum	mg/kg	9/27/2010	9/27/2010	1	1.5	4	2	50%	41.5	50.2	1.4	43.5	NA	NA	250	43.5	1.7E-01	NA	No	6.6E-05	No
M09800000	Motor oil	Petroleum	mg/kg	9/27/2010	9/27/2010	1	1.5	3	0	100%			218	56000	NA	NA	NA	56000	NA	**?PRG**	No	NA	No
M09800000 (SGT)	Motor oil (silica gel treated)	Petroleum	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			199	49400	NA	NA	NA	49400	NA	**?PRG**	No	NA	No
ORH	Oil Range Hydrocarbons	Petroleum	mg/kg	5/17/2001	10/28/2004	0.5	3	8	0	100%			132	193000	NA	NA	NA	193000	NA	**?PRG**	No	NA	No
TPH	Total Petroleum Hydrocarbons	Petroleum	mg/kg	9/17/2007	9/17/2007	1	1.5	3	0	100%			430	780	NA	NA	NA	780	NA	**?PRG**	No	NA	No
100-02-7	4-Nitrophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	NA	0.096	NA	**?PRG**	No	NA	No
105-67-9	2,4-Dimethylphenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.058	0.058			NA	NA	120	0.058	4.8E-04	NA	No	1.8E-07	No
106-44-5	4-Methylphenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	610	0.019	3.1E-05	NA	No	1.2E-08	No
108-95-2	Phenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.039	0.039			NA	NA	1800	0.039	2.2E-05	NA	No	8.3E-09	No
120-83-2	2,4-Dichlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.058	0.058			NA	NA	18	0.058	3.2E-03	NA	No	1.2E-06	No
4901-51-3	2,3,4,5-Tetrachlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	180	0.096	5.3E-04	NA	No	2.0E-07	No
51-28-5	2,4-Dinitrophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.19	0.19			NA	NA	12	0.19	1.6E-02	NA	No	6.0E-06	No
534-52-1	4,6-Dinitro-2-methylphenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.19	0.19			NA	NA	NA	0.19	NA	**?PRG**	No	NA	No
58-90-2	2,3,4,6-Tetrachlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	180	0.096	5.3E-04	NA	No	2.0E-07	No
59-50-7	4-Chloro-3-methylphenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.039	0.039			NA	NA	NA	0.039	NA	**?PRG**	No	NA	No
87-86-5	Pentachlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0097	0.0097			NA	NA	2.4	0.0097	4.0E-03	NA	No	1.5E-06	No
88-06-2	2,4,6-Trichlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	12	0.096	8.0E-03	NA	No	3.1E-06	No
88-75-5	2-Nitrophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	NA	0.096	NA	**?PRG**	No	NA	No
935-95-5	2,3,5,6-Tetrachlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	180	0.096	5.3E-04	NA	No	2.0E-07	No
95-48-7	2-Methylphenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	310	0.019	6.1E-05	NA	No	2.3E-08	No
95-57-8	2-Chlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
95-95-4	2,4,5-Trichlorophenol	Phenols	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	610	0.096	1.6E-04	NA	No	6.0E-08	No
117-81-7	Bis(2-ethylhexyl) phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	93	0.019	2.0E-04	NA	No	7.8E-08	No
117-84-0	Di-n-octyl phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	1.5E-09	No
131-11-3	Dimethyl phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	1.5E-09	No
84-66-2	Diethyl phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	1.5E-09	No
84-74-2	Dibutyl phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	0	100%			0.035	0.035	NA	NA	610	0.035	5.7E-05	NA	No	2.2E-08	No
85-68-7	Butylbenzyl phthalate	Phthalates	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	260	0.019	7.3E-05	NA	No	2.8E-08	No
100-01-6	4-Nitroaniline	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	24	0.096	4.0E-03	NA	No	1.5E-06	No
100-51-6	Benzyl alcohol	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	610	0.096	1.6E-04	NA	No	6.0E-08	No
101-55-3	4-Bromophenyl phenyl ether	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
103-33-3	Azobenzene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	5.1	0.019	3.7E-03	NA	No	1.4E-06	No
106-46-7	1,4-Dichlorobenzene	SVOCs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	2	67%	0.00034	0.019	0.0031	0.023	NA	NA	62	0.023	3.7E-04	NA	No	1.4E-07	No
106-47-8	4-Chloroaniline	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.058	0.058			NA	NA	2.4	0.058	2.4E-02	NA	No	9.2E-06	No
108-60-1	Bis(2-chloro-1-methylethyl) ether	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4.6	0.019	4.1E-03	NA	No	1.6E-06	No
111-44-4	Bis(2-chloroethyl) ether	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.039	0.039			NA	NA	0.21	0.039	1.9E-01	NA	No	7.1E-05	No
111-91-1	Bis(2-chloroethoxy) methane	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	18	0.019	1.1E-03	NA	No	4.0E-07	No
118-74-1	Hexachlorobenzene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0002	0.0002			NA	NA	0.84	0.0002	2.4E-04	NA	No	9.1E-08	No
120-82-1	1,2,4-Trichlorobenzene	SVOCs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	4	33%	0.00086	0.019	0.00038	0.0041	NA	NA	2.2	0.0041	1.9E-03	NA	No	7.1E-07	No
121-14-2	2,4-Dinitrotoluene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	1.6	0.096	6.0E-02	NA	No	2.3E-05	No
132-64-9	Dibenzofuran	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	0	100%			0.011	0.011	NA	NA	7.8	0.011	1.4E-03	NA	No	5.4E-07	No
541-73-1	1,3-Dichlorobenzene	SVOCs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	3	50%	0.00027	0.019	0.0019	0.0052	NA	NA	4400	0.0052	1.2E-06	NA	No	4.5E-10	No
606-20-2	2,6-Dinitrotoluene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	12	0.096	8.0E-03	NA	No	3.1E-06	No
621-64-7	N-Nitrosodipropylamine	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.039	0.039			NA	NA	NA	0.039	NA	**?PRG**	No	NA	No
62-53-3	Aniline	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	8.5	0.019	2.2E-03	NA	No	8.5E-07	No
62-75-9	N-Nitrosodimethylamine	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	0.0023	0.096	4.2E+01	NA	**Yes**	1.6E-02	**Yes**
65-85-0	Benzoic acid	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.19	0.19			NA	NA	24000	0.19	7.9E-06	NA	No	3.0E-09	No
67-72-1	Hexachloroethane	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.0019	0.0019			NA	NA	6.6	0.0019	2.9E-04	NA	No	1.1E-07	No
7005-72-3	4-Chlorophenyl phenyl ether	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
77-47-4	Hexachlorocyclopentadiene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	37	0.096	2.6E-03	NA	No	9.9E-07	No
78-59-1	Isophorone	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	510	0.019	3.7E-05	NA	No	1.4E-08	No
86-30-6	N-Nitrosodiphenylamine	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	99	0.019	1.9E-04	NA	No	7.3E-08	No
86-74-8	Carbazole	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	0	100%			0.0029	0.0029	NA	NA	630	0.0029	4.6E-06	NA	No	1.8E-09	No
87-68-3	Hexachlorobutadiene	SVOCs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	6	0%	0.00042	0.0304			NA	NA	0.62	0.0304	4.9E-02	NA	No	1.9E-05	No

APPENDIX D-4-1 Human Health Soil Summary and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
88-74-4	2-Nitroaniline	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	61	0.096	1.6E-03	NA	No	6.0E-07	No
91-58-7	2-Chloronaphthalene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	630	0.019	3.0E-05	NA	No	1.2E-08	No
91-94-1	3,3'-Dichlorobenzidine	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.096	0.096			NA	NA	1.1	0.096	8.7E-02	NA	No	3.3E-05	No
95-50-1	1,2-Dichlorobenzene	SVOCs	mg/kg	10/10/2002	9/29/2010	0	8.5	6	5	17%	0.00035	0.019	0.0019	0.0019	NA	NA	440	0.0019	4.3E-06	NA	No	1.6E-09	No
98-95-3	Nitrobenzene	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4.8	0.019	4.0E-03	NA	No	1.5E-06	No
99-09-2	3-Nitroaniline	SVOCs	mg/kg	10/10/2002	10/10/2002	0	0.5	1	1	0%	0.12	0.12			NA	NA	61	0.12	2.0E-03	NA	No	7.5E-07	No
100-41-4	Ethylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	1	80%	0.00054	0.00054	0.0035	0.0098	NA	NA	110	0.0098	8.9E-05	NA	No	3.4E-08	No
100-42-5	Styrene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	1	80%	0.0021	0.0021	0.00061	0.0054	NA	NA	1600	0.0054	3.4E-06	NA	No	1.3E-09	No
10061-01-5	cis-1,3-Dichloropropene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00019	0.006			NA	NA	1.7	0.006	3.5E-03	NA	No	1.3E-06	No
10061-02-6	trans-1,3-Dichloropropene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0003	0.0054			NA	NA	1.7	0.0054	3.2E-03	NA	No	1.2E-06	No
103-65-1	n-Propylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	1	80%	0.0005	0.0005	0.0037	0.0108	NA	NA	340	0.0108	3.2E-05	NA	No	1.2E-08	No
104-51-8	n-Butylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.00065	0.0016	0.0035	0.0131	NA	NA	390	0.0131	3.4E-05	NA	No	1.3E-08	No
106-43-4	4-Chlorotoluene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00038	0.0068			NA	NA	160	0.0068	4.3E-05	NA	No	1.6E-08	No
106-93-4	Ethylene dibromide	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0003	0.0068			NA	NA	0.034	0.0068	2.0E-01	NA	No	7.6E-05	No
107-06-2	1,2-Dichloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00031	0.0116			NA	NA	12	0.0116	9.7E-04	NA	No	3.7E-07	No
91-20-3	Naphthalene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.00078	0.0041	0.0225	0.0362	NA	NA	25	0.0362	1.4E-03	NA	No	5.5E-07	No
108-10-1	Methyl isobutyl ketone	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00043	0.0114			NA	NA	530	0.0114	2.2E-05	NA	No	8.2E-09	No
108-67-8	1,3,5-Trimethylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.00045	0.0044	0.0045	0.0189	NA	NA	160	0.0189	1.2E-04	NA	No	4.5E-08	No
108-86-1	Bromobenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00033	0.003			NA	NA	30	0.003	1.0E-04	NA	No	3.8E-08	No
108-88-3	Toluene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			0.00053	0.0988	NA	NA	1200	0.0988	8.2E-05	NA	No	3.1E-08	No
108-90-7	Chlorobenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.00026	0.0014	0.0033	0.0043	NA	NA	110	0.0043	3.9E-05	NA	No	1.5E-08	No
124-48-1	Chlorodibromomethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00014	0.0053			NA	NA	12	0.0053	4.4E-04	NA	No	1.7E-07	No
127-18-4	Tetrachloroethene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00054	0.0139			NA	NA	54	0.0139	2.6E-04	NA	No	9.8E-08	No
1330-20-7	Xylene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			0.0017	0.029	NA	NA	290	0.029	1.0E-04	NA	No	3.8E-08	No
135-98-8	Sec-butylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.00059	0.0031	0.0044	0.0069	NA	NA	390	0.0069	1.8E-05	NA	No	6.8E-09	No
142-28-9	1,3-Dichloropropane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00039	0.0094			NA	NA	160	0.0094	5.9E-05	NA	No	2.2E-08	No
156-59-2	cis-1,2-Dichloroethene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0003	0.0071			NA	NA	31	0.0071	2.3E-04	NA	No	8.7E-08	No
156-60-5	trans-1,2-Dichloroethene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00042	0.006			NA	NA	120	0.006	5.0E-05	NA	No	1.9E-08	No
1634-04-4	Methyl tert-butyl ether	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00035	0.0042			NA	NA	720	0.0042	5.8E-06	NA	No	2.2E-09	No
179601-23-1	m,p-Xylene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			0.0017	0.0208	NA	NA	290	0.0208	7.2E-05	NA	No	2.7E-08	No
56-23-5	Carbon tetrachloride	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00026	0.0099			NA	NA	20	0.0099	5.0E-04	NA	No	1.9E-07	No
563-58-6	1,1-Dichloropropene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00049	0.0158			NA	NA	1.7	0.0158	9.3E-03	NA	No	3.5E-06	No
591-78-6	Methyl n-butyl ketone	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00051	0.0395			NA	NA	21	0.0395	1.9E-03	NA	No	7.2E-07	No
594-20-7	2,2-Dichloropropane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00026	0.0123			NA	NA	NA	0.0123	NA	**?PRG**	No	NA	No
630-20-6	1,1,1,2-Tetrachloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00021	0.0071			NA	NA	1.9	0.0071	3.7E-03	NA	No	1.4E-06	No
67-64-1	Acetone	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.0352	0.0546	0.0054	1.18	NA	NA	6100	1.18	1.9E-04	NA	No	7.4E-08	No
67-66-3	Chloroform	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00028	0.0084			NA	NA	22	0.0084	3.8E-04	NA	No	1.5E-07	No
71-43-2	Benzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.00021	0.0011	0.00057	0.0117	NA	NA	24	0.0117	4.9E-04	NA	No	1.9E-07	No
71-55-6	1,1,1-Trichloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00026	0.0075			NA	NA	11000	0.0075	6.8E-07	NA	No	2.6E-10	No
74-83-9	Bromomethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00045	0.0401			NA	NA	9.2	0.0401	4.4E-03	NA	No	1.7E-06	No
74-87-3	Chloromethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.00029	0.0015	0.0115	0.0231	NA	NA	290	0.0231	8.0E-05	NA	No	3.0E-08	No
74-95-3	Methylene bromide	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0003	0.0104			NA	NA	2.5	0.0104	4.2E-03	NA	No	1.6E-06	No
74-97-5	Bromochloromethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00031	0.012			NA	NA	1.2	0.012	1.0E-02	NA	No	3.8E-06	No
75-00-3	Chloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00041	0.0109			NA	NA	32000	0.0109	3.4E-07	NA	No	1.3E-10	No
75-01-4	Vinyl chloride	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0004	0.0082			NA	NA	0.76	0.0082	1.1E-02	NA	No	4.1E-06	No
75-09-2	Methylene chloride	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0037	0.0196			NA	NA	5.6	0.0196	3.5E-03	NA	No	1.3E-06	No
75-15-0	Carbon disulfide	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.0004	0.035	0.0028	0.0074	NA	NA	82	0.0074	9.0E-05	NA	No	3.4E-08	No
75-25-2	Bromoform	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00033	0.014			NA	NA	170	0.014	8.2E-05	NA	No	3.1E-08	No
75-27-4	Bromodichloromethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00017	0.0112			NA	NA	0.27	0.0112	4.1E-02	NA	No	1.6E-05	No
75-34-3	1,1-Dichloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00034	0.0062			NA	NA	190	0.0062	3.3E-05	NA	No	1.2E-08	No
75-35-4	1,1-Dichloroethene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00053	0.0109			NA	NA	350	0.0109	3.1E-05	NA	No	1.2E-08	No
75-69-4	Trichlorofluoromethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00032	0.0143			NA	NA	1500	0.0143	9.5E-06	NA	No	3.6E-09	No
75-71-8	Dichlorodifluoromethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00059	0.0144			NA	NA	9.4	0.0144	1.5E-03	NA	No	5.8E-07	No
78-87-5	1,2-Dichloropropane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00026	0.0101			NA	NA	0.94	0.0101	1.1E-02	NA	No	4.1E-06	No
78-93-3	Methylethyl ketone	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.0021	0.136	0.0301	0.198	NA	NA	2800	0.198	7.1E-05	NA	No	2.7E-08	No
79-00-5	1,1,2-Trichloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00039	0.0072			NA	NA	0.63	0.0072	1.1E-02	NA	No	4.4E-06	No
79-01-6	Trichloroethene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.0003	0.0056			NA	NA	17	0.0056	3.3E-04	NA	No	1.3E-07	No
79-34-5	1,1,2,2-Tetrachloroethane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00039	0.0096			NA	NA	0.56	0.0096	1.7E-02	NA	No	6.5E-06	No
87-61-6	1,2,3-Trichlorobenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	4	20%	0.00039	0.0096	0.005	0.005	NA	NA	4.9	0.005	1.0E-03	NA	No	3.9E-07	No
95-47-6	o-Xylene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.00046	0.0071	0.0036	0.0087	NA	NA	69	0.0087	1.3E-04	NA	No	4.8E-08	No
95-49-8	2-Chlorotoluene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00045	0.0042			NA	NA	160	0.0042	2.6E-05	NA	No	1.0E-08	No
95-63-6	1,2,4-Trimethylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	0	100%			0.00098	0.0477	NA	NA	22	0.0477	2.2E-03	NA	No	8.3E-07	No

APPENDIX D-4-1 Human Health Soil Summary and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg) [1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	COPC due to Individual Risk	Risk Ratio for Multiple COIs	COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
96-12-8	1,2-Dibromo-3-chloropropane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00055	0.0617			NA	NA	0.0054	0.0617	1.1E+01	NA	**Yes**	4.4E-03	No
96-18-4	1,2,3-Trichloropropane	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00048	0.0271			NA	NA	0.005	0.0271	5.4E+00	NA	**Yes**	2.1E-03	No
98-06-6	tert-Butylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	5	0%	0.00049	0.0026			NA	NA	390	0.0026	6.7E-06	NA	No	2.5E-09	No
98-82-8	Isopropylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	3	40%	0.00049	0.0026	0.0034	0.0062	NA	NA	700	0.0062	8.9E-06	NA	No	3.4E-09	No
99-87-6	1-Methyl-4-isopropylbenzene	VOCs	mg/kg	9/27/2010	9/29/2010	1	8.5	5	2	60%	0.00055	0.0029	0.01	0.0448	NA	NA	NA	0.0448	NA	**?PRG**	No	NA	No

Tj = Sum of toxicity ratios for all COIs in medium j 2619.495
Nij = Number of i COIs in medium j 200.000
1/Nij= 0.005

Notes:
Refer to tables and figures for a description of the soil locations included for each exposure unit.
1 - Refer to Table 2-1 for background and screening level source information.
2 - Chemicals were only flageed with "?PRG" if there was neither an DEQ RBC value or an EPA residential RSL value.

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available
<5%D - less than 5% detection frequency
?PRG - no criteria available

SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

APPENDIX D-4-2 Human Health Soil Summary with 90UCLs and Concentration Risk Screening- Inner Cove Beach Exposure Unit

Candidate COPCs			Depth Range (ft)		Number of Samples	Number of Non-detects	Detected Concentrations		COI Conc. Max[1]	Background Levels[2]	Selected SLV (mg/kg)[2]	COI Concentration (90UCL) - based on information from Composite Samples				Risk Ratio for Individual COI	90UCL Exceeds SLV - Individual COI Risk? (HQ=1)	COI Concentration (90UCL) - based on information from Discrete Samples				Risk Ratio for Individual COI	90UCL Exceeds SLV - Individual COI Risk? (HQ=1)
			Min	Max			Min	Max		Natural Background Soil Concs (mg/kg)	Urban Resident (DEQ)/ Resident (RSL)												
CASNo	Analyte	Units										n	Cij	Dist.	Estimation Method	Rij		n	Cij	Dist.	Estimation Method	Rij	
96-18-4	1,2,3-Trichloropropane	mg/kg	1	8.5	5	5	--	--	0.0271	NA	0.005	2	nc	--	No detected values	--	--	3	nc	--	No detected values	--	--
96-12-8	1,2-Dibromo-3-chloropropane	mg/kg	1	8.5	5	5	--	--	0.0617	NA	0.0054	2	nc	--	No detected values	--	--	3	nc	--	No detected values	--	--
7429-90-5	Aluminum	mg/kg	0	1.5	4	0	9580	15800	15800	94412	7700	1	nc	--	Only 1 detected value, Maximum	2.05	Yes	3	nc	--	Only 3 detected values, Maximum	2.05	Yes
7440-36-0	Antimony	mg/kg	0	8.5	13	0	0.0507	154	154	0.56	3.1	3	nc	--	Only 3 detected values, Maximum	49.68	Yes	10	62.57	Lognormal	90% Chebyshev (Mean, Sd) UCL	20.2	Yes
11104-28-2	Aroclor 1221	mg/kg	0	8.5	9	9	--	--	0.222	NA	0.14	3	nc	--	No detected values	--	--	6	nc	--	No detected values	--	--
11141-16-5	Aroclor 1232	mg/kg	0	8.5	9	9	--	--	0.222	NA	0.14	3	nc	--	No detected values	--	--	6	nc	--	No detected values	--	--
11097-69-1	Aroclor 1254	mg/kg	0	8.5	9	5	0.0025	207	207	NA	0.22	3	nc	--	Only 2 detected values, Maximum	940.91	Yes	6	168.20	Not discernable	90% KM (Chebyshev) UCL	764.5	Yes
11096-82-5	Aroclor 1260	mg/kg	0	8.5	9	9	--	--	0.25	NA	0.22	3	nc	--	No detected values	--	--	6	nc	--	No detected values	--	--
12767-79-2	Aroclors	mg/kg	0	8.5	9	5	0.0025	207	207	NA	0.31	3	nc	--	Only 2 detected values, Maximum	667.74	Yes	6	168.20	Not discernable	90% KM (Chebyshev) UCL	542.6	Yes
7440-38-2	Arsenic	mg/kg	0	8.5	13	0	1.55	39	39	8.8	1	3	nc	--	Only 3 detected values, Maximum	39.00	Yes	10	23.79	Lognormal	90% Chebyshev (Mean, Sd) UCL	23.8	Yes
BAPEQ	Total BaPEq	mg/kg	0	8.5	9	3	0.006	1.5787	1.57872	NA	0.034	3	nc	--	Only 3 detected values, Maximum	46.43	Yes	6	1.11	Normal	90% KM (t) UCL	32.7	Yes
56-55-3	Benzo(a)anthracene	mg/kg	0	8.5	9	3	0.0048	2.82	2.82	NA	0.34	3	nc	--	Only 3 detected values, Maximum	8.29	Yes	6	1.61	Normal	90% KM (t) UCL	4.7	Yes
50-32-8	Benzo(a)pyrene	mg/kg	0	8.5	9	3	0.0044	0.849	0.849	NA	0.034	3	nc	--	Only 3 detected values, Maximum	24.97	Yes	6	0.61	Normal	90% KM (t) UCL	17.9	Yes
205-99-2	Benzo(b)fluoranthene	mg/kg	0	8.5	9	3	0.0056	1.76	1.76	NA	0.34	3	nc	--	Only 3 detected values, Maximum	5.18	Yes	6	1.06	Normal	90% KM (t) UCL	3.1	Yes
7440-48-4	Cobalt	mg/kg	1	1.5	3	0	13.8	16.1	16.1	NA	2.3	0	nc	--	No data	--	--	3	nc	--	Only 3 detected values, Maximum	7.00	Yes
7440-50-8	Copper	mg/kg	0	8.5	13	0	25.5	1400	1400	34	620	3	nc	--	Only 3 detected values, Maximum	2.26	Yes	10	744.30	Not discernable	90% Chebyshev (Mean, Sd) UCL	1.2	Yes
53-70-3	Dibenzo(a,h)anthracene	mg/kg	0	8.5	9	4	0.0081	0.233	0.233	NA	0.034	3	nc	--	Only 1 detected value, Maximum	6.85	Yes	6	0.22	Normal	90% KM (t) UCL	6.5	Yes
DRH	Diesel Range Hydrocarbons	mg/kg	0.5	3	11	1	89.4	91300	91300	NA	220	0	nc	--	No data	--	--	11	38559.00	Gamma	90% KM (Chebyshev) UCL	175.3	Yes
DRH (SGT)	Diesel Range Hydrocarbons (silica gel treate	mg/kg	1	8.5	5	0	236	18500	18500	NA	220	2	nc	--	Only 2 detected values, Maximum	84.09	Yes	3	nc	--	Only 3 detected values, Maximum	84.09	Yes
7439-89-6	Iron	mg/kg	1	1.5	3	0	24200	28300	28300	NA	5500	0	nc	--	No data	--	--	3	nc	--	Only 3 detected values, Maximum	5.15	Yes
7439-92-1	Lead	mg/kg	0	8.5	13	0	30	8660	8660	79	40	3	nc	--	Only 3 detected values, Maximum	216.50	Yes	10	4115.00	Not discernable	90% Chebyshev (Mean, Sd) UCL	102.9	Yes
7439-97-6	Mercury	mg/kg	0	8.5	13	5	0.054	113	113	0.23	4.7	3	nc	--	Only 2 detected values, Maximum	24.04	Yes	10	26.01	Gamma	90% KM (BCA) UCL	5.5	Yes
62-75-9	N-Nitrosodimethylamine	mg/kg	0	0.5	1	1	--	--	0.096	NA	0.0023	1	nc	--	No detected values	--	--	0	nc	--	No data	--	--
7440-28-0	Thallium	mg/kg	0.5	8.5	9	1	0.044	0.18	0.18	5.2	0.078	2	nc	--	Only 2 detected values, Maximum	2.31	Yes	7	0.12	Normal	90% KM (t) UCL	1.5	Yes
7440-62-2	Vanadium	mg/kg	1	1.5	3	0	47	68.3	68.3	180	39	0	nc	--	No data	--	--	3	nc	--	Only 3 detected values, Maximum	1.75	Yes

Notes:

1 - Maximum detected concentration presented, if available. If not, maximum non-detected concentration presented.

2 - Refer to Table 2-1 for background and screening level source information.

Data summary (minimums and maximums) based on all available samples (i.e., discrete and composite samples).

90UCLs calculated separately using available discrete or composite soil data. 90UCL values are not provided in cases where: 1) all concentrations were non-detected 2) There were too few samples for proUCL to calculate a 90UCL.

If a candidate COPC didn't have any detected values, then no 90UCL was calculated.

The risk ratio for individual COIs (Rij) was calculated using the overall maximum detected value for those chemicals with too few samples to calculate a 90 UCL.

Composite samples: aluminum, arsenic, cadmium, lead

Discrete samples: aluminum, cobalt, diesel range hydrocarbons (silica gel treated), iron, vanadium

Composite samples: aluminum, antimony, aroclor 1254, aroclors, arsenic, total BAPEq, Benzo(cobalt, copper, dibenzo(a,h)anthracene, diesel range hydrocarbons (silica gel treated), lead, mercury, thallium

90UCLs were calculated using USEPA ProUCL software, version 4.1.01.

90UCL - 90th upper confidence limit	SLV - screening level value
mg/kg - milligram per kilogram	Cij -concentration of COI i in medium j
min - minimum	Rij - risk ratios for COI i in medium j
max - maximum	RSL - Regional Screening Level
COI - constituent of interest	n - sample size

APPENDIX D-5-1 Human Health Soil Summary and Concentration Risk Screening- Central Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg)[1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	Candidate COPC due to Individual Risk?	Risk Ratio for Multiple COIs	Candidate COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
12674-11-2	Aroclor 1016	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0011	0.004			NA	NA	3.9	0.004	1.0E-03	NA	No	1.0E-05	No
11104-28-2	Aroclor 1221	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0019	0.0081			NA	NA	0.14	0.0081	5.8E-02	NA	No	5.9E-04	No
11141-16-5	Aroclor 1232	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0018	0.0081			NA	NA	0.14	0.0081	5.8E-02	NA	No	5.9E-04	No
53469-21-9	Aroclor 1242	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0011	0.0061			NA	NA	0.22	0.0061	2.8E-02	NA	No	2.8E-04	No
12672-29-6	Aroclor 1248	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0014	0.0061			NA	NA	0.22	0.0061	2.8E-02	NA	No	2.8E-04	No
11097-69-1	Aroclor 1254	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.00064	0.005			NA	NA	0.22	0.005	2.3E-02	NA	No	2.3E-04	No
11096-82-5	Aroclor 1260	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.00082	0.0091			NA	NA	0.22	0.0091	4.1E-02	NA	No	4.2E-04	No
37324-23-5	Aroclor 1262	Aroclors	mg/kg	7/26/2004	10/4/2010	0	0.5	2	2	0%	0.00098	0.004			NA	NA	0.22	0.004	1.8E-02	NA	No	1.9E-04	No
11100-14-4	Aroclor 1268	Aroclors	mg/kg	7/26/2004	10/4/2010	0	0.5	2	2	0%	0.00084	0.004			NA	NA	0.22	0.004	1.8E-02	NA	No	1.9E-04	No
12767-79-2	Aroclors	Aroclors	mg/kg	10/14/2002	10/4/2010	0	0.5	3	3	0%	0.0019	0.0091			NA	NA	0.31	0.0091	2.9E-02	NA	No	3.0E-04	No
TOC	Total organic carbon	Conventionals	percent	10/14/2002	7/26/2004	0	0.5	2	0	100%			0.06	0.27	NA	NA	NA	0.27	NA	**?PRG**	No	NA	No
TSO	Total solids	Conventionals	percent	10/14/2002	7/26/2004	0	0.5	2	0	100%			95.3	95.4	NA	NA	NA	95.4	NA	**?PRG**	No	NA	No
38998-75-3	Heptachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.82E-06	7.82E-06	NA	NA	NA	7.82E-06		NA	No	0.0E+00	No
37871-00-4	Heptachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.01E-05	3.01E-05	NA	NA	NA	0.0000301		NA	No	0.0E+00	No
55684-94-1	Hexachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.00E-06	3.00E-06	NA	NA	NA	0.000003		NA	No	0.0E+00	No
34465-46-8	Hexachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			4.57E-06	4.57E-06	NA	NA	0.000094	4.57E-06		NA	No	0.0E+00	No
39001-02-0	Octachlorodibenzofuran	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.30E-06	7.30E-06	NA	NA	NA	0.0000073		NA	No	0.0E+00	No
3268-87-9	Octachlorodibenzo-p-dioxin	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.31E-04	1.31E-04	NA	NA	NA	0.000131		NA	No	0.0E+00	No
30402-15-4	Pentachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.39E-06	1.39E-06	NA	NA	NA	1.39E-06		NA	No	0.0E+00	No
36088-22-9	Pentachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			4.02E-07	4.02E-07	NA	NA	NA	4.02E-07		NA	No	0.0E+00	No
30402-14-3	Tetrachlorodibenzofuran homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.90E-07	3.90E-07	NA	NA	NA	3.9E-07		NA	No	0.0E+00	No
41903-57-5	Tetrachlorodibenzo-p-dioxin homologs	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.49E-07	1.49E-07	NA	NA	NA	1.49E-07		NA	No	0.0E+00	No
TOTPCDD_F	Total PCDD/F	Dioxin_Furan_Homolog	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			0.000186	0.000186	NA	NA	NA	0.000186		NA	No	0.0E+00	No
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			2.02E-06	2.02E-06	NA	NA	NA	2.02E-06		NA	No	0.0E+00	No
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.49E-05	1.49E-05	NA	NA	NA	0.0000149		NA	No	0.0E+00	No
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.04E-07	1.04E-07	NA	NA	NA	1.04E-07		NA	No	0.0E+00	No
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.02E-07	3.02E-07	NA	NA	NA	3.02E-07		NA	No	0.0E+00	No
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	1.13E-07	1.13E-07			NA	NA	NA	1.13E-07		NA	No	0.0E+00	No
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.12E-07	1.12E-07	NA	NA	NA	1.12E-07		NA	No	0.0E+00	No
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.38E-07	7.38E-07	NA	NA	NA	7.38E-07		NA	No	0.0E+00	No
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	1.90E-08	1.90E-08			NA	NA	NA	1.9E-08		NA	No	0.0E+00	No
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			4.35E-07	4.35E-07	NA	NA	NA	4.35E-07		NA	No	0.0E+00	No
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	5.20E-08	5.20E-08			NA	NA	NA	5.2E-08		NA	No	0.0E+00	No
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.70E-08	7.70E-08	NA	NA	NA	7.7E-08		NA	No	0.0E+00	No
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.65E-07	1.65E-07	NA	NA	NA	1.65E-07		NA	No	0.0E+00	No
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			8.00E-08	8.00E-08	NA	NA	NA	8E-08		NA	No	0.0E+00	No
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.90E-08	7.90E-08	NA	NA	NA	7.9E-08		NA	No	0.0E+00	No
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	1.20E-08	1.20E-08			NA	NA	0.000012	1.2E-08		NA	No	0.0E+00	No
TEQ_DIOXIN.0	Dioxin/furan TCDD toxicity equivalent (ND = 0)	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			4.96E-07	4.96E-07	NA	NA	0.000012	4.96E-07		NA	No	0.0E+00	No
TEQ_TOTAL.0	Total TCDD toxicity equivalent (ND = 0)	Dioxins_Furans	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			5.21E-07	5.21E-07	NA	NA	0.000012	5.21E-07		NA	No	0.0E+00	No
93-76-5	2,4,5-T	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0016	0.0016			NA	NA	61	0.0016	2.6E-05	NA	No	2.7E-07	No
94-75-7	2,4-D	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0065	0.0065			NA	NA	120	0.0065	5.4E-05	NA	No	5.5E-07	No
94-82-6	2,4-DB	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.082	0.082			NA	NA	49	0.082	1.7E-03	NA	No	1.7E-05	No
75-99-0	Dalapon	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.016	0.016			NA	NA	180	0.016	8.9E-05	NA	No	9.0E-07	No
1918-00-9	Dicamba	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0032	0.0032			NA	NA	180	0.0032	1.8E-05	NA	No	1.8E-07	No
120-36-5	Dichloroprop	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0065	0.0065			NA	NA	120	0.0065	5.4E-05	NA	No	5.5E-07	No
88-85-7	Dinoseb	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0032	0.0032			NA	NA	6.1	0.0032	5.2E-04	NA	No	5.3E-06	No
94-74-6	MCPA	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	3.2	3.2			NA	NA	6.1	3.2	5.2E-01	NA	No	5.3E-03	No
93-65-2	MCPP	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	3.2	3.2			NA	NA	6.1	3.2	5.2E-01	NA	No	5.3E-03	No
93-72-1	Silvex	Herbicides	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.0016	0.0016			NA	NA	49	0.0016	3.3E-05	NA	No	3.3E-07	No
7429-90-5	Aluminum	Metals	mg/kg	10/14/2002	7/26/2004	0	0.5	2	0	100%			5640	12300	94412	No	7700	12300	1.6E+00	NA	**Yes**	1.6E-02	**Yes**
7440-36-0	Antimony	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	3	1	67%	0.5	0.5	0.2	0.8	0.56	**Yes**	3.1	0.8	2.6E-01	NA	No	2.6E-03	No
7440-38-2	Arsenic	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			1.27	4.3	8.8	No	1	4.3	4.3E+00	NA	**Yes**	4.4E-02	**Yes**
7440-41-7	Beryllium	Metals	mg/kg	4/18/2001	4/18/2001	0	0.5	1	1	0%	0.5	0.5			2	No	31	0.5	1.6E-02	NA	No	1.6E-04	No
7440-43-9	Cadmium	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	3	50%	0.431	0.5	0.06	17	0.63	**Yes**	7.8	17	2.2E+00	NA	**Yes**	2.2E-02	**Yes**
7440-47-3	Chromium	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			0.622	47.5	76	No	23000	47.5	2.1E-03	NA	No	2.1E-05	No
7440-50-8	Copper	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			13.3	48.3	34	**Yes**	620	48.3	7.8E-02	NA	No	7.9E-04	No
7439-92-1	Lead	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			7.14	72.2	79	No	40	72.2	1.8E+00	NA	**Yes**	1.8E-02	**Yes**
7439-97-6	Mercury	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			0.129	1.18	0.23	**Yes**	4.7	1.18	2.5E-01	NA	No	2.6E-03	No
7440-02-0	Nickel	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			16.4	40.1	47	No	310	40.1	1.3E-01	NA	No	1.3E-03	No

APPENDIX D-5-1 Human Health Soil Summary and Concentration Risk Screening- Central Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg)[1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	Candidate COPC due to Individual Risk?	Risk Ratio for Multiple COIs	Candidate COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
7782-49-2	Selenium	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	3	3	0%	0.04	0.5			0.71	No	39	0.5	1.3E-02	NA	No	1.3E-04	No
7440-22-4	Silver	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	3	2	33%	0.02	1	0.019	0.019	0.82	No	78	0.019	2.4E-04	NA	No	2.5E-06	No
7440-28-0	Thallium	Metals	mg/kg	4/18/2001	4/18/2001	0	0.5	1	1	0%	0.5	0.5			5.2	No	0.078	0.5	6.4E+00	NA	**Yes**	6.5E-02	**Yes**
7440-66-6	Zinc	Metals	mg/kg	4/18/2001	7/26/2004	0	0.5	6	0	100%			49.8	100	180	No	2300	100	4.3E-02	NA	No	4.4E-04	No
90-12-0	1-Methylnaphthalene	PAHs	mg/kg	10/4/2010	10/4/2010	0	0.5	1	1	0%	0.005	0.005			NA	NA	16	0.005	3.1E-04	NA	No	3.2E-06	No
91-57-6	2-Methylnaphthalene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	3	2	33%	0.005	0.019	0.018	0.018	NA	NA	23	0.018	7.8E-04	NA	No	8.0E-06	No
83-32-9	Acenaphthene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	8	11%	0.005	0.019	0.003	0.003	NA	NA	940	0.003	3.2E-06	NA	No	3.2E-08	No
208-96-8	Acenaphthylene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	6	33%	0.00088	0.019	0.025	0.0646	NA	NA	940	0.0646	6.9E-05	NA	No	7.0E-07	No
120-12-7	Anthracene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	7	22%	0.005	0.019	0.036	0.0893	NA	NA	4700	0.0893	1.9E-05	NA	No	1.9E-07	No
56-55-3	Benzo(a)anthracene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0079	0.663	NA	NA	0.34	0.663	2.0E+00	NA	**Yes**	2.0E-02	**Yes**
50-32-8	Benzo(a)pyrene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0064	0.494	NA	NA	0.034	0.494	1.5E+01	NA	**Yes**	1.5E-01	**Yes**
205-99-2	Benzo(b)fluoranthene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.00076	0.0154	0.01	0.307	NA	NA	0.34	0.307	9.0E-01	NA	No	9.2E-03	**Yes**
191-24-2	Benzo(g,h,i)perylene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	3	67%	0.005	0.0154	0.015	0.16	NA	NA	340	0.16	4.7E-04	NA	No	4.8E-06	No
207-08-9	Benzo(k)fluoranthene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0094	0.337	NA	NA	3.4	0.337	9.9E-02	NA	No	1.0E-03	No
218-01-9	Chrysene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.012	0.971	NA	NA	32	0.971	3.0E-02	NA	No	3.1E-04	No
53-70-3	Dibenzo(a,h)anthracene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	6	33%	0.0038	0.0161	0.02	0.0442	NA	NA	0.034	0.0442	1.3E+00	NA	**Yes**	1.3E-02	**Yes**
206-44-0	Fluoranthene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	3	67%	0.005	0.019	0.0321	1.15	NA	NA	460	1.15	2.5E-03	NA	No	2.5E-05	No
86-73-7	Fluorene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	7	22%	0.005	0.019	0.0067	0.0482	NA	NA	630	0.0482	7.7E-05	NA	No	7.8E-07	No
HPAH	High Molecular Weight PAH	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0717	6.1712	NA	NA	NA	6.1712	NA	**?PRG**	No	NA	No
193-39-5	Indeno(1,2,3-cd)pyrene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	3	67%	0.005	0.0154	0.011	0.14	NA	NA	0.34	0.14	4.1E-01	NA	No	4.2E-03	No
LPAH	Low Molecular Weight PAH	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	5	44%	0.005	0.019	0.0208	2.0408	NA	NA	NA	2.0408	NA	**?PRG**	No	NA	No
91-20-3	Naphthalene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	6	33%	0.005	0.019	0.0266	0.0387	NA	NA	25	0.0387	1.5E-03	NA	No	1.6E-05	No
85-01-8	Phenanthrene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	5	44%	0.005	0.019	0.0208	1.8	NA	NA	460	1.8	3.9E-03	NA	No	4.0E-05	No
129-00-0	Pyrene	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	3	67%	0.005	0.019	0.0393	1.97	NA	NA	340	1.97	5.8E-03	NA	No	5.9E-05	No
BAPEQ	Total BaPEq	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0094	0.649741	NA	NA	0.034	0.649741	1.9E+01	NA	**Yes**	1.9E-01	**Yes**
CPAH	Total cPAHs	PAHs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	0	100%			0.057	0.84	NA	NA	NA	0.84		NA	No	0.0E+00	No
130498-29-2	Total PAHs	PAHs	mg/kg	10/14/2002	10/4/2010	0	0.5	9	2	78%	0.005	0.0154	0.0717	3.3222	NA	NA	NA	3.3222	NA	**?PRG**	No	NA	No
TEQ_PCB.0	Dioxin-like PCB congener TCDD toxicity equivalent (ND = 0)	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			2.49E-08	2.49E-08	NA	NA	0.000012	2.49E-08	2.1E-03	NA	No	2.1E-05	No
32598-13-3	PCB077	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.85E-06	1.85E-06	NA	NA	0.034	1.85E-06	5.4E-05	NA	No	5.5E-07	No
70362-50-4	PCB081	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.52E-07	3.52E-07	NA	NA	0.011	3.52E-07	3.2E-05	NA	No	3.3E-07	No
32598-14-4	PCB105	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.84E-06	7.84E-06	NA	NA	0.11	7.84E-06	7.1E-05	NA	No	7.3E-07	No
PCB106_118	PCB106 & 118	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.69E-05	1.69E-05	NA	NA	0.11	0.0000169	1.5E-04	NA	No	1.6E-06	No
74472-37-0	PCB114	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			4.44E-07	4.44E-07	NA	NA	0.11	4.44E-07	4.0E-06	NA	No	4.1E-08	No
65510-44-3	PCB123	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.81E-07	3.81E-07	NA	NA	0.11	3.81E-07	3.5E-06	NA	No	3.5E-08	No
57465-28-8	PCB126	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			2.37E-07	2.37E-07	NA	NA	0.000034	2.37E-07	7.0E-03	NA	No	7.1E-05	No
38380-08-4	PCB156	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			2.21E-06	2.21E-06	NA	NA	0.11	2.21E-06	2.0E-05	NA	No	2.0E-07	No
69782-90-7	PCB157	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			7.08E-07	7.08E-07	NA	NA	0.11	7.08E-07	6.4E-06	NA	No	6.6E-08	No
52663-72-6	PCB167	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			1.15E-06	1.15E-06	NA	NA	0.11	1.15E-06	1.0E-05	NA	No	1.1E-07	No
32774-16-6	PCB169	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	1.51E-07	1.51E-07			NA	NA	0.00011	1.51E-07	1.4E-03	NA	No	1.4E-05	No
39635-31-9	PCB189	PCB_Congeners	mg/kg	7/26/2004	7/26/2004	0	0.5	1	0	100%			3.71E-07	3.71E-07	NA	NA	0.11	3.71E-07	3.4E-06	NA	No	3.4E-08	No
53-19-0	2,4'-DDD	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.72E-05	0.00038			NA	NA	6.4	0.00038	5.9E-05	NA	No	6.0E-07	No
3424-82-6	2,4'-DDE	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.88E-05	0.00038			NA	NA	4.5	0.00038	8.4E-05	NA	No	8.6E-07	No
789-02-6	2,4'-DDT	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000367	0.000367	NA	NA	4.5	0.000367	8.2E-05	NA	No	8.3E-07	No
72-54-8	4,4'-DDD	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000204	0.000204	NA	NA	6.4	0.000204	3.2E-05	NA	No	3.2E-07	No
72-55-9	4,4'-DDE	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000588	0.000588	NA	NA	4.5	0.000588	1.3E-04	NA	No	1.3E-06	No
50-29-3	4,4'-DDT	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000438	0.000438	NA	NA	4.5	0.000438	9.7E-05	NA	No	9.9E-07	No
309-00-2	Aldrin	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.64E-05	0.00019			NA	NA	0.072	0.00019	2.6E-03	NA	No	2.7E-05	No
959-98-8	alpha-Endosulfan	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.43E-05	0.00019			NA	NA	73	0.00019	2.6E-06	NA	No	2.6E-08	No
319-84-6	alpha-Hexachlorocyclohexane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.82E-05	0.00019			NA	NA	0.2	0.00019	9.5E-04	NA	No	9.7E-06	No
33213-65-9	beta-Endosulfan	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000726	0.000726	NA	NA	73	0.000726	9.9E-06	NA	No	1.0E-07	No
319-85-7	beta-Hexachlorocyclohexane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00019	0.00019	0.000831	0.000831	NA	NA	0.27	0.000831	3.1E-03	NA	No	3.1E-05	No
5103-71-9	cis-Chlordane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.81E-05	0.00019			NA	NA	1.6	0.00019	1.2E-04	NA	No	1.2E-06	No
5103-73-1	cis-Nonachlor	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.52E-05	0.00038			NA	NA	4.2	0.00038	9.0E-05	NA	No	9.2E-07	No
319-86-8	delta-Hexachlorocyclohexane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	6.03E-05	0.00019			NA	NA	NA	0.00019	NA	**?PRG**	No	NA	No
60-57-1	Dieldrin	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	4.32E-05	0.00038			NA	NA	0.08	0.00038	4.8E-03	NA	No	4.8E-05	No
1031-07-8	Endosulfan sulfate	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	6.23E-05	0.00038			NA	NA	73	0.00038	5.2E-06	NA	No	5.3E-08	No
72-20-8	Endrin	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000751	0.000751	NA	NA	3.7	0.000751	2.0E-04	NA	No	2.1E-06	No
7421-93-4	Endrin aldehyde	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.69E-05	0.00038			NA	NA	1.8	0.00038	2.1E-04	NA	No	2.1E-06	No
53494-70-5	Endrin ketone	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.48E-05	0.00038			NA	NA	1.8	0.00038	2.1E-04	NA	No	2.1E-06	No
58-89-9	gamma-Hexachlorocyclohexane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	6.44E-05	0.00019			NA	NA	1.1	0.00019	1.7E-04	NA	No	1.8E-06	No

APPENDIX D-5-1 Human Health Soil Summary and Concentration Risk Screening- Central Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg)[1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	Candidate COPC due to Individual Risk?	Risk Ratio for Multiple COIs	Candidate COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
76-44-8	Heptachlor	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.57E-05	0.00019			NA	NA	0.28	0.00019	6.8E-04	NA	No	6.9E-06	No
1024-57-3	Heptachlor epoxide	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.35E-05	0.00019			NA	NA	0.14	0.00019	1.4E-03	NA	No	1.4E-05	No
72-43-5	Methoxychlor	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.34E-05	0.0019			NA	NA	31	0.0019	6.1E-05	NA	No	6.2E-07	No
2385-85-5	Mirex	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.03E-05	0.00038			NA	NA	0.027	0.00038	1.4E-02	NA	No	1.4E-04	No
27304-13-8	Oxychlordane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	1.52E-05	0.00038			NA	NA	1.6	0.00038	2.4E-04	NA	No	2.4E-06	No
TOTCHLDANE	Total Chlordanes	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.52E-05	0.00038			NA	NA	1.6	0.00038	2.4E-04	NA	No	2.4E-06	No
TOTENDOSLFN	Total Endosulfan	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000726	0.000726	NA	NA	37	0.000726	2.0E-05	NA	No	2.0E-07	No
E17075011	Total of 2,4' and 4,4'-DDD	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000204	0.000204	NA	NA	6.4	0.000204	3.2E-05	NA	No	3.2E-07	No
E966176	Total of 2,4' and 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.0016	0.0016	NA	NA	NA	0.0016	NA	**?PRG**	No	NA	No
E17075029	Total of 2,4' and 4,4'-DDE	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000588	0.000588	NA	NA	4.5	0.000588	1.3E-04	NA	No	1.3E-06	No
E17075037	Total of 2,4' and 4,4'-DDT	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.000805	0.000805	NA	NA	4.5	0.000805	1.8E-04	NA	No	1.8E-06	No
PP_DDT3ISO	Total of 4,4'-DDD, -DDE, -DDT	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.00038	0.00038	0.00123	0.00123	NA	NA	4.5	0.00123	2.7E-04	NA	No	2.8E-06	No
8001-35-2	Toxaphene	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00794	0.019			NA	NA	1.2	0.019	1.6E-02	NA	No	1.6E-04	No
5103-74-2	trans-Chlordane	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	1.77E-05	0.00019			NA	NA	1.6	0.00019	1.2E-04	NA	No	1.2E-06	No
39765-80-5	trans-Nonachlor	Pesticides	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	3.06E-05	0.00038			NA	NA	4.2	0.00038	9.0E-05	NA	No	9.2E-07	No
DRH	Diesel Range Hydrocarbons	Petroleum	mg/kg	4/18/2001	4/18/2001	0	0.5	1	1	0%	25	25			NA	NA	220	25	1.1E-01	NA	No	1.2E-03	No
ORH	Oil Range Hydrocarbons	Petroleum	mg/kg	4/18/2001	4/18/2001	0	0.5	1	1	0%	50	50			NA	NA	NA	50	NA	**?PRG**	No	NA	No
4901-51-3	2,3,4,5-Tetrachlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00062	0.094			NA	NA	180	0.094	5.2E-04	NA	No	5.3E-06	No
25167-83-3_3	2,3,4,6;2,3,5,6-Tetrachlorophenol coelution	Phenols	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	0.00039	0.00039			NA	NA	180	0.00039	2.2E-06	NA	No	2.2E-08	No
58-90-2	2,3,4,6-Tetrachlorophenol	Phenols	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.094	0.094			NA	NA	180	0.094	5.2E-04	NA	No	5.3E-06	No
935-95-5	2,3,5,6-Tetrachlorophenol	Phenols	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.094	0.094			NA	NA	180	0.094	5.2E-04	NA	No	5.3E-06	No
95-95-4	2,4,5-Trichlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00031	0.094			NA	NA	610	0.094	1.5E-04	NA	No	1.6E-06	No
88-06-2	2,4,6-Trichlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00039	0.094			NA	NA	12	0.094	7.8E-03	NA	No	8.0E-05	No
120-83-2	2,4-Dichlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.002	0.057			NA	NA	18	0.057	3.2E-03	NA	No	3.2E-05	No
105-67-9	2,4-Dimethylphenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0059	0.057			NA	NA	120	0.057	4.8E-04	NA	No	4.8E-06	No
51-28-5	2,4-Dinitrophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.039	0.19			NA	NA	12	0.19	1.6E-02	NA	No	1.6E-04	No
95-57-8	2-Chlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0019	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
95-48-7	2-Methylphenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0037	0.019			NA	NA	310	0.019	6.1E-05	NA	No	6.2E-07	No
88-75-5	2-Nitrophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0028	0.094			NA	NA	NA	0.094	NA	**?PRG**	No	NA	No
534-52-1	4,6-Dinitro-2-methylphenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0019	0.19			NA	NA	NA	0.19	NA	**?PRG**	No	NA	No
59-50-7	4-Chloro-3-methylphenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0023	0.038			NA	NA	NA	0.038	NA	**?PRG**	No	NA	No
106-44-5	4-Methylphenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0031	0.019			NA	NA	610	0.019	3.1E-05	NA	No	3.2E-07	No
100-02-7	4-Nitrophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.032	0.094			NA	NA	NA	0.094	NA	**?PRG**	No	NA	No
87-86-5	Pentachlorophenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00042	0.019			NA	NA	2.4	0.019	7.9E-03	NA	No	8.1E-05	No
108-95-2	Phenol	Phenols	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0021	0.038			NA	NA	1800	0.038	2.1E-05	NA	No	2.1E-07	No
117-81-7	Bis(2-ethylhexyl) phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.008	0.019			NA	NA	93	0.019	2.0E-04	NA	No	2.1E-06	No
85-68-7	Butylbenzyl phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0016	0.019			NA	NA	260	0.019	7.3E-05	NA	No	7.4E-07	No
84-74-2	Dibutyl phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	0	100%			0.0042	0.034	NA	NA	610	0.034	5.6E-05	NA	No	5.7E-07	No
84-66-2	Diethyl phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0038	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	3.9E-08	No
131-11-3	Dimethyl phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.002	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	3.9E-08	No
117-84-0	Di-n-octyl phthalate	Phthalates	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0013	0.019			NA	NA	4900	0.019	3.9E-06	NA	No	3.9E-08	No
120-82-1	1,2,4-Trichlorobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0016	0.019			NA	NA	2.2	0.019	8.6E-03	NA	No	8.8E-05	No
95-50-1	1,2-Dichlorobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0014	0.019			NA	NA	440	0.019	4.3E-05	NA	No	4.4E-07	No
541-73-1	1,3-Dichlorobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0018	0.019			NA	NA	4400	0.019	4.3E-06	NA	No	4.4E-08	No
106-46-7	1,4-Dichlorobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0021	0.019			NA	NA	62	0.019	3.1E-04	NA	No	3.1E-06	No
121-14-2	2,4-Dinitrotoluene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.003	0.094			NA	NA	1.6	0.094	5.9E-02	NA	No	6.0E-04	No
606-20-2	2,6-Dinitrotoluene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.003	0.094			NA	NA	12	0.094	7.8E-03	NA	No	8.0E-05	No
91-58-7	2-Chloronaphthalene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0039	0.019			NA	NA	630	0.019	3.0E-05	NA	No	3.1E-07	No
88-74-4	2-Nitroaniline	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0029	0.094			NA	NA	61	0.094	1.5E-03	NA	No	1.6E-05	No
91-94-1	3,3'-Dichlorobenzidine	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.004	0.094			NA	NA	1.1	0.094	8.5E-02	NA	No	8.7E-04	No
99-09-2	3-Nitroaniline	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0028	0.11			NA	NA	61	0.11	1.8E-03	NA	No	1.8E-05	No
101-55-3	4-Bromophenyl phenyl ether	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0015	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
106-47-8	4-Chloroaniline	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0023	0.057			NA	NA	2.4	0.057	2.4E-02	NA	No	2.4E-04	No
7005-72-3	4-Chlorophenyl phenyl ether	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0022	0.019			NA	NA	NA	0.019	NA	**?PRG**	No	NA	No
100-01-6	4-Nitroaniline	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0037	0.094			NA	NA	24	0.094	3.9E-03	NA	No	4.0E-05	No
62-53-3	Aniline	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0016	0.019			NA	NA	8.5	0.019	2.2E-03	NA	No	2.3E-05	No
103-33-3	Azobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0026	0.019			NA	NA	5.1	0.019	3.7E-03	NA	No	3.8E-05	No
65-85-0	Benzoic acid	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.11	0.19			NA	NA	24000	0.19	7.9E-06	NA	No	8.1E-08	No
100-51-6	Benzyl alcohol	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.004	0.094			NA	NA	610	0.094	1.5E-04	NA	No	1.6E-06	No
108-60-1	Bis(2-chloro-1-methylethyl) ether	SVOCs	mg/kg	10/14/2002	10/14/2002	0	0.5	1	1	0%	0.019	0.019			NA	NA	4.6	0.019	4.1E-03	NA	No	4.2E-05	No

APPENDIX D-5-1 Human Health Soil Summary and Concentration Risk Screening- Central Beach Exposure Unit

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg)[1]	COI Conc. (max)	Risk Ratio for Individual COI	Detected Chemicals without criteria[2]	Candidate COPC due to Individual Risk?	Risk Ratio for Multiple COIs	Candidate COPC due to Multiple COI Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij			Rij/Rj	
111-91-1	Bis(2-chloroethoxy) methane	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0014	0.019			NA	NA	18	0.019	1.1E-03	NA	No	1.1E-05	No
111-44-4	Bis(2-chloroethyl) ether	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0026	0.038			NA	NA	0.21	0.038	1.8E-01	NA	No	1.8E-03	No
39638-32-9	Bis(2-chloroisopropyl) ether	SVOCs	mg/kg	7/26/2004	7/26/2004	0	0.5	1	1	0%	0.0013	0.0013			NA	NA	4.6	0.0013	2.8E-04	NA	No	2.9E-06	No
86-74-8	Carbazole	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.0038	0.0038	0.004	0.004	NA	NA	630	0.004	6.3E-06	NA	No	6.5E-08	No
132-64-9	Dibenzofuran	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	1	50%	0.0038	0.0038	0.0014	0.0014	NA	NA	7.8	0.0014	1.8E-04	NA	No	1.8E-06	No
118-74-1	Hexachlorobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.00019	0.0023			NA	NA	0.84	0.0023	2.7E-03	NA	No	2.8E-05	No
87-68-3	Hexachlorobutadiene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	2.92E-05	0.0008			NA	NA	0.62	0.0008	1.3E-03	NA	No	1.3E-05	No
77-47-4	Hexachlorocyclopentadiene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.016	0.094			NA	NA	37	0.094	2.5E-03	NA	No	2.6E-05	No
67-72-1	Hexachloroethane	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	4.31E-05	0.0038			NA	NA	6.6	0.0038	5.8E-04	NA	No	5.9E-06	No
78-59-1	Isophorone	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0018	0.019			NA	NA	510	0.019	3.7E-05	NA	No	3.8E-07	No
98-95-3	Nitrobenzene	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0022	0.019			NA	NA	4.8	0.019	4.0E-03	NA	No	4.0E-05	No
62-75-9	N-Nitrosodimethylamine	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0065	0.094			NA	NA	0.0023	0.094	4.1E+01	NA	**Yes**	4.2E-01	**Yes**
86-30-6	N-Nitrosodiphenylamine	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0024	0.019			NA	NA	99	0.019	1.9E-04	NA	No	2.0E-06	No
621-64-7	N-Nitrosodipropylamine	SVOCs	mg/kg	10/14/2002	7/26/2004	0	0.5	2	2	0%	0.0035	0.038			NA	NA	NA	0.038	NA	**?PRG**	No	NA	No

Rj = Sum of toxicity ratios for all COIs in medium j 98.260

Nij = Number of i COIs in medium j 149

1/Nij= 0.007

Notes:

Refer to tables and figures for a description of the soil locations included for each exposure unit.

1 - Refer to Table 2-1 for background and screening level source information.

2 - Chemicals were only flageed with "?PRG" if there was neither an DEQ RBC value or an EPA residential RSL value.

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available
<5%D - less than 5% detection frequency
?PRG - no criteria available

SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls

APPENDIX D-5-2 Human Health Soil Summary with 90UCLs and Concentration Risk Screening- Central Beach Exposure Unit

Candidate COPCs			Depth Range (ft)		Number of Samples	Number of Non-detects	Detected Concentrations		COI Conc. Max[1]	Background Levels[2]	Selected SLV (mg/kg)[2]	COI Concentration (90UCL) - based on information from Composite Samples				Risk Ratio for Individual COI	90UCL/ Max Exceeds SLV - Individual COI Risk? (HQ=1)	COI Concentration (90UCL) - based on information from Discrete Samples				Risk Ratio for Individual COI	90UCL/ Max Exceeds SLV - Individual COI Risk? (HQ=1)
			Min	Max			Min	Max		Natural Background Soil Concs (mg/kg)	Urban Resident (DEQ)/ Resident (RSL)												
CASNo	Analyte	Units										n	Cij	Dist.	Estimation Method	Rij		n	Cij	Dist.	Estimation Method	Rij	
7429-90-5	Aluminum	mg/kg	0	0.5	2	0	5640	12300	12300	94412	7700	2	nc	--	Only 2 detected values; Maximum	1.6	**Yes**	0	nc	--	No data	--	--
7440-38-2	Arsenic	mg/kg	0	0.5	6	0	1.27	4.3	4.3	8.8	1	2	nc	--	Only 2 detected values; Maximum	4.3	**Yes**	4	nc	--	Only 4 detected values; Maximum	4.3	**Yes**
56-55-3	Benzo(a)anthracene	mg/kg	0	0.5	9	2	0.0079	0.663	0.663	NA	0.34	5	0.38	Normal	90% KM (t) UCL	1.1	**Yes**	4	nc	--	Only 3 detected values; Maximum	1.95	**Yes**
50-32-8	Benzo(a)pyrene	mg/kg	0	0.5	9	2	0.0064	0.494	0.494	NA	0.034	5	0.33	Normal	90% KM (t) UCL	9.8	**Yes**	4	nc	--	Only 3 detected values; Maximum	14.5	**Yes**
205-99-2	Benzo(b)fluoranthene	mg/kg	0	0.5	9	2	0.01	0.307	0.307	NA	0.34	5	0.22	Normal	90% KM (t) UCL	0.6	No	4	nc	--	Only 3 detected values; Maximum	0.90	**No**
7440-43-9	Cadmium	mg/kg	0	0.5	6	3	0.06	17	17	0.63	7.8	2	nc	--	Only 2 detected values; Maximum	2.18	**Yes**	4	nc	--	Only 1 detected value; Maximum	2.18	**Yes**
53-70-3	Dibenzo(a,h)anthracene	mg/kg	0	0.5	9	6	0.02	0.0442	0.0442	NA	0.034	5	0.03	Normal	90% KM (t) UCL	1.0	**Yes**	4	nc	--	No detected values	--	--
7439-92-1	Lead	mg/kg	0	0.5	6	0	7.14	72.2	72.2	79	40	2	nc	--	Only 2 detected values; Maximum	1.8	**Yes**	4	nc	--	Only 4 detected value; Maximum	1.8	**Yes**
62-75-9	N-Nitrosodimethylamine	mg/kg	0	0.5	2	2	--	--	0.094	NA	0.0023	2	nc	--	No detected values	--	--	0	nc	--	No data	--	--
BAPEQ	Total BaPEq	mg/kg	0	0.5	9	2	0.0094	0.6497	0.649741	NA	0.034	5	0.44	Normal	90% KM (t) UCL	12.9	**Yes**	4	nc	--	Only 3 detected values; Maximum	19.11	**Yes**
7440-28-0	Thallium	mg/kg	0	0.5	1	1	--	--	0.5	5.2	0.078	0	nc	--	No data	--	--	1	nc	--	No detected values	--	--

Notes:

1 - Maximum detected concentration presented, if available. If not, maximum non-detected concentration presented.

2 - Refer to Table 2-1 for background and screening level source information.

Data summary (minimums and maximums) based on all available samples (i.e., discrete and composite samples).

90UCLs calculated separately using available discrete or composite soil data. 90UCL values are not provided in cases where: 1) all concentrations were non-detected 2) There were too few samples for proUCL to calculate a 90UCL.

If a candidate COPC didn't have any detected values, then no 90UCL was calculated.

The risk ratio for individual COIs (Rij) was calculated using the overall maximum detected value for those chemicals with too few samples to calculate a 90 UCL.

Composite samples: aluminum, arsenic, cadmium, lead

Discrete samples: arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, cadmium, lead, total BAPEq

90UCLs were calculated using USEPA ProUCL software, version 4.1.01.

90UCL - 90th upper confidence limit
mg/kg - milligram per kilogram
min - minimum
max - maximum
COI - constituent of interest

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Level
n - sample size

APPENDIX D-6-1 Human Health Soil Summary and Concentration Risk Screening- Wharf Road Exposure Unit (Dioxins Only)

Constituents of Interest (COI)				Date		Depth Range (ft)		Samples			Non-detected Concentrations		Detected Concentrations		Background Levels[1]	Max COI Conc. Exceeds Background?	Selected SLV (mg/kg)[1]	COI Conc. (average)	Risk Ratio for Individual COI	Detected Chemicals without criteria	Candidate COPC due to Individual Risk?
CASNo	Analyte	Analyte Group/Methods	Units	Min	Max	Min	Max	Number of Samples	Number of Non-detects	Detection Frequency	Min	Max	Min	Max	Natural Background Soil Concs (mg/kg)		Urban Resident (DEQ)/ Resident (RSL)	Cij	Rij		
TEQ_DIOXIN.0	Dioxin/furan TCDD toxicity equivalent (ND=0)	Dioxins_Furans	mg/kg	8/8/2012	8/13/2012	0	0.5	3	0	100%			2.55E-04	7.73E-04	NA	NA	0.000012	0.000429	3.6E+01	NA	Yes

Notes:

Refer to tables and figures for a description of the soil locations included for each exposure unit.

1 - Refer to Table 2-1 for background and screening level source information.

DEQ - Oregon Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ND - non-detect
mg/kg - milligram per kilogram
min - minimum
max - maximum
COPC - chemical of potential concern

SLV - screening level value
Cij -concentration of COI i in medium j
Rij - risk ratios for COI i in medium j
RSL - Regional Screening Levels
NA - not available

APPENDIX E

Human Health Risk Supporting Information

APPENDIX E-1

Ingestion, Dermal and Inhalation Intake Equations for West Parcel Upland Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Present
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	100	1.00E-06	208	2	70	730	25,550	5.37E-07	1.54E-08
Benzo(a)pyrene	0.54	100	1.00E-06	208	2	70	730	25,550	4.40E-07	1.26E-08
Benzo(b)fluoranthene	0.40	100	1.00E-06	208	2	70	730	25,550	3.26E-07	9.30E-09
Dibenzo(a,h)anthracene	0.09	100	1.00E-06	208	2	70	730	25,550	7.33E-08	2.09E-09
Indeno(1,2,3-cd)pyrene	0.39	100	1.00E-06	208	2	70	730	25,550	3.17E-07	9.07E-09

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Dermal Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Present
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Adult Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.79E-07	7.96E-09
Benzo(a)pyrene	0.54	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.28E-07	6.51E-09
Benzo(b)fluoranthene	0.40	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.69E-07	4.83E-09
Dibenzo(a,h)anthracene	0.09	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	3.80E-08	1.09E-09
Indeno(1,2,3-cd)pyrene	0.39	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.65E-07	4.71E-09

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Inhalation Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Present
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	4.77E+09	1.0E+00	24	208	2	730	25,550	7.88E-11	2.25E-12
Benzo(a)pyrene	0.54	4.77E+09	1.0E+00	24	208	2	730	25,550	6.44E-11	1.84E-12
Benzo(b)fluoranthene	0.40	4.77E+09	1.0E+00	24	208	2	730	25,550	4.77E-11	1.36E-12
Dibenzo(a,h)anthracene	0.09	4.77E+09	1.0E+00	24	208	2	730	25,550	1.07E-11	3.07E-13
Indeno(1,2,3-cd)pyrene	0.39	4.77E+09	1.0E+00	24	208	2	730	25,550	4.65E-11	1.33E-12

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h / ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Current Recreational Trespasser/ Future Park User Oral Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

	Adult Exposure											Lifetime Intake (Adult + Child)	
Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Unit Conversion Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (Irs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	1.00E-06	100	62.86	104	24	70	8760	25,550	2.69E-07	1.69E-07	2.78E-06	1.32E-06
Benzo(a)pyrene	0.54	1.00E-06	100	62.86	104	24	70	8760	25,550	2.20E-07	1.38E-07	2.27E-06	1.08E-06
Benzo(b)fluoranthene	0.40	1.00E-06	100	62.86	104	24	70	8760	25,550	1.63E-07	1.02E-07	1.68E-06	7.97E-07
Dibenzo(a,h)anthracene	0.09	1.00E-06	100	62.86	104	24	70	8760	25,550	3.66E-08	2.30E-08	3.79E-07	1.79E-07
Indeno(1,2,3-cd)pyrene	0.39	1.00E-06	100	62.86	104	24	70	8760	25,550	1.59E-07	9.98E-08	1.64E-06	7.77E-07

	Child Exposure										
Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (Irs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	1.00E-06	200	426.67	104	6	15	2190	25,550	2.51E-06	1.15E-06
Benzo(a)pyrene	0.54	1.00E-06	200	426.67	104	6	15	2190	25,550	2.05E-06	9.38E-07
Benzo(b)fluoranthene	0.40	1.00E-06	200	426.67	104	6	15	2190	25,550	1.52E-06	6.95E-07
Dibenzo(a,h)anthracene	0.09	1.00E-06	200	426.67	104	6	15	2190	25,550	3.42E-07	1.56E-07
Indeno(1,2,3-cd)pyrene	0.39	1.00E-06	200	426.67	104	6	15	2190	25,550	1.48E-06	6.77E-07

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/ Future Park User Dermal Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals: $ADD = \frac{Cs \times SFSadj \times CF \times EFdy \times Efevd}{AT}$

See Earlylife Exposure Parameters for SFSadj equation

	Adult Dermal Exposure														Lifetime Dermal Intake (Adult + Child)	
Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFS_{adj}) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.39E-07	8.76E-08	1.05E-06	5.05E-07
Benzo(a)pyrene	0.54	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.14E-07	7.17E-08	8.61E-07	4.13E-07
Benzo(b)fluoranthene	0.40	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	8.45E-08	5.31E-08	6.38E-07	3.06E-07
Dibenzo(a,h)anthracene	0.09	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.90E-08	1.19E-08	1.43E-07	6.88E-08
Indeno(1,2,3-cd)pyrene	0.39	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	8.23E-08	5.18E-08	6.22E-07	2.98E-07

	Child Dermal Exposure													
Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFS_{adj}) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	9.13E-07	4.17E-07
Benzo(a)pyrene	0.54	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	7.47E-07	3.41E-07
Benzo(b)fluoranthene	0.40	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.53E-07	2.53E-07
Dibenzo(a,h)anthracene	0.09	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	1.24E-07	5.69E-08
Indeno(1,2,3-cd)pyrene	0.39	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.39E-07	2.47E-07

Notes:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/ Future Park User Inhalation Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	4.77E+09	1.0E+00	4	104	30	10,950	25,550	6.56E-12	2.81E-12
Benzo(a)pyrene	0.54	4.77E+09	1.0E+00	4	104	30	10,950	25,550	5.37E-12	2.30E-12
Benzo(b)fluoranthene	0.40	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.98E-12	1.70E-12
Dibenzo(a,h)anthracene	0.09	4.77E+09	1.0E+00	4	104	30	10,950	25,550	8.95E-13	3.84E-13
Indeno(1,2,3-cd)pyrene	0.39	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.88E-12	1.66E-12

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h\ /\ ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Future Construction Worker Oral Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	330	1.00E-06	250	1	70	365	25,550	2.13E-06	3.04E-08
Benzo(a)pyrene	0.54	330	1.00E-06	250	1	70	365	25,550	1.74E-06	2.49E-08
Benzo(b)fluoranthene	0.40	330	1.00E-06	250	1	70	365	25,550	1.29E-06	1.85E-08
Dibenzo(a,h)anthracene	0.09	330	1.00E-06	250	1	70	365	25,550	2.91E-07	4.15E-09
Indeno(1,2,3-cd)pyrene	0.39	330	1.00E-06	250	1	70	365	25,550	1.26E-06	1.80E-08

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Dermal Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Adult Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	8.31E-07	1.19E-08
Benzo(a)pyrene	0.54	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	6.80E-07	9.71E-09
Benzo(b)fluoranthene	0.40	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	5.04E-07	7.20E-09
Dibenzo(a,h)anthracene	0.09	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	1.13E-07	1.62E-09
Indeno(1,2,3-cd)pyrene	0.39	0.30	0.10	1.00E-06	250	1	1	3,300	70	365	25,550	3.78E-07	5.40E-09

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Inhalation Intake Equation for the West Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-West Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Lead	95.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.66	4.77E+09	1.0E+00	8	250	1	365	25,550	3.16E-11	4.51E-13
Benzo(a)pyrene	0.54	4.77E+09	1.0E+00	8	250	1	365	25,550	2.58E-11	3.69E-13
Benzo(b)fluoranthene	0.40	4.77E+09	1.0E+00	8	250	1	365	25,550	1.91E-11	2.73E-13
Dibenzo(a,h)anthracene	0.09	4.77E+09	1.0E+00	8	250	1	365	25,550	4.30E-12	6.15E-14
Indeno(1,2,3-cd)pyrene	0.39	4.77E+09	1.0E+00	8	250	1	365	25,550	1.86E-11	2.66E-13

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX E-2

Ingestion, Dermal and Inhalation Intake Equations for Central Parcel Upland Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (Irs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	7.44	100	1.00E-06	208	2	70	730	25,550	6.06E-06	1.73E-07
Arsenic	11.85	100	1.00E-06	208	2	70	730	25,550	9.65E-06	2.76E-07
Copper	1400.00	100	1.00E-06	208	2	70	730	25,550	1.14E-03	3.26E-05
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	100	1.00E-06	208	2	70	730	25,550	8.87E-06	2.54E-07
Benzo(a)anthracene	4.01	100	1.00E-06	208	2	70	730	25,550	3.26E-06	9.33E-08
Benzo(a)pyrene	7.82	100	1.00E-06	208	2	70	730	25,550	6.37E-06	1.82E-07
Benzo(b)fluoranthene	5.88	100	1.00E-06	208	2	70	730	25,550	4.79E-06	1.37E-07
Benzo(k)fluoranthene	3.91	100	1.00E-06	208	2	70	730	25,550	3.18E-06	9.09E-08
Dibenzo(a,h)anthracene	1.57	100	1.00E-06	208	2	70	730	25,550	1.28E-06	3.65E-08
Indeno(1,2,3-cd)pyrene	5.14	100	1.00E-06	208	2	70	730	25,550	4.18E-06	1.20E-07
Diesel Range Hydrocarbons	424.00	100	1.00E-06	208	2	70	730	25,550	3.45E-04	9.86E-06

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Dermal Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	7.44	0.07	0.15	1.00E-06	208	1	2	5,700	70	730	25,550	3.63E-06	1.04E-07
Arsenic	11.85	0.07	0.03	1.00E-06	208	1	2	5,700	70	730	25,550	1.15E-06	3.30E-08
Copper	1400.00	0.07	0.01	1.00E-06	208	1	2	5,700	70	730	25,550	4.55E-05	1.30E-06
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	4.60E-06	1.32E-07
Benzo(a)anthracene	4.01	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.69E-06	4.84E-08
Benzo(a)pyrene	7.82	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	3.30E-06	9.43E-08
Benzo(b)fluoranthene	5.88	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.48E-06	7.09E-08
Benzo(k)fluoranthene	3.91	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.65E-06	4.72E-08
Dibenzo(a,h)anthracene	1.57	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	6.63E-07	1.89E-08
Indeno(1,2,3-cd)pyrene	5.14	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.17E-06	6.20E-08
Diesel Range Hydrocarbons	424.00	0.07	0.10	1.00E-06	208	1	2	5,700	70	730	25,550	1.38E-04	3.93E-06

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Inhalation Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where C_{air} = (Cs/PEF) * Fs

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	7.44	4.77E+09	1.0E+00	24	208	2	730	25,550	8.88E-10	2.54E-11
Arsenic	11.85	4.77E+09	1.0E+00	24	208	2	730	25,550	1.41E-09	4.04E-11
Copper	1400.00	4.77E+09	1.0E+00	24	208	2	730	25,550	1.67E-07	4.77E-09
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	4.77E+09	1.0E+00	24	208	2	730	25,550	1.30E-09	3.72E-11
Benzo(a)anthracene	4.01	4.77E+09	1.0E+00	24	208	2	730	25,550	4.79E-10	1.37E-11
Benzo(a)pyrene	7.82	4.77E+09	1.0E+00	24	208	2	730	25,550	9.33E-10	2.67E-11
Benzo(b)fluoranthene	5.88	4.77E+09	1.0E+00	24	208	2	730	25,550	7.02E-10	2.01E-11
Benzo(k)fluoranthene	3.91	4.77E+09	1.0E+00	24	208	2	730	25,550	4.67E-10	1.33E-11
Dibenzo(a,h)anthracene	1.57	4.77E+09	1.0E+00	24	208	2	730	25,550	1.87E-10	5.35E-12
Indeno(1,2,3-cd)pyrene	5.14	4.77E+09	1.0E+00	24	208	2	730	25,550	6.13E-10	1.75E-11
Diesel Range Hydrocarbons	424.00	4.77E+09	1.0E+00	24	208	2	730	25,550	5.06E-08	1.45E-09

Note:

Intake equations for Lead were calculated separately using theEPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Current Recreational Trespasser/Future Park User Oral Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

Chemical of Potential Concern	Adult Exposure											Lifetime Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Unit Conversion Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Antimony	7.44	1.00E-06	100	NA	104	24	70	8760	25,550	3.03E-06	1.04E-06	3.13E-05	3.46E-06
Arsenic	11.85	1.00E-06	100	NA	104	24	70	8760	25,550	4.82E-06	1.65E-06	4.98E-05	5.51E-06
Copper	1400.00	1.00E-06	100	NA	104	24	70	8760	25,550	5.70E-04	1.95E-04	5.89E-03	6.51E-04
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	1.00E-06	100	62.86	104	24	70	8760	25,550	4.44E-06	2.79E-06	4.58E-05	2.17E-05
Benzo(a)anthracene	4.01	1.00E-06	100	62.86	104	24	70	8760	25,550	1.63E-06	1.03E-06	1.69E-05	7.99E-06
Benzo(a)pyrene	7.82	1.00E-06	100	62.86	104	24	70	8760	25,550	3.18E-06	2.00E-06	3.29E-05	1.56E-05
Benzo(b)fluoranthene	5.88	1.00E-06	100	62.86	104	24	70	8760	25,550	2.39E-06	1.50E-06	2.47E-05	1.17E-05
Benzo(k)fluoranthene	3.91	1.00E-06	100	62.86	104	24	70	8760	25,550	1.59E-06	1.00E-06	1.64E-05	7.79E-06
Dibenzo(a,h)anthracene	1.57	1.00E-06	100	62.86	104	24	70	8760	25,550	6.39E-07	4.02E-07	6.60E-06	3.13E-06
Indeno(1,2,3-cd)pyrene	5.14	1.00E-06	100	62.86	104	24	70	8760	25,550	2.09E-06	1.32E-06	2.16E-05	1.02E-05
Diesel Range Hydrocarbons	424.00	1.00E-06	100	NA	104	24	70	8760	25,550	1.73E-04	5.92E-05	1.78E-03	1.97E-04

Chemical of Potential Concern	Child Exposure										
	Exposure Point Concentration (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Antimony	7.44	1.00E-06	200	NA	104	6	15	2190	25,550	2.83E-05	2.42E-06
Arsenic	11.85	1.00E-06	200	NA	104	6	15	2190	25,550	4.50E-05	3.86E-06
Copper	1400.00	1.00E-06	200	NA	104	6	15	2190	25,550	5.32E-03	4.56E-04
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	1.00E-06	200	426.67	104	6	15	2190	25,550	4.14E-05	1.89E-05
Benzo(a)anthracene	4.01	1.00E-06	200	426.67	104	6	15	2190	25,550	1.52E-05	6.96E-06
Benzo(a)pyrene	7.82	1.00E-06	200	426.67	104	6	15	2190	25,550	2.97E-05	1.36E-05
Benzo(b)fluoranthene	5.88	1.00E-06	200	426.67	104	6	15	2190	25,550	2.23E-05	1.02E-05
Benzo(k)fluoranthene	3.91	1.00E-06	200	426.67	104	6	15	2190	25,550	1.49E-05	6.79E-06
Dibenzo(a,h)anthracene	1.57	1.00E-06	200	426.67	104	6	15	2190	25,550	5.96E-06	2.73E-06
Indeno(1,2,3-cd)pyrene	5.14	1.00E-06	200	426.67	104	6	15	2190	25,550	1.95E-05	8.93E-06
Diesel Range Hydrocarbons	424.00	1.00E-06	200	NA	104	6	15	2190	25,550	1.61E-03	1.38E-04

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Dermal Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EF_{dy} \times Ef_{evd} \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times SFS_{adj} \times CF \times EF_{dy} \times Ef_{evd}}{AT}$$

See Earlylife Exposure Parameters for SFSadj equation

Chemical of Potential Concern	Adult Dermal Exposure														Lifetime Dermal Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	7.44	0.07	NA	0.15	1.00E-06	104	1	24	5,700	70	8760	25,550	1.81E-06	6.21E-07	1.37E-05	1.64E-06
Arsenic	11.85	0.07	NA	0.03	1.00E-06	104	1	24	5,700	70	8760	25,550	5.77E-07	1.98E-07	4.36E-06	5.22E-07
Copper	1400.00	0.07	NA	0.01	1.00E-06	104	1	24	5,700	70	8760	25,550	2.27E-05	3.11E-09	1.72E-04	1.28E-05
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	2.30E-06	1.45E-06	1.74E-05	8.34E-06
Benzo(a)anthracene	4.01	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	8.47E-07	5.32E-07	6.39E-06	3.07E-06
Benzo(a)pyrene	7.82	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.65E-06	1.04E-06	1.25E-05	5.98E-06
Benzo(b)fluoranthene	5.88	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.24E-06	7.80E-07	9.37E-06	4.50E-06
Benzo(k)fluoranthene	3.91	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	8.26E-07	5.19E-07	6.23E-06	2.99E-06
Dibenzo(a,h)anthracene	1.57	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	3.31E-07	2.08E-07	2.50E-06	1.20E-06
Indeno(1,2,3-cd)pyrene	5.14	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.09E-06	6.82E-07	8.19E-06	3.93E-06
Diesel Range Hydrocarbons	424.00	0.07	NA	0.10	1.00E-06	104	1	24	5,700	70	8760	25,550	6.89E-05	1.21E-08	5.20E-04	3.87E-05

Chemical of Potential Concern	Child Dermal Exposure													
	Exposure Point Concentration (Cs) (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	7.44	0.20	NA	0.15	1.00E-06	104	1	6	2,800	15	2190	25,550	1.19E-05	1.02E-06
Arsenic	11.85	0.20	NA	0.03	1.00E-06	104	1	6	2,800	15	2190	25,550	3.78E-06	3.24E-07
Copper	1400.00	0.20	NA	0.01	1.00E-06	104	1	6	2,800	15	2190	25,550	1.49E-04	1.28E-05
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	1.51E-05	6.89E-06
Benzo(a)anthracene	4.01	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.55E-06	2.53E-06
Benzo(a)pyrene	7.82	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	1.08E-05	4.94E-06
Benzo(b)fluoranthene	5.88	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	8.13E-06	3.72E-06
Benzo(k)fluoranthene	3.91	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.41E-06	2.47E-06
Dibenzo(a,h)anthracene	1.57	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	2.17E-06	9.93E-07
Indeno(1,2,3-cd)pyrene	5.14	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	7.11E-06	3.25E-06
Diesel Range Hydrocarbons	424.00	0.20	NA	0.1	1.00E-06	104	1	6	2,800	15	2190	25,550	4.51E-04	3.87E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Inhalation Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration Cs (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated Fs	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	7.44	4.77E+09	1.0E+00	4	104	30	10,950	25,550	7.40E-11	3.17E-11
Arsenic	11.85	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.18E-10	5.05E-11
Copper	1400.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.39E-08	5.97E-09
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.08E-10	4.65E-11
Benzo(a)anthracene	4.01	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.99E-11	1.71E-11
Benzo(a)pyrene	7.82	4.77E+09	1.0E+00	4	104	30	10,950	25,550	7.78E-11	3.33E-11
Benzo(b)fluoranthene	5.88	4.77E+09	1.0E+00	4	104	30	10,950	25,550	5.85E-11	2.51E-11
Benzo(k)fluoranthene	3.91	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.89E-11	1.67E-11
Dibenzo(a,h)anthracene	1.57	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.56E-11	6.69E-12
Indeno(1,2,3-cd)pyrene	5.14	4.77E+09	1.0E+00	4	104	30	10,950	25,550	5.11E-11	2.19E-11
Diesel Range Hydrocarbons	424.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	4.22E-09	1.81E-09

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h\ /\ ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Future Construction Worker Oral Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	7.44	330	1.00E-06	250	1	70	365	25,550	2.40E-05	3.43E-07
Arsenic	11.85	330	1.00E-06	250	1	70	365	25,550	3.83E-05	5.47E-07
Copper	1400.00	330	1.00E-06	250	1	70	365	25,550	4.52E-03	6.46E-05
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	330	1.00E-06	250	1	70	365	25,550	3.52E-05	5.03E-07
Benzo(a)anthracene	4.01	330	1.00E-06	250	1	70	365	25,550	1.29E-05	1.85E-07
Benzo(a)pyrene	7.82	330	1.00E-06	250	1	70	365	25,550	2.53E-05	3.61E-07
Benzo(b)fluoranthene	5.88	330	1.00E-06	250	1	70	365	25,550	1.90E-05	2.71E-07
Benzo(k)fluoranthene	3.91	330	1.00E-06	250	1	70	365	25,550	1.26E-05	1.80E-07
Dibenzo(a,h)anthracene	1.57	330	1.00E-06	250	1	70	365	25,550	5.07E-06	7.24E-08
Indeno(1,2,3-cd)pyrene	5.14	330	1.00E-06	250	1	70	365	25,550	1.66E-05	2.37E-07
Diesel Range Hydrocarbons	424.00	330	1.00E-06	250	1	70	365	25,550	1.37E-03	1.96E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Dermal Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	7.44	0.30	0.15	1.00E-06	250	1	1	3,300	70	365	25,550	1.08E-05	1.54E-07
Arsenic	11.85	0.30	0.03	1.00E-06	250	1	1	3,300	70	365	25,550	3.44E-06	4.92E-08
Copper	1400.00	0.30	0.01	1.00E-06	250	1	1	3,300	70	365	25,550	1.36E-04	1.94E-06
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	1.37E-05	1.96E-07
Benzo(a)anthracene	4.01	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	5.05E-06	7.21E-08
Benzo(a)pyrene	7.82	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	9.85E-06	1.41E-07
Benzo(b)fluoranthene	5.88	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	7.40E-06	1.06E-07
Benzo(k)fluoranthene	3.91	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	4.92E-06	7.03E-08
Dibenzo(a,h)anthracene	1.57	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	1.98E-06	2.82E-08
Indeno(1,2,3-cd)pyrene	5.14	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	6.47E-06	9.25E-08
Diesel Range Hydrocarbons	424.00	0.30	0.10	1.00E-06	250	1	1	3,300	70	365	25,550	4.11E-04	5.87E-06

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Inhalation Intake Equation for the Central Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where C_{air} = (Cs/PEF) * Fs

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	7.44	4.77E+09	1.0E+00	8	250	1	365	25,550	3.56E-10	5.08E-12
Arsenic	11.85	4.77E+09	1.0E+00	8	250	1	365	25,550	5.67E-10	8.09E-12
Copper	1400.00	4.77E+09	1.0E+00	8	250	1	365	25,550	6.69E-08	9.56E-10
Lead	632.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	10.90	4.77E+09	1.0E+00	8	250	1	365	25,550	5.21E-10	7.45E-12
Benzo(a)anthracene	4.01	4.77E+09	1.0E+00	8	250	1	365	25,550	1.92E-10	2.74E-12
Benzo(a)pyrene	7.82	4.77E+09	1.0E+00	8	250	1	365	25,550	3.74E-10	5.34E-12
Benzo(b)fluoranthene	5.88	4.77E+09	1.0E+00	8	250	1	365	25,550	2.81E-10	4.02E-12
Benzo(k)fluoranthene	3.91	4.77E+09	1.0E+00	8	250	1	365	25,550	1.87E-10	2.67E-12
Dibenzo(a,h)anthracene	1.57	4.77E+09	1.0E+00	8	250	1	365	25,550	7.51E-11	1.07E-12
Indeno(1,2,3-cd)pyrene	5.14	4.77E+09	1.0E+00	8	250	1	365	25,550	2.46E-10	3.51E-12
Diesel Range Hydrocarbons	424.00	4.77E+09	1.0E+00	8	250	1	365	25,550	2.03E-08	2.90E-10

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX E-3

Ingestion, Dermal and Inhalation Intake Equations for East Parcel Upland Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Inner Cove Beach Exposure Area
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	71.39	100	1.00E-06	208	2	70	730	25,550	5.81E-05	1.66E-06
Arsenic	13.33	100	1.00E-06	208	2	70	730	25,550	1.09E-05	3.10E-07
Copper	10637.00	100	1.00E-06	208	2	70	730	25,550	8.66E-03	2.47E-04
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	100	1.00E-06	208	2	70	730	25,550	3.99E-07	1.14E-08
Benzo(a)pyrene	0.35	100	1.00E-06	208	2	70	730	25,550	2.85E-07	8.14E-09
Benzo(b)fluoranthene	0.43	100	1.00E-06	208	2	70	730	25,550	3.50E-07	1.00E-08
Dibenzo(a,h)anthracene	0.06	100	1.00E-06	208	2	70	730	25,550	4.88E-08	1.40E-09
Aroclors	5.21	100	1.00E-06	208	2	70	730	25,550	4.24E-06	1.21E-07
Diesel Range Hydrocarbons	1340.00	100	1.00E-06	208	2	70	730	25,550	1.09E-03	3.12E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Dermal Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Inner Cove Beach Exposure Area
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	71.39	0.07	0.15	1.00E-06	208	1	2	5,700	70	730	25,550	3.48E-05	9.94E-07
Arsenic	13.33	0.07	0.03	1.00E-06	208	1	2	5,700	70	730	25,550	1.30E-06	3.71E-08
Copper	10637.00	0.07	0.01	1.00E-06	208	1	2	5,700	70	730	25,550	3.46E-04	9.87E-06
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.07E-07	5.91E-09
Benzo(a)pyrene	0.35	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.48E-07	4.22E-09
Benzo(b)fluoranthene	0.43	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.82E-07	5.19E-09
Dibenzo(a,h)anthracene	0.06	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.53E-08	7.24E-10
Aroclors	5.21	0.07	0.14	1.00E-06	208	1	2	5,700	70	730	25,550	2.37E-06	6.77E-08
Diesel Range Hydrocarbons	1340.00	0.07	0.10	1.00E-06	208	1	2	5,700	70	730	25,550	4.35E-04	1.24E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Inhalation Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Inner Cove Beach Exposure Area
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	71.39	4.77E+09	1.0E+00	24	208	2	730	25,550	8.52E-09	2.43E-10
Arsenic	13.33	4.77E+09	1.0E+00	24	208	2	730	25,550	1.59E-09	4.55E-11
Copper	10637.00	4.77E+09	1.0E+00	24	208	2	730	25,550	1.27E-06	3.63E-08
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	4.77E+09	1.0E+00	24	208	2	730	25,550	5.85E-11	1.67E-12
Benzo(a)pyrene	0.35	4.77E+09	1.0E+00	24	208	2	730	25,550	4.18E-11	1.19E-12
Benzo(b)fluoranthene	0.43	4.77E+09	1.0E+00	24	208	2	730	25,550	5.13E-11	1.47E-12
Dibenzo(a,h)anthracene	0.06	4.77E+09	1.0E+00	24	208	2	730	25,550	7.16E-12	2.05E-13
Aroclors	5.21	4.77E+09	1.0E+00	24	208	2	730	25,550	6.22E-10	1.78E-11
Diesel Range Hydrocarbons	1340.00	4.77E+09	1.0E+00	24	208	2	730	25,550	1.60E-07	4.57E-09

Note:
Intake equations for Lead were calculated separately using theEPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Current Recreational Trespasser/Future Park User Oral Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-East Parcel Upland Exposure Area
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

Chemical of Potential Concern	Adult Exposure											Lifetime Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Unit Conversion Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Antimony	71.39	1.00E-06	100	NA	104	24	70	8760	25,550	2.91E-05	9.96E-06	3.00E-04	3.32E-05
Arsenic	13.33	1.00E-06	100	NA	104	24	70	8760	25,550	5.43E-06	1.86E-06	5.61E-05	6.20E-06
Copper	10637.00	1.00E-06	100	NA	104	24	70	8760	25,550	4.33E-03	1.48E-03	4.47E-02	4.95E-03
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	1.00E-06	100	62.86	104	24	70	8760	25,550	1.99E-07	1.25E-07	2.06E-06	9.76E-07
Benzo(a)pyrene	0.35	1.00E-06	100	62.86	104	24	70	8760	25,550	1.42E-07	8.95E-08	1.47E-06	6.97E-07
Benzo(b)fluoranthene	0.43	1.00E-06	100	62.86	104	24	70	8760	25,550	1.75E-07	1.10E-07	1.81E-06	8.57E-07
Dibenzo(a,h)anthracene	0.06	1.00E-06	100	62.86	104	24	70	8760	25,550	2.44E-08	1.54E-08	2.52E-07	1.20E-07
Aroclors	5.21	1.00E-06	100	NA	104	24	70	8760	25,550	2.12E-06	7.27E-07	2.19E-05	2.42E-06
Diesel Range Hydrocarbons	1340.00	1.00E-06	100	NA	104	24	70	8760	25,550	5.45E-04	1.87E-04	5.64E-03	6.23E-04

Chemical of Potential Concern	Child Exposure										
	Exposure Point Concentration (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Antimony	71.39	1.00E-06	200	NA	104	6	15	2190	25,550	2.71E-04	2.32E-05
Arsenic	13.33	1.00E-06	200	NA	104	6	15	2190	25,550	5.06E-05	4.34E-06
Copper	10637.00	1.00E-06	200	NA	104	6	15	2190	25,550	4.04E-02	3.46E-03
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	1.00E-06	200	426.67	104	6	15	2190	25,550	1.86E-06	8.51E-07
Benzo(a)pyrene	0.35	1.00E-06	200	426.67	104	6	15	2190	25,550	1.33E-06	6.08E-07
Benzo(b)fluoranthene	0.43	1.00E-06	200	426.67	104	6	15	2190	25,550	1.63E-06	7.47E-07
Dibenzo(a,h)anthracene	0.06	1.00E-06	200	426.67	104	6	15	2190	25,550	2.28E-07	1.04E-07
Aroclors	5.21	1.00E-06	200	NA	104	6	15	2190	25,550	1.98E-05	1.70E-06
Diesel Range Hydrocarbons	1340.00	1.00E-06	200	NA	104	6	15	2190	25,550	5.09E-03	4.36E-04

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Dermal Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-East Parcel Upland Exposure Area
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EF_{dy} \times Ef_{evd} \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals: $ADD = \frac{Cs \times SFS_{adj} \times CF \times EF_{dy} \times Ef_{evd}}{AT}$

See Earlylife Exposure Parameters for SFSadj equation

Chemical of Potential Concern	Adult Dermal Exposure														Lifetime Dermal Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	71.39	0.07	NA	0.15	1.00E-06	104	1	24	5,700	70	8760	25,550	1.74E-05	5.96E-06	1.31E-04	1.57E-05
Arsenic	13.33	0.07	NA	0.03	1.00E-06	104	1	24	5,700	70	8760	25,550	6.49E-07	2.23E-07	4.90E-06	5.87E-07
Copper	10637.00	0.07	NA	0.01	1.00E-06	104	1	24	5,700	70	8760	25,550	1.73E-04	3.11E-09	1.30E-03	9.70E-05
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.03E-07	6.50E-08	7.81E-07	3.75E-07
Benzo(a)pyrene	0.35	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	7.39E-08	4.64E-08	5.58E-07	2.68E-07
Benzo(b)fluoranthene	0.43	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	9.08E-08	5.71E-08	6.85E-07	3.29E-07
Dibenzo(a,h)anthracene	0.06	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.27E-08	7.96E-09	9.56E-08	4.59E-08
Aroclors	5.21	0.07	NA	0.14	1.00E-06	104	1	24	5,700	70	8760	25,550	1.18E-06	4.06E-07	8.94E-06	1.07E-06
Diesel Range Hydrocarbons	1340.00	0.07	NA	0.10	1.00E-06	104	1	24	5,700	70	8760	25,550	2.18E-04	7.46E-05	1.64E-03	1.97E-04

Chemical of Potential Concern	Child Dermal Exposure													
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	71.39	0.20	NA	0.15	1.00E-06	104	1	6	2,800	15	2190	25,550	1.14E-04	9.76E-06
Arsenic	13.33	0.20	NA	0.03	1.00E-06	104	1	6	2,800	15	2190	25,550	4.25E-06	3.65E-07
Copper	10637.00	0.20	NA	0.01	1.00E-06	104	1	6	2,800	15	2190	25,550	1.13E-03	9.70E-05
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	6.78E-07	3.10E-07
Benzo(a)pyrene	0.35	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	4.84E-07	2.21E-07
Benzo(b)fluoranthene	0.43	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.95E-07	2.72E-07
Dibenzo(a,h)anthracene	0.06	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	8.30E-08	3.79E-08
Aroclors	5.21	0.20	NA	0.14	1.00E-06	104	1	6	2,800	15	2190	25,550	7.76E-06	6.65E-07
Diesel Range Hydrocarbons	1340.00	0.20	NA	0.10	1.00E-06	104	1	6	2,800	15	2190	25,550	1.43E-03	1.22E-04

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Inhalation Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-East Parcel Upland Exposure Area
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated Fs	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	71.39	4.77E+09	1.0E+00	4	104	30	10,950	25,550	7.10E-10	3.04E-10
Arsenic	13.33	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.33E-10	5.68E-11
Copper	10637.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.06E-07	4.53E-08
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	4.77E+09	1.0E+00	4	104	30	10,950	25,550	4.87E-12	2.09E-12
Benzo(a)pyrene	0.35	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.48E-12	1.49E-12
Benzo(b)fluoranthene	0.43	4.77E+09	1.0E+00	4	104	30	10,950	25,550	4.28E-12	1.83E-12
Dibenzo(a,h)anthracene	0.06	4.77E+09	1.0E+00	4	104	30	10,950	25,550	5.97E-13	2.56E-13
Aroclors	5.21	4.77E+09	1.0E+00	4	104	30	10,950	25,550	5.18E-11	2.22E-11
Diesel Range Hydrocarbons	1340.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.33E-08	5.71E-09

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h\ /\ ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Future Construction Worker Oral Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-East Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/years)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	71.39	330	1.00E-06	250	1	70	365	25,550	2.31E-04	3.29E-06
Arsenic	13.33	330	1.00E-06	250	1	70	365	25,550	4.30E-05	6.15E-07
Copper	10637.00	330	1.00E-06	250	1	70	365	25,550	3.43E-02	4.91E-04
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	330	1.00E-06	250	1	70	365	25,550	1.58E-06	2.26E-08
Benzo(a)pyrene	0.35	330	1.00E-06	250	1	70	365	25,550	1.13E-06	1.61E-08
Benzo(b)fluoranthene	0.43	330	1.00E-06	250	1	70	365	25,550	1.39E-06	1.98E-08
Dibenzo(a,h)anthracene	0.06	330	1.00E-06	250	1	70	365	25,550	1.94E-07	2.77E-09
Aroclors	5.21	330	1.00E-06	250	1	70	365	25,550	1.68E-05	2.40E-07
Diesel Range Hydrocarbons	1340.00	330	1.00E-06	250	1	70	365	25,550	4.33E-03	6.18E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Dermal Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-East Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	71.39	0.30	0.15	1.00E-06	250	1	1	3,300	70	365	25,550	1.04E-04	1.48E-06
Arsenic	13.33	0.30	0.03	1.00E-06	250	1	1	3,300	70	365	25,550	3.87E-06	5.53E-08
Copper	10637.00	0.30	0.01	1.00E-06	250	1	1	3,300	70	365	25,550	1.03E-03	1.47E-05
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	6.17E-07	8.82E-09
Benzo(a)pyrene	0.35	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	4.41E-07	6.30E-09
Benzo(b)fluoranthene	0.43	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	5.41E-07	7.74E-09
Dibenzo(a,h)anthracene	0.06	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	7.56E-08	1.08E-09
Aroclors	5.21	0.30	0.14	1.00E-06	250	1	1	3,300	70	365	25,550	7.07E-06	1.01E-07
Diesel Range Hydrocarbons	1340.00	0.30	0.10	1.00E-06	250	1	1	3,300	70	365	25,550	1.30E-03	1.85E-05

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Inhalation Intake Equation for the East Parcel Upland Exposure Unit

Scenario Timeframe:	Future
Location:	WC-East Parcel Upland Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where C_{air} = (Cs/PEF) * Fs

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	71.39	4.77E+09	1.0E+00	8	250	1	365	25,550	3.41E-09	4.88E-11
Arsenic	13.33	4.77E+09	1.0E+00	8	250	1	365	25,550	6.37E-10	9.11E-12
Copper	10637.00	4.77E+09	1.0E+00	8	250	1	365	25,550	5.09E-07	7.27E-09
Lead	779.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BaPEq	0.49	4.77E+09	1.0E+00	8	250	1	365	25,550	2.34E-11	3.35E-13
Benzo(a)pyrene	0.35	4.77E+09	1.0E+00	8	250	1	365	25,550	1.67E-11	2.39E-13
Benzo(b)fluoranthene	0.43	4.77E+09	1.0E+00	8	250	1	365	25,550	2.06E-11	2.94E-13
Dibenzo(a,h)anthracene	0.06	4.77E+09	1.0E+00	8	250	1	365	25,550	2.87E-12	4.10E-14
Aroclors	5.21	4.77E+09	1.0E+00	8	250	1	365	25,550	2.49E-10	3.56E-12
Diesel Range Hydrocarbons	1340.00	4.77E+09	1.0E+00	8	250	1	365	25,550	6.41E-08	9.15E-10

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX E-4

Ingestion, Dermal and Inhalation Intake Equations for Inner Cove Beach Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	62.57	100	1.00E-06	208	2	70	730	25,550	5.09E-05	1.46E-06
Arsenic	23.79	100	1.00E-06	208	2	70	730	25,550	1.94E-05	5.53E-07
Cobalt	16.10	100	1.00E-06	208	2	70	730	25,550	1.31E-05	3.74E-07
Copper	744.30	100	1.00E-06	208	2	70	730	25,550	6.06E-04	1.73E-05
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	100	1.00E-06	208	2	70	730	25,550	2.12E-05	6.05E-07
Total BaPEq	1.11	100	1.00E-06	208	2	70	730	25,550	9.04E-07	2.58E-08
Benzo(a)anthracene	1.61	100	1.00E-06	208	2	70	730	25,550	1.31E-06	3.74E-08
Benzo(a)pyrene	0.61	100	1.00E-06	208	2	70	730	25,550	4.97E-07	1.42E-08
Benzo(b)fluoranthene	1.06	100	1.00E-06	208	2	70	730	25,550	8.63E-07	2.47E-08
Dibenzo(a,h)anthracene	0.22	100	1.00E-06	208	2	70	730	25,550	1.79E-07	5.12E-09
Aroclors	168.20	100	1.00E-06	208	2	70	730	25,550	1.37E-04	3.91E-06
Diesel Range Hydrocarbons	38559.00	100	1.00E-06	208	2	70	730	25,550	3.14E-02	8.97E-04

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Dermal Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	62.57	0.07	0.15	1.00E-06	208	1	2	5,700	70	730	25,550	3.05E-05	8.71E-07
Arsenic	23.79	0.07	0.03	1.00E-06	208	1	2	5,700	70	730	25,550	2.32E-06	6.62E-08
Cobalt	16.10	0.07	0.01	1.00E-06	208	1	2	5,700	70	730	25,550	5.23E-07	1.49E-08
Copper	744.30	0.07	0.01	1.00E-06	208	1	2	5,700	70	730	25,550	2.42E-05	6.91E-07
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	0.07	0.01	1.00E-06	208	1	2	5,700	70	730	25,550	8.45E-07	2.41E-08
Total BaPEq	1.11	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	4.69E-07	1.34E-08
Benzo(a)anthracene	1.61	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	6.80E-07	1.94E-08
Benzo(a)pyrene	0.61	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	2.58E-07	7.36E-09
Benzo(b)fluoranthene	1.06	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	4.48E-07	1.28E-08
Dibenzo(a,h)anthracene	0.22	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	9.29E-08	2.65E-09
Aroclors	168.20	0.07	0.14	1.00E-06	208	1	2	5,700	70	730	25,550	7.65E-05	2.19E-06
Diesel Range Hydrocarbons	38559.00	0.07	0.10	1.00E-06	208	1	2	5,700	70	730	25,550	1.25E-02	3.58E-04

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Inhalation Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	62.57	4.77E+09	1.0E+00	24	208	2	730	25,550	7.47E-09	2.13E-10
Arsenic	23.79	4.77E+09	1.0E+00	24	208	2	730	25,550	2.84E-09	8.11E-11
Cobalt	16.10	4.77E+09	1.0E+00	24	208	2	730	25,550	1.92E-09	5.49E-11
Copper	744.30	4.77E+09	1.0E+00	24	208	2	730	25,550	8.88E-08	2.54E-09
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	4.77E+09	1.0E+00	24	208	2	730	25,550	3.10E-09	8.87E-11
Total BaPEq	1.11	4.77E+09	1.0E+00	24	208	2	730	25,550	1.32E-10	3.79E-12
Benzo(a)anthracene	1.61	4.77E+09	1.0E+00	24	208	2	730	25,550	1.92E-10	5.49E-12
Benzo(a)pyrene	0.61	4.77E+09	1.0E+00	24	208	2	730	25,550	7.28E-11	2.08E-12
Benzo(b)fluoranthene	1.06	4.77E+09	1.0E+00	24	208	2	730	25,550	1.27E-10	3.61E-12
Dibenzo(a,h)anthracene	0.22	4.77E+09	1.0E+00	24	208	2	730	25,550	2.63E-11	7.50E-13
Aroclors	168.20	4.77E+09	1.0E+00	24	208	2	730	25,550	2.01E-08	5.74E-10
Diesel Range Hydrocarbons	38559.00	4.77E+09	1.0E+00	24	208	2	730	25,550	4.60E-06	1.31E-07

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h / ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Current Recreational Trespasser/ Future Park User Oral Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

Chemical of Potential Concern	Adult Exposure											Lifetime Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Unit Conversion Factor (kg/mg)	Ingestion Rate (Irs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Lifetime Non-cancer Intake Rate (mg/kg/day)	Lifetime Cancer Intake Rate (mg/kg/day)
Antimony	62.57	1.00E-06	100	NA	104	24	70	8760	25,550	2.55E-05	8.73E-06	2.63E-04	2.91E-05
Arsenic	23.79	1.00E-06	100	NA	104	24	70	8760	25,550	9.68E-06	3.32E-06	1.00E-04	1.11E-05
Cobalt	16.10	1.00E-06	100	NA	104	24	70	8760	25,550	6.55E-06	2.25E-06	6.77E-05	7.49E-06
Copper	744.30	1.00E-06	100	NA	104	24	70	8760	25,550	3.03E-04	1.04E-04	3.13E-03	3.46E-04
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	1.00E-06	100	NA	104	24	70	8760	25,550	1.06E-05	3.63E-06	1.09E-04	1.21E-05
Total BaPEq	1.11	1.00E-06	100	62.86	104	24	70	8760	25,550	4.52E-07	2.84E-07	4.67E-06	2.21E-06
Benzo(a)anthracene	1.61	1.00E-06	100	62.86	104	24	70	8760	25,550	6.55E-07	4.12E-07	6.77E-06	3.21E-06
Benzo(a)pyrene	0.61	1.00E-06	100	62.86	104	24	70	8760	25,550	2.48E-07	1.56E-07	2.57E-06	1.22E-06
Benzo(b)fluoranthene	1.06	1.00E-06	100	62.86	104	24	70	8760	25,550	4.31E-07	2.71E-07	4.46E-06	2.11E-06
Dibenzo(a,h)anthracene	0.22	1.00E-06	100	62.86	104	24	70	8760	25,550	8.95E-08	5.63E-08	9.25E-07	4.38E-07
Aroclors	168.20	1.00E-06	100	NA	104	24	70	8760	25,550	6.85E-05	2.35E-05	7.07E-04	7.82E-05
Diesel Range Hydrocarbons	38559.00	1.00E-06	100	NA	104	24	70	8760	25,550	1.57E-02	5.38E-03	1.62E-01	1.79E-02

Chemical of Potential Concern	Child Exposure										
	Exposure Point Concentration (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (Irs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Antimony	62.57	1.00E-06	200	NA	104	6	15	2190	25,550	2.38E-04	2.04E-05
Arsenic	23.79	1.00E-06	200	NA	104	6	15	2190	25,550	9.04E-05	7.75E-06
Cobalt	16.10	1.00E-06	200	NA	104	6	15	2190	25,550	6.12E-05	5.24E-06
Copper	744.30	1.00E-06	200	NA	104	6	15	2190	25,550	2.83E-03	2.42E-04
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	1.00E-06	200	NA	104	6	15	2190	25,550	9.88E-05	8.47E-06
Total BaPEq	1.11	1.00E-06	200	426.67	104	6	15	2190	25,550	4.22E-06	1.93E-06
Benzo(a)anthracene	1.61	1.00E-06	200	426.67	104	6	15	2190	25,550	6.12E-06	2.80E-06
Benzo(a)pyrene	0.61	1.00E-06	200	426.67	104	6	15	2190	25,550	2.32E-06	1.06E-06
Benzo(b)fluoranthene	1.06	1.00E-06	200	426.67	104	6	15	2190	25,550	4.03E-06	1.84E-06
Dibenzo(a,h)anthracene	0.22	1.00E-06	200	426.67	104	6	15	2190	25,550	8.36E-07	3.82E-07
Aroclors	168.20	1.00E-06	200	NA	104	6	15	2190	25,550	6.39E-04	5.48E-05
Diesel Range Hydrocarbons	38559.00	1.00E-06	200	NA	104	6	15	2190	25,550	1.46E-01	1.26E-02

Notes:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/ Future Park User Dermal Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EF_{dy} \times Ef_{evrt} \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals: $ADD = \frac{Cs \times AFS_{adj} \times CF \times EF_{dy} \times Ef_{evrd}}{AT}$

See Earlylife Exposure Parameters for SFSadj equation

Chemical of Potential Concern	Adult Dermal Exposure														Lifetime Dermal Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	62.57	0.07	NA	0.15	1.00E-06	104	1	24	5,700	70	8760	25,550	1.52E-05	5.23E-06	1.15E-04	1.38E-05
Arsenic	23.79	0.07	NA	0.03	1.00E-06	104	1	24	5,700	70	8760	25,550	1.16E-06	3.97E-07	8.75E-06	1.05E-06
Cobalt	16.10	0.07	NA	0.01	1.00E-06	104	1	24	5,700	70	8760	25,550	2.61E-07	8.97E-08	1.97E-06	2.36E-07
Copper	744.30	0.07	NA	0.01	1.00E-06	104	1	24	5,700	70	8760	25,550	1.21E-05	3.11E-09	9.13E-05	6.79E-06
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	0.07	NA	0.01	1.00E-06	104	1	24	5,700	70	8760	25,550	4.22E-07	3.11E-09	3.19E-06	2.40E-07
Total BaPEq	1.11	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	2.34E-07	1.47E-07	1.77E-06	8.49E-07
Benzo(a)anthracene	1.61	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	3.40E-07	2.14E-07	2.57E-06	1.23E-06
Benzo(a)pyrene	0.61	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	1.29E-07	8.10E-08	9.72E-07	4.67E-07
Benzo(b)fluoranthene	1.06	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	2.24E-07	1.41E-07	1.69E-06	8.11E-07
Dibenzo(a,h)anthracene	0.22	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	4.64E-08	2.92E-08	3.51E-07	1.68E-07
Aroclors	168.20	0.07	NA	0.14	1.00E-06	104	1	24	5,700	70	8760	25,550	3.82E-05	1.31E-05	2.89E-04	3.46E-05
Diesel Range Hydrocarbons	38559.00	0.07	NA	0.10	1.00E-06	104	1	24	5,700	70	8760	25,550	6.26E-03	2.15E-03	4.73E-02	5.66E-03

Chemical of Potential Concern	Child Dermal Exposure													
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Antimony	62.57	0.20	NA	0.15	1.00E-06	104	1	6	2,800	15	2190	25,550	9.98E-05	8.56E-06
Arsenic	23.79	0.20	NA	0.03	1.00E-06	104	1	6	2,800	15	2190	25,550	7.59E-06	6.51E-07
Cobalt	16.10	0.20	NA	0.01	1.00E-06	104	1	6	2,800	15	2190	25,550	1.71E-06	1.47E-07
Copper	744.30	0.20	NA	0.01	1.00E-06	104	1	6	2,800	15	2190	25,550	7.92E-05	6.79E-06
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	0.20	NA	0.01	1.00E-06	104	1	6	2,800	15	2190	25,550	2.77E-06	2.37E-07
Total BaPEq	1.11	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	1.53E-06	7.02E-07
Benzo(a)anthracene	1.61	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	2.23E-06	1.02E-06
Benzo(a)pyrene	0.61	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	8.44E-07	3.86E-07
Benzo(b)fluoranthene	1.06	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	1.47E-06	6.70E-07
Dibenzo(a,h)anthracene	0.22	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	3.04E-07	1.39E-07
Aroclors	168.20	0.20	NA	0.14	1.00E-06	104	1	6	2,800	15	2190	25,550	2.50E-04	2.15E-05
Diesel Range Hydrocarbons	38559.00	0.20	NA	0.10	1.00E-06	104	1	6	2,800	15	2190	25,550	4.10E-02	3.52E-03

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/ Future Park User Inhalation Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	62.57	4.77E+09	1.0E+00	4	104	30	10,950	25,550	6.22E-10	2.67E-10
Arsenic	23.79	4.77E+09	1.0E+00	4	104	30	10,950	25,550	2.37E-10	1.01E-10
Cobalt	16.10	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.60E-10	6.86E-11
Copper	744.30	4.77E+09	1.0E+00	4	104	30	10,950	25,550	7.40E-09	3.17E-09
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	4.77E+09	1.0E+00	4	104	30	10,950	25,550	2.59E-10	1.11E-10
Total BaPEq	1.11	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.10E-11	4.73E-12
Benzo(a)anthracene	1.61	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.60E-11	6.86E-12
Benzo(a)pyrene	0.61	4.77E+09	1.0E+00	4	104	30	10,950	25,550	6.07E-12	2.60E-12
Benzo(b)fluoranthene	1.06	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.05E-11	4.52E-12
Dibenzo(a,h)anthracene	0.22	4.77E+09	1.0E+00	4	104	30	10,950	25,550	2.19E-12	9.38E-13
Aroclors	168.20	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.67E-09	7.17E-10
Diesel Range Hydrocarbo	38559.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.83E-07	1.64E-07

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Future Construction Worker Oral Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (Irs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Antimony	62.57	330	1.00E-06	250	1	70	365	25,550	2.02E-04	2.89E-06
Arsenic	23.79	330	1.00E-06	250	1	70	365	25,550	7.68E-05	1.10E-06
Cobalt	16.10	330	1.00E-06	250	1	70	365	25,550	5.20E-05	7.43E-07
Copper	744.30	330	1.00E-06	250	1	70	365	25,550	2.40E-03	3.43E-05
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	330	1.00E-06	250	1	70	365	25,550	8.40E-05	1.20E-06
Total BaPEq	1.11	330	1.00E-06	250	1	70	365	25,550	3.58E-06	5.12E-08
Benzo(a)anthracene	1.61	330	1.00E-06	250	1	70	365	25,550	5.20E-06	7.43E-08
Benzo(a)pyrene	0.61	330	1.00E-06	250	1	70	365	25,550	1.97E-06	2.81E-08
Benzo(b)fluoranthene	1.06	330	1.00E-06	250	1	70	365	25,550	3.42E-06	4.89E-08
Dibenzo(a,h)anthracene	0.22	330	1.00E-06	250	1	70	365	25,550	7.10E-07	1.01E-08
Aroclors	168.20	330	1.00E-06	250	1	70	365	25,550	5.43E-04	7.76E-06
Diesel Range Hydrocarbons	38559.00	330	1.00E-06	250	1	70	365	25,550	1.25E-01	1.78E-03

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Dermal Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Antimony	62.57	0.30	0.15	1.00E-06	250	1	1	3,300	70	365	25,550	9.09E-05	1.30E-06
Arsenic	23.79	0.30	0.03	1.00E-06	250	1	1	3,300	70	365	25,550	6.91E-06	9.88E-08
Cobalt	16.10	0.30	0.01	1.00E-06	250	1	1	3,300	70	365	25,550	1.56E-06	2.23E-08
Copper	744.30	0.30	0.01	1.00E-06	250	1	1	3,300	70	365	25,550	7.21E-05	1.03E-06
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	0.30	0.01	1.00E-06	250	1	1	3,300	70	365	25,550	2.52E-06	3.60E-08
Total BaPEq	1.11	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	1.40E-06	2.00E-08
Benzo(a)anthracene	1.61	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	2.03E-06	2.90E-08
Benzo(a)pyrene	0.61	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	7.68E-07	1.10E-08
Benzo(b)fluoranthene	1.06	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	1.33E-06	1.91E-08
Dibenzo(a,h)anthracene	0.22	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	2.77E-07	3.96E-09
Aroclors	168.20	0.30	0.14	1.00E-06	250	1	1	3,300	70	365	25,550	2.28E-04	3.26E-06
Diesel Range Hydrocarbons	38559.00	0.30	0.10	1.00E-06	250	1	1	3,300	70	365	25,550	3.74E-02	5.34E-04

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Inhalation Intake Equation for the Inner Cove Beach Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Inner Cove Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where C_{air} = (Cs/PEF) * Fs

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Antimony	62.57	4.77E+09	1.0E+00	8	250	1	365	25,550	2.99E-09	4.27E-11
Arsenic	23.79	4.77E+09	1.0E+00	8	250	1	365	25,550	1.14E-09	1.63E-11
Cobalt	16.10	4.77E+09	1.0E+00	8	250	1	365	25,550	7.70E-10	1.10E-11
Copper	744.30	4.77E+09	1.0E+00	8	250	1	365	25,550	3.56E-08	5.08E-10
Lead	4115.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	26.01	4.77E+09	1.0E+00	8	250	1	365	25,550	1.24E-09	1.78E-11
Total BaPEq	1.11	4.77E+09	1.0E+00	8	250	1	365	25,550	5.31E-11	7.58E-13
Benzo(a)anthracene	1.61	4.77E+09	1.0E+00	8	250	1	365	25,550	7.70E-11	1.10E-12
Benzo(a)pyrene	0.61	4.77E+09	1.0E+00	8	250	1	365	25,550	2.92E-11	4.17E-13
Benzo(b)fluoranthene	1.06	4.77E+09	1.0E+00	8	250	1	365	25,550	5.07E-11	7.24E-13
Dibenzo(a,h)anthracene	0.22	4.77E+09	1.0E+00	8	250	1	365	25,550	1.05E-11	1.50E-13
Aroclors	168.20	4.77E+09	1.0E+00	8	250	1	365	25,550	8.04E-09	1.15E-10
Diesel Range Hydrocarbons	38559.00	4.77E+09	1.0E+00	8	250	1	365	25,550	1.84E-06	2.63E-08

Notes:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX E-5

Ingestion, Dermal and Inhalation Intake Equations for Central Beach Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Central Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (Irs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Cadmium	17.00	100	1.00E-06	208	2	70	730	25,550	1.38E-05	3.95E-07
Total BaPEq	0.44	100	1.00E-06	208	2	70	730	25,550	3.58E-07	1.02E-08
Benzo(a)anthracene	0.38	100	1.00E-06	208	2	70	730	25,550	3.09E-07	8.84E-09
Benzo(a)pyrene	0.33	100	1.00E-06	208	2	70	730	25,550	2.69E-07	7.68E-09
Dibenzo(a,h)anthracene	0.03	100	1.00E-06	208	2	70	730	25,550	2.44E-08	6.98E-10

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Dermal Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Central Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Cadmium	17.00	0.07	0.001	1.00E-06	208	1	2	5,700	70	730	25,550	5.52E-08	1.58E-09
Total BaPEq	0.44	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.86E-07	5.31E-09
Benzo(a)anthracene	0.38	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.60E-07	4.58E-09
Benzo(a)pyrene	0.33	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.39E-07	3.98E-09
Dibenzo(a,h)anthracene	0.03	0.07	0.13	1.00E-06	208	1	2	5,700	70	730	25,550	1.27E-08	3.62E-10

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Transient Trespasser Inhalation Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Present
Location:	WC-Central Beach Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Cadmium	17.00	4.77E+09	1.0E+00	24	208	2	730	25,550	2.03E-09	5.80E-11
Total BaPEq	0.44	4.77E+09	1.0E+00	24	208	2	730	25,550	5.25E-11	1.50E-12
Benzo(a)anthracene	0.38	4.77E+09	1.0E+00	24	208	2	730	25,550	4.54E-11	1.30E-12
Benzo(a)pyrene	0.33	4.77E+09	1.0E+00	24	208	2	730	25,550	3.94E-11	1.13E-12
Dibenzo(a,h)anthracene	0.03	4.77E+09	1.0E+00	24	208	2	730	25,550	3.58E-12	1.02E-13

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Current Recreational Trespasser/Future Park User Oral Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC- Central Beach Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

Chemical of Potential Concern	Adult Exposure											Lifetime Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Unit Conversion Factor (CF) (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EFdy) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Cadmium	17.00	1.00E-06	100	NA	104	24	70	8760	25,550	6.92E-06	2.37E-06	7.15E-05	7.91E-06
Total BaPEq	0.44	1.00E-06	100	62.86	104	24	70	8760	25,550	1.79E-07	1.13E-07	1.85E-06	8.77E-07
Benzo(a)anthracene	0.38	1.00E-06	100	62.86	104	24	70	8760	25,550	1.55E-07	9.72E-08	1.60E-06	7.57E-07
Benzo(a)pyrene	0.33	1.00E-06	100	62.86	104	24	70	8760	25,550	1.34E-07	8.44E-08	1.39E-06	6.58E-07
Dibenzo(a,h)anthracene	0.03	1.00E-06	100	62.86	104	24	70	8760	25,550	1.22E-08	7.68E-09	1.26E-07	5.98E-08

Chemical of Potential Concern	Child Exposure										
	Exposure Point Concentration (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Cancer Adjusted Ingestion Rate (IRs) (mg-yr/kg-day)	Exposure Frequency (EFdy) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Cadmium	17.00	1.00E-06	200	NA	104	6	15	2190	25,550	6.46E-05	5.54E-06
Total BaPEq	0.44	1.00E-06	200	426.67	104	6	15	2190	25,550	1.67E-06	7.64E-07
Benzo(a)anthracene	0.38	1.00E-06	200	426.67	104	6	15	2190	25,550	1.44E-06	6.60E-07
Benzo(a)pyrene	0.33	1.00E-06	200	426.67	104	6	15	2190	25,550	1.25E-06	5.73E-07
Dibenzo(a,h)anthracene	0.03	1.00E-06	200	426.67	104	6	15	2190	25,550	1.14E-07	5.21E-08

Note:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Dermal Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC- Central Beach Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EF_{dy} \times Ef_{evd} \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals: $$ADD = \frac{Cs \times SFS_{adj} \times CF \times EF_{dy} \times Ef_{evd}}{AT}$$

See Earlylife Exposure Parameters for SFSadj equation

Chemical of Potential Concern	Adult Dermal Exposure														Lifetime Dermal Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Cadmium	17.00	0.07	NA	0.001	1.00E-06	104	1	24	5,700	70	8760	25,550	2.76E-08	3.11E-10	2.08E-07	1.58E-08
Total BaPEq	0.44	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	9.29E-08	5.84E-08	7.01E-07	3.37E-07
Benzo(a)anthracene	0.38	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	8.02E-08	5.04E-08	6.06E-07	2.91E-07
Benzo(a)pyrene	0.33	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	6.97E-08	4.38E-08	5.26E-07	2.52E-07
Dibenzo(a,h)anthracene	0.03	0.07	250.80	0.13	1.00E-06	104	1	24	5,700	70	8760	25,550	6.33E-09	3.98E-09	4.78E-08	2.29E-08

Chemical of Potential Concern	Child Dermal Exposure													
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Soil Dermal Contact Factor (SFSadj) (mg-yr/kg-day)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Cadmium	17.00	0.20	NA	0.001	1.00E-06	104	1	6	2,800	15	2190	25,550	1.81E-07	1.55E-08
Total BaPEq	0.44	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	6.08E-07	2.78E-07
Benzo(a)anthracene	0.38	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	5.25E-07	2.40E-07
Benzo(a)pyrene	0.33	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	4.56E-07	2.09E-07
Dibenzo(a,h)anthracene	0.03	0.20	1,194.67	0.13	1.00E-06	104	1	6	2,800	15	2190	25,550	4.15E-08	1.90E-08

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Current Recreational Trespasser/Future Park User Inhalation Intake Equation for the Central Beach Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC- Central Beach Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Cadmium	17.00	4.77E+09	1.0E+00	4	104	30	10,950	25,550	1.69E-10	7.25E-11
Total BaPEq	0.44	4.77E+09	1.0E+00	4	104	30	10,950	25,550	4.38E-12	1.88E-12
Benzo(a)anthracene	0.38	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.78E-12	1.62E-12
Benzo(a)pyrene	0.33	4.77E+09	1.0E+00	4	104	30	10,950	25,550	3.28E-12	1.41E-12
Dibenzo(a,h)anthracene	0.03	4.77E+09	1.0E+00	4	104	30	10,950	25,550	2.98E-13	1.28E-13

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

$$PEF\ (m3/kg) = Q/C \times (3600\ s/h\ /\ ((0.036 \times (1-V) * (Um/Ut)^3 \times F(x)))$$

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

Future Construction Worker Oral Intake Equation for the Central Beach Parcel Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRs \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (IRs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Cadmium	17.00	330	1.00E-06	250	1	70	365	25,550	5.49E-05	7.84E-07
Total BaPEq	0.44	330	1.00E-06	250	1	70	365	25,550	1.42E-06	2.03E-08
Benzo(a)anthracene	0.38	330	1.00E-06	250	1	70	365	25,550	1.23E-06	1.75E-08
Benzo(a)pyrene	0.33	330	1.00E-06	250	1	70	365	25,550	1.07E-06	1.52E-08
Dibenzo(a,h)anthracene	0.03	330	1.00E-06	250	1	70	365	25,550	9.69E-08	1.38E-09

Note:

Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Dermal Intake Equation for the Central Beach Parcel Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) (unitless)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Cadmium	17.00	0.30	0.001	1.00E-06	250	1	1	3,300	70	365	25,550	1.65E-07	2.35E-09
Total BaPEq	0.44	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	5.54E-07	7.92E-09
Benzo(a)anthracene	0.38	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	4.79E-07	6.84E-09
Benzo(a)pyrene	0.33	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	4.16E-07	5.94E-09
Dibenzo(a,h)anthracene	0.03	0.30	0.13	1.00E-06	250	1	1	3,300	70	365	25,550	3.78E-08	5.40E-10

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

Future Construction Worker Inhalation Intake Equation for the Central Beach Parcel Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Central Beach Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Cadmium	17.00	4.77E+09	1.0E+00	8	250	1	365	25,550	8.13E-10	1.16E-11
Total BaPEq	0.44	4.77E+09	1.0E+00	8	250	1	365	25,550	2.10E-11	3.01E-13
Benzo(a)anthracene	0.38	4.77E+09	1.0E+00	8	250	1	365	25,550	1.82E-11	2.60E-13
Benzo(a)pyrene	0.33	4.77E+09	1.0E+00	8	250	1	365	25,550	1.58E-11	2.25E-13
Dibenzo(a,h)anthracene	0.03	4.77E+09	1.0E+00	8	250	1	365	25,550	1.43E-12	2.05E-14

Note:
Intake equations for Lead were calculated separately using the EPA, 2007 IEUBK model and the adult lead model (2009).

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX E-6

Ingestion, Dermal and Inhalation Intake Equations for Wharf Road Exposure Unit – All receptors

Current Transient Trespasser Oral Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Wharf Road Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration Cs (mg/kg)	Adult Ingestion Rate IRs (mg/day)	Unit Conversion Factor CF (kg/mg)	Adult Exposure Frequency EF (days/year)	Adult Exposure Duration ED (years)	Adult Body Weight BW (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	100	1.00E-06	208	2	70	730	25,550	3.49E-10	9.98E-12

Current Transient Trespasser Dermal Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Wharf Road Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	0.07	0.15	1.00E-06	208	1	2	5,700	70	730	25,550	2.09E-10	5.97E-12

Current Transient Trespasser Inhalation Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current
Location:	WC-Wharf Road Exposure Unit
Receptor:	Transient Trespasser
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	4.77E+09	1.0E+00	24	208	2	730	25,550	5.12E-14	1.46E-15

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	4.77E+09

NA= Not available

Current Recreational Trespasser/ Future Park User Oral Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

For mutagenic chemicals:

$$ADD = \frac{Cs \times IRSadj \times CF \times EF}{AT}$$

See Earlylife Exposure Parameters for IRSadj equation

	Adult Exposure										Lifetime Intake (Adult + Child)	
Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Unit Conversion Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)	Lifetime Non-cancer Intake Rate (mg/kg/day)	Lifetime Cancer Intake Rate (mg/kg/day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	1.00E-06	100	104	24	70	8760	25,550	1.75E-10	5.99E-11	1.80E-09	2.00E-10

	Child Exposure									
Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Unit Correction Factor (kg/mg)	Ingestion Rate (IRs) (mg/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg/day)	Cancer Intake Rate (mg/kg/day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	1.00E-06	200	104	6	15	2190	25,550	1.63E-09	1.40E-10

Current Recreational Trespasser/ Future Park User Dermal Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EF_{dy} \times Ef_{evd} \times ED \times SA}{BW \times AT}$$

For mutagenic chemicals: $ADD = \frac{Cs \times AFS_{adj} \times CF \times EF_{dy} \times Ef_{evd}}{AT}$

See Earlylife Exposure Parameters for SFSadj equation

Chemical of Potential Concern	Adult Dermal Exposure													Lifetime Dermal Intake (Adult + Child)	
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EFdy) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (BW) (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	0.07	0.15	1.00E-06	104	1	24	5,700	70	8760	25,550	1.05E-10	3.58E-11	7.89E-10	9.45E-11

Chemical of Potential Concern	Child Dermal Exposure												
	Exposure Point Concentration (mg/kg)	Adherence Factor (AF) (mg/cm^2)	Dermal Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Exposure Frequency (EF) (days/year)	Event Frequency (Efevd) (event/day)	Exposure Duration (ED) (years)	Skin Surface Area (SA) (cm^2)	Body Weight (kg)	Non-cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-cancer Intake Rate (mg/kg-day)	Cancer Intake Rate (mg/kg-day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	0.20	0.15	1.00E-06	104	1	6	2,800	15	2190	25,550	6.85E-10	5.87E-11

Current Recreational Trespasser/ Future Park User Inhalation Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Current/Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Current Recreational Trespasser/ Future Park User
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (PEF) (m^3/kg)	Fraction of Soil Contaminated Fs	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	4.77E+09	1.0E+00	4	104	30	10,950	25,550	4.27E-15	1.83E-15

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	4.77E+09

NA= Not available

Future Construction Worker Oral Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times IRS \times CF \times EF \times ED}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Adult Ingestion Rate (Irs) (mg/day)	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EF) (days/year)	Adult Exposure Duration (ED) (years)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg/day)	Adult Cancer Intake Rate (mg/kg/day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	330	1.00E-06	250	1	70	365	25,550	1.39E-09	1.98E-11

Future Construction Worker Dermal Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADD = \frac{Cs \times AF \times DAF \times CF \times EFdy \times Efevd \times ED \times SA}{BW \times AT}$$

Chemical of Potential Concern	Exposure Point Concentration (mg/kg)	Adult Adherence Factor (AF) (mg/cm^2)	Absorption Factor (DAF) unitless	Unit Conversion Factor (CF) (kg/mg)	Adult Exposure Frequency (EFdy) (days/year)	Adult Event Frequency (Efevd) (event/day)	Adult Exposure Duration (ED) (years)	Adult Skin Surface Area (SA) (cm^2)	Adult Body Weight (BW) (kg)	Adult Non-cancer Averaging Time (days)	Adult Cancer Averaging Time (days)	Adult Non-cancer Intake Rate (mg/kg-day)	Adult Cancer Intake Rate (mg/kg-day)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	0.30	0.15	1.00E-06	250	1	1	3,300	70	365	25,550	6.23E-10	8.91E-12

Future Construction Worker Inhalation Intake Equation for the Wharf Road Exposure Unit

Scenario Timeframe:	Future
Location:	WC-Wharf Road Exposure Unit
Receptor:	Construction Worker
Medium:	Soil
Exposure Medium:	Soil

$$ADCap = \frac{C_{air} * (ET/24hr/day) * EF * ED}{ATc}$$

Where $C_{air} = (Cs/PEF) * Fs$

Chemical of Potential Concern	Exposure Point Concentration (Cs) (mg/kg)	Particulate Emission Factor (m^3/kg)	Fraction of Soil Contaminated (Fs)	Exposure Time (ET) (hours/day)	Exposure Frequency (EF) (days/year)	Exposure Duration (ED) (years)	Non-Cancer Averaging Time (days)	Cancer Averaging Time (days)	Non-Cancer Intake Rate (mg/m^3)	Cancer Intake Rate (mg/m^3)
Dioxin/furan TCDD toxicity equivalent (ND = 0)	4.29E-04	4.77E+09	1.0E+00	8	250	1	365	25,550	2.05E-14	2.93E-16

TFss = 1/PEF or VFs

PEF (m3/kg) = Q/C x (3600 s/h / ((0.036 x (1-V) * $(Um/Ut)^3$ x F (x)))

Parameter		Unit	0.5-acre site	30-acre site
Q/C	inverse of mean conc at center of source specific to Portland	g/m^3-s / kg/m^3	74.23	37.88
V	fraction of vegetative cover	unitless	0.5	0.5
Um	mean annual windspeed	m/s	3.89	3.89
Ut	equivalent threshold value of windspeed at 7 m	m/s	11.32	11.32
F(x)	function dependent on Um/Ut derived using Cowherd et al 1985 (as listed in USEPA 1996)	unitless	3.91E-02	3.91E-02
PEF	Particulate emission factor	m^3/kg	9.36E+09	**4.77E+09**

NA= Not available

APPENDIX F

Calculation of Risk-Based Lead Concentrations

Appendix F-1 Calculation of Risk-Based Lead Concentrations in Willamette Cove Soils for Child Recreational Trespasser Scenario

Based on three full days per week at the Site.

Onsite/Offsite Exposures (Days/Week)			Weighted Exposure Time (proportion of Days/week)		Target C_{soil} for All Exposures (mg/Kg)[1]	Off-Site C_{soil} (mg/Kg)	RBC (mg/Kg)[2]
Willamette Cove		OffSite					
Days/Wk	Weeks/Yr	Days/Wk	Site	NonSite			
3	52	4	0.43	0.57	418	17	950
3	52	4	0.43	0.57	418	200	707

Based on 4-hr visits to the Site, three days per week.

Onsite/Offsite Exposures (Hours/Week) *Total Waking Hours/Wk (12 hr/day) = 84*				Weighted Exposure TIme (proportion of hours/week)		Target C_{soil} for All Exposures (mg/Kg)[1]	Off-Site C_{soil} (mg/Kg)	RBC (mg/Kg)[2]
Onsite - Willamette Cove			OffSite					
Visits/Wk	Hours /Visit	Hours/wk	Hours/Wk	Site	NonSite			
3	4	12	72	0.14	0.86	418	17	2,881
3	4	12	72	0.14	0.86	418	200	1,757

[1]Calclated using 'find PRG' function in IEUBK model (IEUBKWin32, Lead Model Version 1.1, Build 11). Down-loaded October 2012. Based on default values for all parameters except soil ingestion rates.

[2] Time-weighted site concentration calculated based on Equation 8, EPA 2003.

Appendix F-2 Calculation of Risk-Based Lead Concentrations for Adult Receptors
Willamette Cove Upland Facility

Parameter		Units	Construction Worker	Transient Trespasser	Recreational Trespasser
Intake Rate*	SIR	g/d	0.33	0.1	0.1
Exposure Frequency *(units are days/week for Construction Worker and Transient Trespasser, and waking hours for Recreational Trespasser*)	EF	--	3	4	12
Averaging Time (*units are days/week for Construction Worker and Transient Trespasser, and waking hours for Recreational Trespasser*)	AT	--	7	7	84
Absolute gastrointestinal absorption fraction	AFo	unitless	0.12	0.12	0.12
Biokinetic Slope factor	BKSF	ug/dL blood Pb per ug/d Pb	0.4	0.4	0.4
Typical blood lead concentration in adults**	$PbB_{adult,0}$	ug/dL	1.4	1.4	1.4
Goal for central estimate of blood lead concentration in adults with site exposures	$PbB_{adult,goal}$	ug/dL	3.25	3.25	3.25
Geometric standard deviation of individual Adult women**	GSD	unitless	2.11	2.11	2.11
Proportion of fetal blood at birth to maternal blood	$R_{f/a}$	unitless	0.9	0.9	0.9
Goal for 95th %ile blood lead conc for Fetus	PbB_{fetus}	ug/dL	10	10	10
Soil Lead Concentration from All Sources	PbS	ug/g (mg/kg)	273	676	2703
Risk Based Concentration for the Site; Off-site concentrations = 17 ppm	***RBC***	***mg/kg***	***614***	***1,170***	***18,816***
Risk Based Concentration for the Site; Off-site concentrations = 200 ppm	***RBC***	***mg/kg***	***370***	***1,032***	***17,718***

* TRW recommends central tendency values as inputs into adult lead model (EPA 2003)

** Blood lead concentrations and distribution from EPA 2002 NHANES III Survey for adult females ages 17 to 45 years of age in the West Region, all race/ethnicity

Determination of Site RBC based on Time-Weighted Concentrations where: RBC=(PbS*AT/EF)-[Bkg*(AT-EF)/EF]; Background lead conc was assumed to be 200 mg/kg (EPA Region 10 recommended urban lead soil concentration); calculation per EPA 2003, Assessing Intermittent or Variable Exposures at Lead Sites, Draft. EPA-540-R-03-008