

MANAGEMENT APPROVAL FORM
Final Approval

REPORT/DOCUMENT TYPE:
*(Attached) Record of Decision, Final
Remedial Action, Northstar
Development Site*

Department of Environmental Quality
Western Region

Record of Decision

Date: November 1, 2017

Please sign and date below as your approval of the Record of Decision for the Northstar Development site. The approved preliminary recommendation has been advertised for public comment as required by ORS 465.320. The public comment period has expired. The attached document includes a discussion of public comments received (if any) and how those comments affected the final recommendation/decision.

FINAL APPROVAL:



Donald E. Hanson, RG
Acting Western Region Environmental Cleanup
and Emergency Response Program

11/1/2017
Date

Return completed form to: Nancy Sawka, Project Manager
WR Environmental Cleanup, Salem Office



State of Oregon
Department of
Environmental
Quality

PEER REVIEW APPROVAL FORM
Northstar Development Record of Decision
(Attached)

Date: October 24, 2017

Action: Record of Decision

Please sign and date below as your approval of the Record of Decision for the Northstar Development Site.

Route to the following technical team members:

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Return completed form to: Nancy Sawka, Project Manager
Section: WR Environmental Cleanup, Salem Office

Copy: Project Peer Review File
Administrative Record

**RECORD OF DECISION
FINAL REMEDIAL ACTION**

**For
Northstar Development
Salem, OREGON
ECSI #6036**



**State of Oregon
Department of
Environmental
Quality**

Prepared By

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Western Region Office**

November 2017

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1. INTRODUCTION

1.1 INTRODUCTION

This document presents the selected remedial action for the North Star site at tax lots 200, 701, 800, 900, and 1000 Map 062W32C in Salem, Marion County, Oregon and identified as #6036 in DEQ's Environmental Cleanup Site Inventory (ECSI) database. The remedy was developed and selected in accordance with Oregon Revised Statutes (ORS) 465.200 et. seq. and Oregon Administrative Rules (OAR) Chapter 340, Division 122, Sections 010 through 115.

The selected remedial action is based on the administrative record for this site. A copy of the Administrative Record Index is attached as Appendix A. This report summarizes the more detailed information contained in the Remedial Investigation, Baseline Risk Assessment, Ecological Risk Assessment and Feasibility Study (RI/FS).

1.2 SCOPE AND ROLE OF THE SELECTED REMEDIAL ACTION

The selected remedial action addresses the presence of dieldrin in contaminated soil at the Northstar site. The selected remedial action consists of the following elements:

- Excavation of on-site soil
- Transport of soil for reuse at a DEQ approved location
- Institutional controls at the reuse location

2. SITE HISTORY AND DESCRIPTION

2.1 SITE LOCATION AND LANDUSE

The Northstar development site is located in Salem, in an area annexed into the city in 2002. The property is bounded by Hazelgreen Road to the north, Kale Street to the South, orchards operated by Alpha Nursery to the east and to the west by Copper Creek Estates residential park. Properties on the north side of Hazelgreen Road are in unincorporated Marion County and include Alpha Nursery and single family homes. Properties south of Kale Street are occupied by single family homes located within the Salem city limits. The site consists of about 150 acres of inactive farm land. The current owner plans to develop the property into a community with single- and multi-family residences. One vacant farm home remains on the property. The home is planned for removal with the future property development. Figure 1 shows the site locations.

2.2 PHYSICAL SETTING

2.2.1 Climate

The Salem area receives approximately 55 inches of precipitation annually. The majority of the precipitation falls between November and March, with monthly totals ranging from 1 to 9 inches, at the highest in December and January. Precipitation totals for the remainder of the year are generally less than 3 inches per month. The average annual temperature is approximately 63 °F.

2.2.2 Geology

The near surface soils across the site are alluvial deposits characterized as Willamette silts. They are fine-grained deposit of silt, sandy silt, and clay created by a deposition of suspended sediment from glacial flood waters.

2.2.3 Hydrogeology

Groundwater from the drillers log for the well on the site reports that ground water is approximately

60-80 feet below ground level. Shallow perched areas of groundwater may exist in the fine-grained soil at the site. The ground flow direction at the site is unknown, but is expected to flow generally to the north and/or east towards the Pudding River.

2.2.4 Surface Water and Stormwater Features

An intermittent drainage ditch flows across the property running through the middle of tax lot 200 then in between tax lot 200 and Alpha nursery. Parts of the ditch onsite are enclosed in a concrete culvert. The ditch ultimately discharges to the Pudding River approximately two miles to the east.

2.3 Site History and Environmental Investigations

The five tax lots that currently make of the property have been used for farming purposes by the current lessee and their family since the 1890's. The family grew row crops in the earlier years and then transitioned into grass and grain crops in more recent years. On tax lot 0900 strawberries were grown in the 1950's and 1960's. Aldrin, which quickly breaks down to dieldrin in the body and the environment, was known to have been used on the strawberry crop. The family sold the farm property to the Granada Land Company in 2005 and has leased the property to grow grain crops since then. The property is currently vacant and unused. The Granada Land Company plans to develop the five tax lots covering approximately 150 acres into residential and urban residential development known as Northstar.

In August 2015, Multi/Tech Engineering Services Inc collected ten grab samples randomly across the site at a depth of approximately 6 inches below the ground surface. Metals and Organochlorine pesticides were reported in the results. The metals were within background limits and only dieldrin was detected above Oregon DEQ residential risk based concentrations (RBCs) for the ingestion, dermal contact, and inhalation pathway.

In September 2015, Anderson Geological, Inc collected soil samples from locations across the site from intervals of 0-6 inches and 6-12 inches for pesticides. Analysis showed dieldrin to have impacts across much of the site and in some of those areas to be above DEQ's residential RBC for the ingestion, dermal contact, and inhalation pathway. Other pesticides including aldrin, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, endosulfan sulfate, and endrin ketone, were detected but at levels below the residential RBCs.

From March to June 2016, Anderson Geological, Inc completed a more in depth sampling of the site at the request of DEQ. The site was screened for multiple pesticides and metals. The site was re-sampled, covering intervals from 0-6 inches, 6-18 inches, and 18-30 inches below surface level. DEQ's document *Guidance for Evaluating Residual Pesticides on Lands Formerly Used for Agricultural Production* (January 2006) was used by AGI to help determine the appropriate

sampling protocol, conducting a multi-residue pesticide screening (EPA methods 8081B, 8270D, 8141B, and 8321B) along with 8 RCRA metals (EPA method 6020). Pesticides detected included aldrin, dieldrin, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, endosulfan sulfate, endrin ketone, atrazine, chloropyrifos, diuron, and lindane. Only dieldrin was detected above the residential RBC for ingestion, dermal contact, and inhalation.

Comparison of detected pesticide compounds and metals to RBCs and additional assessment narrative is presented below in the risk assessment section.

3. RESULTS OF INVESTIGATION(S)

3.1 NATURE AND EXTENT OF CONTAMINATION

3.1.1 Soil

After the initial assessment determined that there was dieldrin in soil at the site above residential RBCs, further work was initiated by dividing the site into 38 sample cells that were approximately four acres each. Four discrete soil samples were taken from each cell, at depths of 0-6 inches, 6-18 inches, and 18-30 inches below ground surface. Cells and sample locations are shown on Figure 3. From the soil removed in each set a discrete sample was placed in a four-ounce jar and a second four-ounce measure was placed in a plastic bag and mixed with the remaining three sub-sections of the cell creating a composite sample. After contents of the bag were mixed thoroughly a four-ounce sample was pulled from the bag and ran as a composite sample for the cell. If the composite sample indicated a pesticide above $\frac{1}{4}$ of the RBC, then the four discrete samples for the cell were analyzed.

The following pesticides contaminants were detected in soil. Tables 1 to 6 present contaminant concentrations.

- 4,4'-DDD – up to 148 milligrams per kilogram (mg/kg)
- 4,4'-DDE – up to 0.27 mg/kg
- 4,4'-DDT – up to 0.28 mg/kg
- Endosulfan sulfate – up to 0.0103 mg/kg
- Atrazine – up to 0.0091 mg/kg
- Chloropyifos – up to 0.032 mg/kg
- Diuran – up to 0.63 mg/kg
- Dieldrin – up to 0.461 mg/kg

- Endrin ketone – 0.00226 to 0.00275 mg/kg
- Lindane – 0.00196 to 0.00275 mg/kg
- Aldrin – 0.0028 mg/kg

Dieldrin was found above $\frac{1}{4}$ of the residential RBC in 64 out of the 114 composite cell samples. The discrete samples for those composites were analyzed for dieldrin. None of the composite samples were above $\frac{1}{4}$ of the residential RBC for any other pesticides that were screened at the site.

Arsenic exceeded $\frac{1}{4}$ of the background in 80 of the 114 composite samples. The discrete samples for those 80 composites were analyzed for arsenic. All discrete analyses for arsenic were below the background level for the area. All other metals tested were all below $\frac{1}{4}$ of the background levels in the composite samples.

Figure 4 shows the horizontal and vertical extent of dieldrin in soil above the residential RBC (0.034 mg/kg). Dieldrin at this level covers approximately 71 acres or about 60% of the site primarily at depths from 0 to 18 inches. For depths of 18 to 30 inches only the northwest corner of cell 3 contained dieldrin above the residential RBC.

3.1.2 Ground Water

Groundwater was not directly analyzed at the site. Based on several factors, groundwater is not likely to be contaminated by pesticides that were applied to the site. There were no reports of storage or release of large quantities of pesticides at the site. Concentrations of pesticides in soil decreased quickly. Only one sample in the 18-30-inch interval contained a pesticide, dieldrin, that was detected above DEQ's residential leaching to groundwater RBC and it was only detected slightly above the RBC of 0.010 mg/kg with a concentration of 0.014 mg/kg. All other samples and pesticides were either not detected in this interval or were detected below the leaching to groundwater RBC. Based on this, groundwater, which is relatively deep at the site (60-80 feet bgs), is unlikely to have been impacted by historical pesticide use. Additionally, future use of the site will not include beneficial use of the groundwater. No further assessment of groundwater was conducted.

3.1.3 Surface Water

Surface water was not analyzed at the site. Surface water at the site is mostly contained within the drainage ditch. There doesn't appear to be any beneficial habitat in or near the ditch across the site. The drainage ditch is discussed in more detail below.

3.1.4 Low Lying Areas (Ditch and Swale)

At the request of DEQ, samples were collected in low lying areas where contaminants could accumulate. Four discrete sediment samples were taken from the drainage ditch that runs north across tax lot 900 and 200. Samples were collected at each location from 0-6 and 6-18 inches and analyzed for pesticide screening and metals. A summary of the sediment results is provided in Tables 3 and 6. Figure 2 shows the location of the samples and the levels of dieldrin detected. Dieldrin detections in the sediment samples ranged between 0.0091 and 0.027 mg/kg, below the residential RBC of 0.034 mg/kg. All metals were below the background concentrations for the area.

Discrete soil samples were collected from a low lying area (a shallow dry swale) located along cells 34 and 35 where composited soil samples contained elevated levels of dieldrin. A sample was collected at each location from 0-6 and 6-18 inches and analyzed for dieldrin and arsenic. A summary of the results is provided in Tables 2 and 5 (samples 34C and 34B). Figure 2 shows the location of the samples and the levels of dieldrin detected. Dieldrin in these samples ranged between 0.00879 mg/kg and 0.0739 kg/kg, some results being above the residential RBC of 0.034 mg/kg. The highest concentrations were found in the first six inches of soil. Arsenic was below the background level in all the samples.

3.1.5 Air

There are no air-related contaminants expected at the site. Contaminated dust might be generated from site development activities and may be a concern for occupation, excavation and construction workers. Risk from the dust contaminated with pesticides is evaluated as part of the risk assessment below.

3.2 RISK ASSESSEMENT

3.2.1 Conceptual Site Model

Constituents of Potential Concern (COPCs) that were detected in soil include aldrin, dieldrin, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, endosulfan sulfate, endrin ketone, atrazine, chloropyrifos, diuron, and lindane.

Table 7 presents the conceptual site model (CSM). Based on the expected future use of the property, three uses needed to be evaluated in the risk assessment:

- Residential and Urban Residential – Residential must be considered because the site is zoned for residential use and this is the most likely future use of the property.

- Occupational Worker – The current land use within the area is considered occupational.
- Construction worker/Excavation worker – This consists of excavation or construction workers on site that may contact contaminated soil. This also includes road and utility workers.

The complete pathway (or way that people can be exposed to contaminants) presented in the CSM are:

- Direct Contact – Ingestion, dermal contact, and inhalation of contaminated soil from the surface to about 30 inches bgs. This includes ingestion and inhalation of contaminated soil or dust.

3.2.2 Human Health Risk Assessment

COPCs in soil were initially compared with conservative risk-based screening level values for the complete pathway(s) discussed under the CSM above to determine if the contaminants posed potential risk to human health. If detected concentrations of chemicals in soil did not exceed the screening levels, then that contaminant was eliminated as a COPC and was not evaluated further. Chemicals and pathways that exceeded the screening levels were carried through for detailed evaluation in the baseline risk assessment. Dieldrin was the only COPC that exceeded screening levels and was evaluated further for human health risks.

Toxicity of Dieldrin

Dieldrin is a pesticide that was used to control insects in crops such as corn and cotton, and is a breakdown product of the aldrin that was used on strawberries at the site. Dieldrin was banned by the EPA in 1974 for use in crops due to potential impacts to human health. Dieldrin is persistent, and like many halogenated pesticides, dieldrin attaches to fat cells in the body and slowly leaves the body.

Exposure to dieldrin happens mostly from eating contaminated foods, such as root crops, fish, or seafood. Dieldrin can also be incidentally ingested by breathing contaminated dust. The most likely pathway at the site for exposure to dieldrin is by ingestion or inhalation of soil or dust particles by occupational, construction and excavation workers or by future residents. Dieldrin builds up in the body after years of exposure and can affect the nervous system. Dieldrin is also a potential carcinogen.

Human Health Risk Evaluation of Dieldrin

The results show that of the shallow soil samples taken (0-6 inches) 81 discrete samples contained dieldrin above the residential RBC for soil *ingestion, dermal contact and inhalation*.

32 discrete samples contained dieldrin above the urban residential RBC for soil *ingestion, dermal contact, and inhalation*.

Intermediate soil (6-18 inches) samples showed that 45 samples were above the residential RBC for soil *ingestion, dermal contact, and inhalation* for dieldrin, while 17 samples were above urban residential RBC for soil *ingestion, dermal contact, and inhalation*.

Only one of the deep soil samples (18-30 inches) was above residential RBC for *ingestion, dermal contact and inhalation*.

Soils samples collected at 6 to 18 inches in the swale and all sediment samples collected in the drainage ditch were below the residential RBC for *ingestion, dermal contact and inhalation*. Swale samples collected at 0 to 6 inches were above the residential RBC and are included with the contaminated soils in Cells 34 and 35.

Dieldrin concentrations were below the construction and excavation worker RBCs for *ingestion, dermal contact and inhalation* and average concentrations were below the occupational worker RBC for ingestion, dermal contact and inhalation

3.2.3 Ecological Risk Assessment

There does not appear to be any significant or beneficial ecological habitat at the site. The site has been developed for farm use since the 1890's. The future use of the site will be residential and urban residential, also unlikely to provide beneficial habitat at the site. The nearest sensitive ecological habitat is the Pudding River located about 2 miles east of the site. The swale and ditch on the site are dry most of the year. The swale will be culverted during site re-development activities. The drainage ditch will be re-routed and the existing ditch will be filled in and graded.

3.3 BENEFICIAL USE

3.3.1 Groundwater Beneficial Use Determination

There are currently two domestic and four irrigation wells at the site. The total depth of the wells ranges between 89 and 215 feet below ground surface. First groundwater was encountered during well drilling at depths ranging between 60 and 80 feet. Only one of the irrigation wells is currently in use and all of the wells are planned for removal during the future site development. The contamination appears to be only in shallow soils to a maximum depth of approximately 30 inches. Dieldrin tightly binds to organic material in the soil, and is not very soluble or mobile. It is unlikely that the contamination has migrated into groundwater at the site. Because the future use of the site is a residential development in which the city of Salem will be providing water, there appears to be no future beneficial use of groundwater at the site.

3.3.2 Surface Water Beneficial Use Determination

There are no beneficial uses related to surface water on the site. The only surface water body on the site is an intermittent drainage ditch. There does not appear to be any beneficial habitat or other beneficial use of the ditch. The nearest sensitive surface water body is the Pudding River located about two miles east of the site.

3.3.3 Hot spots

There are no hot spots of contamination as defined in ORS 465.315 and OAR 340-122-080 through - 090.

3.4 ESTIMATE OF CONTAMINANT MASS

Approximately 152,000 cubic yards of soil are contaminated with dieldrin above the cleanup level of 0.034 mg/kg for residential ingestion, dermal contact and inhalation

3.5 INTERIM REMEDIAL ACTIONS

Interim remedial actions (IRAMs) completed at the property include the excavation and removal of soil contaminated with dieldrin above the cleanup levels on the east side of the site in preparation for preliminary site development work. The removal was conducted between August and September 2017. Contaminated soil excavated from this area is being temporarily stockpiled on the west property.

4. REMEDIAL ACTION ALTERNATIVES

4.1 REMEDIAL ACTION OBJECTIVES

Site specific remedial action objectives were developed for contaminated soil for the purpose of achieving protection of human health, ecological receptors, and beneficial uses, as required by OAR 340-122-040. The RAOs for the site are as follows:

- Prevent exposure of future residents to soil containing dieldrin at concentrations above the residential ingestion, inhalation and dermal contact risk levels.
- Prevent human exposure to dust generated from contaminated soil during excavation, offsite transport and reuse activities above acceptable risk levels.
- Prevent exposure of human receptors to dieldrin in food crops at concentrations exceeding acceptable risk levels.

4.2 REMEDIAL ACTION ALTERNATIVES

The site is inactive farm land that is planned for redevelopment into single and multi-family residences. The remaining home and water wells on the property are planned for removal as development proceeds. The new development will be hooked up to municipal water. Based on this and the risk assessment, there are no current risks from the site contamination. The future exposure that exceeds DEQ risk standards are ingestion, dermal contact and inhalation to contaminated soil by future residents.

AGI's RI/FS (AGI 2016) report and report addendum (AGI 2017) proposed 5 remedial action alternatives to address the human health risk posed by future site construction and development into long-term residential housing. The specific objective of the remedial action for the Northstar site is to prevent exposure of future residential occupants of the property to dieldrin in the soil that is above the residential RBC for ingestion, dermal contact and inhalation:

- #1 – No Action

- #2 – Excavation and On-Site Disposal/Containment: This alternative consists of segregating contaminated soil and placing in an engineered containment cell on site that will be restricted by an easement and equitable servitude (EES).
- #3 – Excavation with Offsite Disposal at a Permitted Landfill: This alternative consists of excavating contaminated soil and disposing of it offsite at a landfill facility permitted to accept the waste.
- #4 – Onsite Treatment: This alternative consists of treating contaminated soil, in-situ, with a soil amendment that breaks down the dieldrin.
- #5 – Excavation with Offsite Reuse on Approved Agriculture Land: This alternative consists of excavating contaminated soil and transport offsite to an approved agriculture property.

Each of the alternatives is explained in further detail in the RI/FS report and report addendum. The alternatives were compared using DEQ's remedial selection balancing factors per OAR 340-122-0090 (effectiveness, long-term reliability, implementability, implementation risk, and reasonableness of cost). Table 8 presents the results of the comparison. AGI's report presents a sound comparison of the various remedial action alternatives and recommends Alternative 5 as the final remedial action.

5. SELECTED REMEDIAL ACTION

5.2 SELECTED REMEDY

DEQ selected Alternative #5 (Excavation and Offsite reuse on Approved Agriculture Land) as the final remedy for the Northstar site because it is highly effective, easily implemented, has a low to moderate implementation risk, a high to moderate long-term reliability, and it is cost reasonable. Alternative #5 is protective of human health and the environment and meets the remedial action objectives by excavating and removing contaminated soil from the site that contains dieldrin above the residential ingestion, dermal contact, and inhalation RBC.

Specifically, DEQ's recommended remedy includes:

- The 152,000 cubic yards of soil exceeding the residential cleanup goal for dieldrin of 0.034 mg/kg will be excavated and transported offsite for reuse. All required permits shall be obtained from the appropriate agencies before offsite transport activities begin. Confirmation soil samples will be collected to show that the cleanup goals have been met.
- The dieldrin contaminated soil will be transported to an agriculture land located at 6848 Windsor Island Road, Keizer, Oregon on Marion County Map and Tax Lot 063W28 00300. The soil will be used to infill two abandoned quarries on the property. The soil will be covered with 3 feet of cleaner fill and will be reused as farm land to grow hazelnuts.
- The reuse of the soil has been approved through a permit exemption by DEQ's Solid Waste Program (DEQ September 2017). The exemption requires that appropriate floodplain and wetland permits be obtained from Marion County, the Department of State Lands and/or the Army Corps of Engineers before the southern quarry is infilled.
- A deed notice will be recorded on the Windsor Island farm property to document the location and restrict residential use in the reuse area until the dieldrin levels are reduced or remediated to acceptable standards.
- Excavation, transport, and infilling activities will follow the approved remedial action work plan, dust control plan and dust/air monitoring plan. The preparation and approval of a spill prevention, response and safety plan is required before transporting any

contaminated soil offsite. The contractor will notify DEQ at least two weeks prior to the transport of any contaminated soil offsite.

- The contractor shall notify DEQ at least 30 days prior to commencement of excavation work on the west side of the site and schedule a pre-construction meeting with DEQ for project evaluation, pre-planning and coordination with the adjacent residents. As stated above, the contractor should notify DEQ at least two weeks prior to the transport of any contaminated soil offsite.
- Disposal of soil at a permitted Subtitle D landfill is an acceptable alternative, if for some reason appropriate permits cannot be obtained or enough space is not available for all the contaminated soil in the Windsor Island re-use site.
- Any significant changes to the selected alternative will require re-evaluation, review and prior approval by DEQ.

Upon successful removal of the contaminated soil, the owner plans to re-route the existing ditch to run along the edge of future property lines as shown on Figure 4. The existing ditch will be filled in and graded. A drainage culvert will be placed in the bottom of the dry swale in cells 34, 35, and 36 and the area will be filled and graded. The owner will obtain appropriate permits required to complete the work.

5.2 RESIDUAL RISK ASSESSMENT

OAR 340-122-084(4)(c) requires a residual risk evaluation of the recommended alternative that demonstrates that the standards specified in OAR 340-122-040 will be met, namely:

- Assure protection of present and future public health, safety, and welfare, and the environment
- Achieve acceptable risk levels
- Prevent or minimize future releases and migration of hazardous substances in the environment

The selected remedial action alternative assures protection of human health and the environment through the following:

- Risk to future residential receptors through soil ingestion, inhalation and dermal contact will be addressed by the excavation and removal, to an approved offsite location, of all soil with concentrations of dieldrin above the residential risk level of 0.034 mg/kg.
- Human exposure to dust generated from dieldrin contaminated soil during cleanup activities will be addressed through the implementation of a dust control and monitoring

plan for excavation, loading and transport of the soil and a spill prevention, response and safety plan for offsite transport.

- Future contact and exposure to unacceptable levels of dieldrin contaminated soil at the Windsor Island Road re-use site will be addressed by capping the soil with three feet of cleaner fill and placing a deed notice on the property. The deed notice will document the location of the soil and restrict residential use of the property until dieldrin levels are reduced to below residential values.
- Capping the soil in the quarries with three feet of cleaner fill will also prevent direct contact of the food crops with the contaminated soil below. The farmer is currently planning on growing hazelnuts on the re-use property. According to ODA, hazelnuts do not take up dieldrin like some other row crops do.

6. PEER REVIEW SUMMARY

Technical documents produced during the investigation of the Northstar Development Site as well as this ROD, have been reviewed by a technical team at DEQ. The team consists of the project manager, a lead worker/hydrogeologist, and a toxicologist. The DEQ team unanimously supports the selected remedial action.

7. PUBLIC NOTICE AND COMMENTS

A public notice announcing a 30-day comment period running from July 1 to July 31, 2017 on the recommended remedial action was posted in Secretary of State's Bulletin from July 1st, the Statesman Journal on June 30th and the Keizer Times on June 30th. The notice was also posted on DEQ's public website and mailed to the City of Salem, Oregon Department of Transportation (ODOT), the property owner and over 200 adjacent property owners near the site, the transport route and the Windsor Island Road re-use site. At the request of the City of Keizer and Oregon Department of Agriculture (ODA), DEQ extended the public comment for two weeks to end on August 14, 2017. A notice of the extension was provided to adjacent property owners, the City of Salem, City of Keizer, ODOT, ODA, the Keizer Times, the Statesman journal, and to those who provided comments. The notice was also posted on DEQ's website, provided to more than 2,300 subscribers on DEQ's Environmental Cleanup Program Daily Bulletin subscription list, and issued as a news release.

Copies of the DEQ staff report recommending the remedial action and other documents that make up the Administrative Record for the site were made available for public review at DEQ's Western Region Office in Salem and on DEQ's website.

Comments were received from about 60 individuals, the City of Keizer, Marion County, Department of State Lands, and Army Corp of Engineers. The comments were grouped by similarity and paraphrased below, followed by DEQ's response. Each comment was responded to individually by e-mail or mail. Individual comments and comment responses are available in the project file for ECSI #6036.

DEQ did not receive enough requests during the public comment period to warrant DEQ hosting a public meeting on the proposed closure (see response to comment 6.13). However, subsequent to the close of the public comment period, DEQ received a request from the Kale/Hayesville Neighborhood Association and Nextdoor to attend a neighborhood meeting to provide information on the project. DEQ agreed to attend this meeting. It was held at the Stephens Middle school in Northeast Salem on September 29, 2017, from 6:30 to 8:30 pm. Approximately 50 people attended the meeting. The meeting participants included staff from DEQ, Oregon Health Authority, National Pesticide Information Center, Oregon Department of Agriculture, and the Pesticide Analytical Response Center. As the public comment period had ended, DEQ did not formally gather additional comments at this meeting, but listened to and addressed questions and concerns during the meeting.

7.1 Dust Generation during Soil Transport

Several comments objected to the trucking and transport of the soil containing dieldrin from the cleanup site on public roads through Salem and Keizer due to the dirt and dust that could be released during transport and the effect it could have on community health. There were questions about how trucking and transport would be monitored for safety, dust and spills.

DEQ Response: DEQ toxicologists do not expect risk standards to be exceeded in the air or dust during soil removal or transport activities based on the levels in the soil being removed. Additionally, dust production is expected to be much less during transport than site excavation and loading work. To confirm that risk standards for dieldrin would not be exceeded during these activities, dust and air was monitored during the preliminary soil excavation work that was conducted in contaminated areas on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air samples.

A truck cleaning and dust control plan for soil loading and transport has been prepared by Anderson Geologic, the environmental consultant for the project. The plan calls for the construction of temporary roadways and specific loading areas on the development site made with clean crushed rock for truck loading and hauling. Trucks are to remain on the temporary roadways and loading areas at all times to minimize the generation of dust. Trucks will be carefully loaded to minimize spillage. Before exiting the site, all trucks will be inspected and cleaned of loose dirt and mud. The trucks will be washed to rinse the exterior as well as lightly wet the soils to help suppress any dust during transport. The soil in the truck will be securely covered with a tarp. After the soil is unloaded at the receiving site, the trucks will be swept clean before returning to the road. Dust suppression will also be done at the site receiving the soil.

I&E Construction, the main contractor, will have a spill prevention, response and safety plan prepared prior to the offsite transport of any soil containing dieldrin above the residential standard. The plan will be available for viewing on DEQ's public website for the project.¹ All site personnel and drivers will be trained in dust control and truck cleaning procedures and in the spill prevention, response and safety plan. DEQ and/or the environmental contractor will periodically be onsite to inspect these activities. The City of Salem will also be monitoring the site regularly for dust and erosion control.

As stated previously, DEQ does not expect risk standards to be exceeded in the air or dust during soil removal and transport activities based on the levels in the soil being removed. To confirm

¹ To access site summary information and other documents in the DEQ Environmental Cleanup Site Information database, go to <http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/ecsi.aspx> select "Search complete ECSI database", then enter 6036 in the Site ID box and click "Submit" at the bottom of the page. Next, click the link labeled 6036 in the Site ID/Info column.

this, the dust and air was monitored during the preliminary soil excavation activities that were conducted on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air samples.

The Oregon Health Authority is also a good resource for health related concerns and questions. For questions or concerns, contact Todd Hudson, Public Health Toxicologist by e-mail at todd.hudson@dhsosha.state.or.us, phone: 971-673-0024 and website <http://public.health.oregon.gov/PHD/Directory/Pages/program.aspx?pid=64>.

7.2 Truck Impacts during Transport

Comments and objections were made to the large amount of truck traffic through Keizer during soil transport activities. There were concerns about the number of trucks, the traffic, the noise and the road damage.

DEQ Response: DEQ does not have any regulatory authority over truck or other traffic on public roads. This concern is something that would need to be discussed with the City of Keizer/Salem, Marion County and the Oregon Department of Transportation. The contractor's plan involves trucks returning with clean fill from the Windsor Island Quarry that is located near the farm site. This will enable trucks to travel loaded during both trips, which should reduce truck traffic/trips since the farm site and the quarry are located in the same area.

7.3 Dust and Contaminated Soil during Site Excavation Work (Dust Control, Tracking Contamination and Health and Safety)

There were several comments and concerns about the health and protection of nearby residents and onsite workers during excavation of dieldrin contaminated soil on the development site. Questions arose about how the soil and dust will be managed during excavation work so that it is not released to the environment, will not adversely affect workers or nearby residents, and is not tracked all over the site.

DEQ Response: DEQ toxicologists do not expect risk standards to be exceeded in the air or dust during soil removal activities based on the levels in the soil being removed. However, to confirm that risk standards for dieldrin would not be exceeded during these activities, dust and air was monitored during the preliminary soil excavation activities that were conducted in contaminated areas on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air samples.

A dust control plan for soil excavation, loading and transport has been prepared by Anderson Geologic, the environmental consultant for the project. The plan is available on DEQ's Website for the project.¹ While some dust is inevitable, dust emissions will be controlled to the extent possible. The plan calls for wetting the soil using water trucks and/or sprinklers prior to excavation. Soils are to be kept moistened during excavation, loading, and grading to minimize

visible dust emissions. Workers will take precautions while driving on the site to minimize dust. A temporary roadway and specific loading areas made with clean crushed rock for truck loading and hauling will be constructed prior to the work. Trucks will remain on the temporary roadway or loading areas at all times to minimize the generation of dust. Trucks will be carefully loaded to minimize spillage and dust. Before exiting the site, all trucks will be inspected and cleaned of loose dirt and mud. The exterior of the trucks will be rinsed and the soils lightly wetted to help suppress any dust. The soil in the truck will be securely covered with a tarp. After the soil is unloaded at the receiving site, the trucks will be swept clean before returning to the road and the site. Dust suppression will also be done at the site receiving the soil.

The dust control plan was implemented starting August 7, 2017, when DEQ approved limited onsite preliminary excavation work on the east side of the property. DEQ staff and the City of Salem have been on the site to monitor the dust suppression activities. This plan was effective in minimizing dust.

As stated above, DEQ toxicologists do not expect risk standards for dieldrin to be exceeded in the air or dust during soil removal and transport activities based on the levels in the soil being removed. To confirm this, the dust and air were monitored during the preliminary soil excavation activities that were conducted on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air/dust samples.

The contractor is also required to have a Health and Safety plan meeting OSHA requirements and has requested a consultation with Oregon OSHA.

The Oregon Health Authority has been consulted on this project and may be contacted to discuss any health related concerns. For questions or concerns, contact Todd Hudson, Public Health Toxicologist by e-mail at todd.hudson@dhsosha.state.or.us, phone: 971-673-0024 and website <http://public.health.oregon.gov/PHD/Directory/Pages/program.aspx?pid=64>.

7.4 Measuring Contamination Levels in the Soil

Comments were made that DEQ should monitor and measure contaminant levels in the soil during and after removal including soil sampling, surface sampling and dust sampling.

DEQ Response: Over 350 soil samples were analyzed from the site under DEQ oversight during environmental investigations completed by Multi-Tech Engineering and Anderson Geologic between 2015 and 2017. Soil samples were collected from land surface to about 30 inches below ground. The sampling defined the area of dieldrin contaminated soil that would require a remedial action. The Remedial Action Work Plan prepared by Anderson Geologic, dated March 28 2017, includes sampling of the soil after excavation to show that the remedial action was effective. If the post excavation samples show that the soil is still above the risk standards, then additional excavation and sampling will be completed until sampling shows the dieldrin in the soil meets or is below the residential risk standard.

DEQ toxicologists do not expect risk standards for dieldrin to be exceeded in the air or dust during soil removal and transport activities based on the levels in the soil being removed. To confirm this, the dust and air was monitored during the preliminary soil excavation activities that were conducted on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air/dust samples.

7.5 Residential Development on Contaminated Soil

Comments and concerns were made about building homes on the development site even if contamination is removed. Objections were made to using contaminated soil in the development of a residential community.

DEQ Response: DEQ's Cleanup Program does not routinely review and/or approve of changes in land use to evaluate whether the new use will meet or be protective of human health as defined for the Cleanup Program. In this case, the developer voluntarily requested DEQ's review of the situation and wanted to clean the site to meet our Cleanup Program residential soil standards before the site was developed. Most developments involving farm or industrial land transitioning to residential use are not evaluated by the DEQ nor required to.

At this site, soils containing dieldrin above DEQ's residential risk levels will be removed prior to developing the site. Once these soils are removed, sampling will be conducted to confirm that remaining dieldrin levels in the soil are below residential risk and safe for residential use and development. The site will be safer after the cleanup than it was before, and safe for residential use.

7.6 Contaminated Soil Designated as Clean Fill

Questions, comments and objections were made regarding the soil on the originating agriculture property that contains dieldrin being designated as "clean fill" and being placed in old quarry pits on a farm property north of Keizer.

DEQ Response: DEQ approved of moving the soil from one agriculture field that is planned for residential development to another agriculture field that is zoned and used for farming. While the dieldrin concentrations slightly exceed DEQ's residential soil screening levels, they are extremely low and should be safe for farm use. This is because a resident who regularly gardens in their back yard is in direct contact with the soil far more frequently than a farmer plowing a field a couple times a year in a tractor. Because a resident is exposed more often and for a longer duration (we assume decades of living in the area when developing our screening levels), they have a higher risk from exposure to low levels of dieldrin in the soil than a farmer would. While pure dieldrin would be very concentrated and potentially dangerous, the concentrations in the farm soils are very low and would not present an acute (immediate) threat, so it is "clean fill for

farm use,” but not for residential use. Additionally, a deed notice will be placed on the agriculture property which restricts residential use until dieldrin levels are reduced.

7.7 Selecting a Different Remedial Alternative

Several commenters requested that DEQ choose a different alternative for the soil disposition including onsite treatment, onsite capping, or disposal at a permitted landfill.

DEQ Response: DEQ’s process requires that several balancing factors be evaluated and considered when choosing a final remedy for a cleanup site. The factors include: the effectiveness and protectiveness of the remedy, the long-term reliability, how difficult or easily it can be implemented, any risk that could be associated with performing the action, and how reasonable is the cost. Anderson Geologic prepared a study and evaluation of 5 alternatives including 1) no action (required by the process), 2) soil removal and onsite disposal, 3) soil removal with offsite disposal, 4) on site treatment, and 5) offsite disposal and reuse. All alternatives were scored and evaluated by the balancing factors. Alternative 5, offsite disposal and reuse ranked the highest out of all the alternatives. Anderson Geologic proposed this alternative as the final remedy. DEQ reviewed the report and agreed with the recommendation. DEQ is recommending Alternative 5 as the final recommended action.

7.8 Reusing the Soil for Growing Crops

Objections and concerns were raised about allowing food crops to be grown on the soil after it is relocated to the farm site on Windsor Island Road.

Response from Oregon Department of Agriculture: *Legacy pesticides like dieldrin, have been banned for decades. However, legacy pesticides and breakdown products remain in the environment long after their use. Dieldrin was legal and widely used in the Willamette Valley and throughout the U.S. from the 1950s to the 1970s on many crops, including strawberries and corn. Due to how long it takes for dieldrin to break down in the environment, detection in agricultural soils in the valley is relatively common, but at very low levels as is the case with the soils at the Northstar site.*

People are primarily exposed to dieldrin when eating certain crops grown in soils where dieldrin was previously used. Crops such as squash, pumpkin, zucchini, and carrots are most apt to uptake dieldrin from the soils. Many crops do not uptake dieldrin or do so at very low rates. Hazelnuts are proposed to be grown at the new location. It’s unlikely that hazelnut (filbert) trees uptake significant levels of dieldrin.

Response from DEQ: Up until fall 2016, the soil at the Northstar site was used for farming, so placing it in an area that is currently farmed is appropriate. Additionally, the soil will be capped

with three feet of cleaner fill to reduce the chances of direct contact with the food crops. The farmer is currently planning to grow hazelnuts on the re-use property. According to the Oregon Department of Agriculture, hazelnuts do not take up dieldrin like some other row crops. farming

7.9 Dust Production during Placement of Soil

Comments and concerns were raised regarding potential dust emissions during placement of the soil in the quarries at the farm site on Windsor Island Road.

DEQ Response: Dust will be visually monitored and dust control measures such as wetting the soil, will be implemented if needed when placing the soil in the quarries at the farm site.

Additionally, the contractor plans to place three feet of clean fill on top of the agriculture soil.

DEQ toxicologists do not expect risk standards for dieldrin to be exceeded in the air or dust based on the levels in the soil being removed. This was confirmed by dust and air monitoring conducted during the preliminary soil excavation activities on the east side of the site between August 7 and 15, 2017. Dieldrin was not detected in any of the air/dust samples.

7.10 Dieldrin Impacts to Groundwater and Surface Water

Concerns were raised that dieldrin in the soil could get into the local groundwater, surface water and nearby water wells after the soil is used to infill the quarries at the farm site.

DEQ Response: Hydrogeologists and licensed Geologists from DEQ reviewed the solid waste permit exemption application for the placement of the soil in the quarry pits and came to the conclusion that there is not a threat to groundwater or surface water because dieldrin is not very soluble and binds tightly to the soil. This is why dieldrin is still present at low levels in the soil on the site and in other agriculture soils in the Willamette Valley even though it was banned in 1970's. If it were soluble, it would have washed out of the soil and would no longer be present.

7.11 Floodplain and Wetlands at the Farm Site

Comments were raised about the quarries at the farm site being located within the 100 year flood plain and/or a designated wetland.

DEQ Response: Floodplain and/or wetland issues at the proposed farm site may prevent, limit or delay the moving of the soil. DEQ will see to it that appropriate authorities have been consulted and all necessary permits are received prior to the transport of soil and infilling of the quarries. Additionally, with three feet of cleaner fill capping the soils deposited from the Northstar site, it is unlikely that flooding would reach and wash away these soils.

7.12 Timeline and Schedule

There were requests to have the timeline and project schedule posted.

DEQ Response: DEQ has developed a public website for the project where the schedule, updates and pertinent information will be posted. The website is located at:

<http://www.oregon.gov/deq/Programs/Pages/Northstar.aspx>.

7.13 Public Meeting Request

There were some requests for a public meeting or hearing.

DEQ Response: Oregon revised statutes require that DEQ hold a public meeting on a remedial action proposal if during the comment period we receive requests for a meeting from ten or more individuals or a group containing ten or more members (ORS 465.320 (2)). In this instance, we received only one request for a public meeting and four requests to be notified in the event there was going to be a public meeting. Based on the low number of requests, DEQ decided not to hold a public meeting on this proposed action. However, DEQ has met individually with some of the nearby homeowners and plans to continue our outreach and meet with the community and nearby residents as needed.

Subsequent to the close of the public comment period, DEQ received a request from the Kale/Hayesville Neighborhood Association and Nextdoor to attend a neighborhood meeting to provide information on the project. As the public comment period had ended, DEQ did not formally gather additional comments at this meeting, but listened to and addressed questions and concerns during the meeting.

8. DOCUMENTATION OF SIGNIFICANT CHANGES

There were no significant changes to the selected remedial action originally described in the July 2017 Northstar Development Recommended Remedial Action Staff Report. However, based on the public comments, the developer has agreed to the following:

- The contractor has decided to cap the soil that infills the quarry with 3 feet of cleaner fill to address concerns about dust and direct exposure to the soil.
- The contractor retained a Certified Industrial Hygienist to prepare a dust and air monitoring plan and oversee dust control and air monitoring at the site during initial excavation activities.
- The contractor will prepare a spill prevention, response and safety plan for the transport of the contaminated soil from the site to the farm on Windsor Island Road.

Additionally, the Solid Waste Permit exemption has been updated and now specifies that appropriate floodplain and wetland permits be obtained from Marion County, the Department of State Lands and/or the Army Corps of Engineers before the southern quarry is infilled.

9. STATUTORY DETERMINATIONS AND SIGNATURE

The selected remedial action for soil contamination at the Northstar Development site in Salem is considered protective, effective, reliable, implementable and cost-effective. The selected remedial action meets the requirements of ORS 465.315 and OAR 340-122-090. The selected remedy is consistent with the future use of the site as a residential community and is protective of the current use as a vacant farm land. Residual risks associated with the selected remedy are below DEQ's acceptable risk levels for the property use.

APPENDIX A
Administrative Record

Multi/Tech Engineering Services Inc. 2015. Memo: Northstar Development Preliminary Soil analysis, August 17, 2015.

AGI 2015. Pesticide Assessment in Shallow Soils, December 22, 2015.

AGI 2016. Remedial Investigation/Feasibility Study, August 9, 2016.

AGI 2017. Solid Waste Permit Exemption, February 22, 2017.

DEQ 2017. Letter: SW – Permit Exemption for Clean Fill, March 8, 2017.

AGI 2017. Addendum to Remedial Action/Feasibility Study, June 16, 2017.

FIGURES

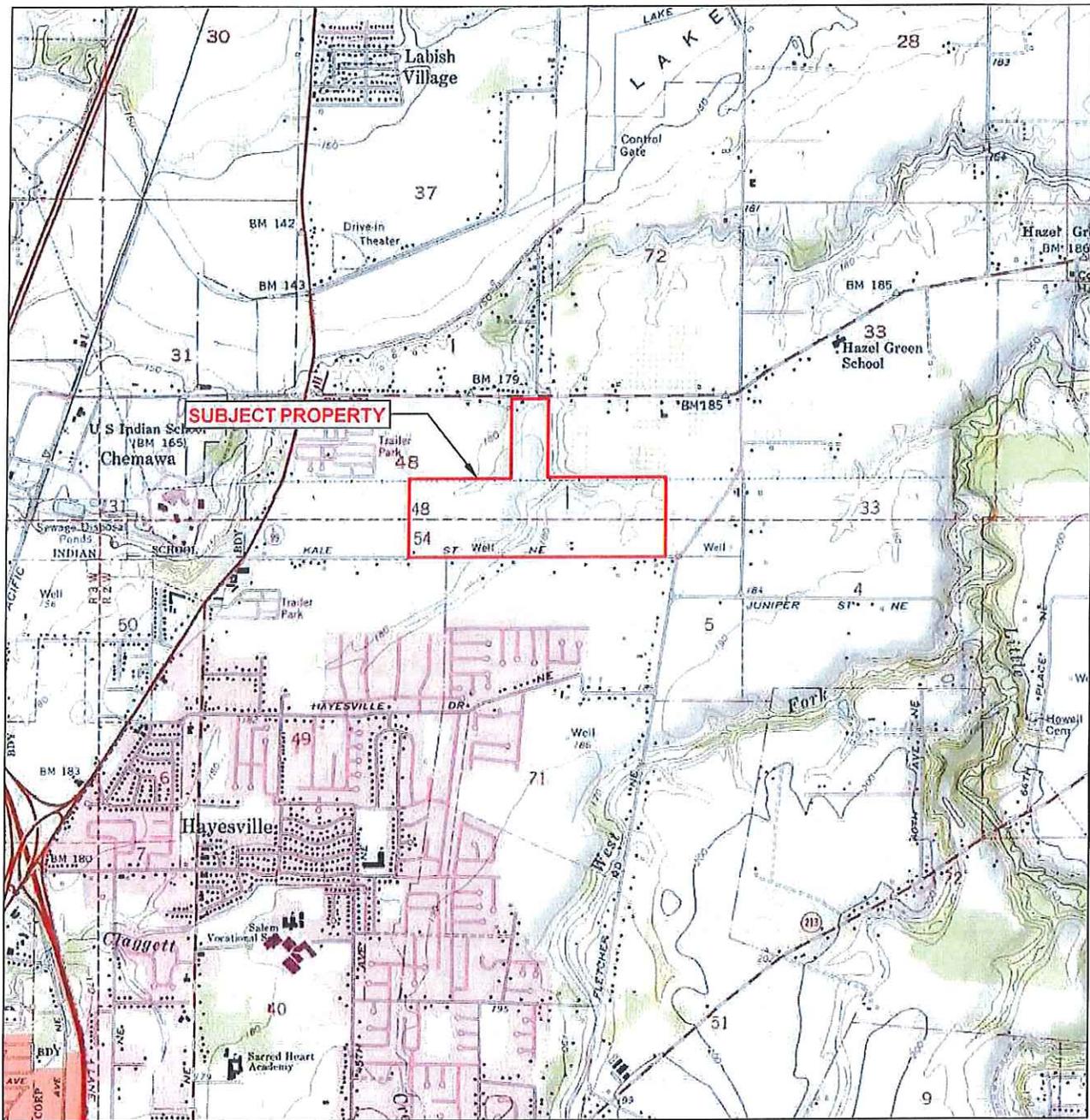
Figures are from AGI's RI/FS Report (AGI 2016), some have been modified

Figure 1 – Site Location Map

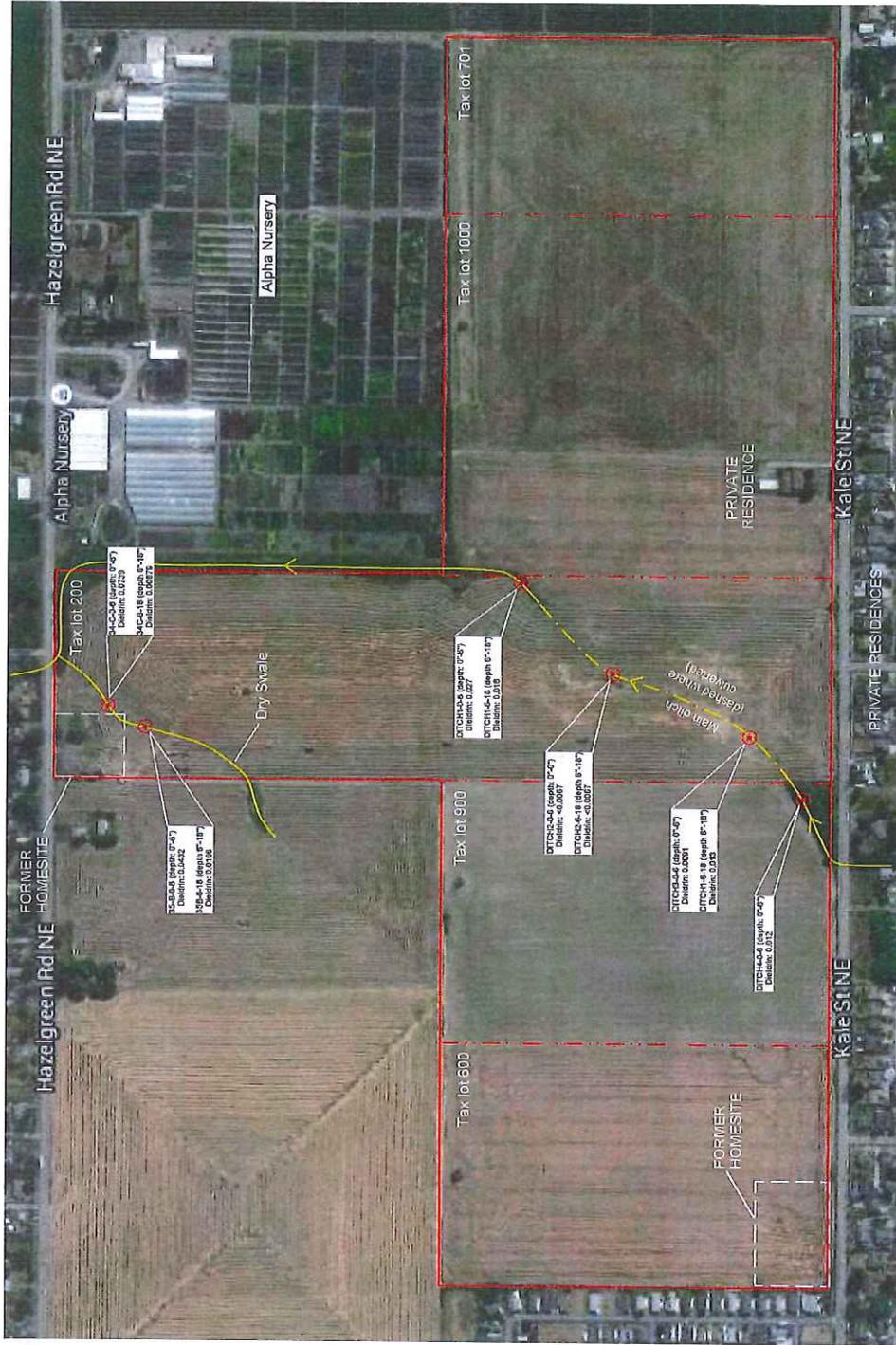
Figure 2 – Site Plan-Dieldrin Concentrations in Ditch and Swale Samples

Figure 3 – Composite Soil Sample Locations

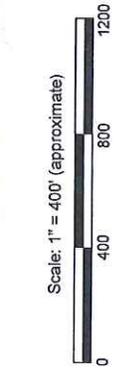
Figure 4 – Dieldrin Concentrations Above Residential RBCs (0-6", 0-12", 0-18", and 0-30" Depth)



	SITE LOCATION MAP		
	Tax Lots 200, 701, 800, 900 and 1000, Map 062W32C Salem, Oregon		
SIZE A	PROJECT NO. 1503.00	REV	
	July 2016	FIGURE 1	



LEGEND
 ○ Discrete soil sediment sample
 All values in milligrams per kilogram
 Other compounds were detected.
 See lab report for full list of detected compounds.



AG ANDERSON GEOLOGICAL

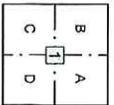
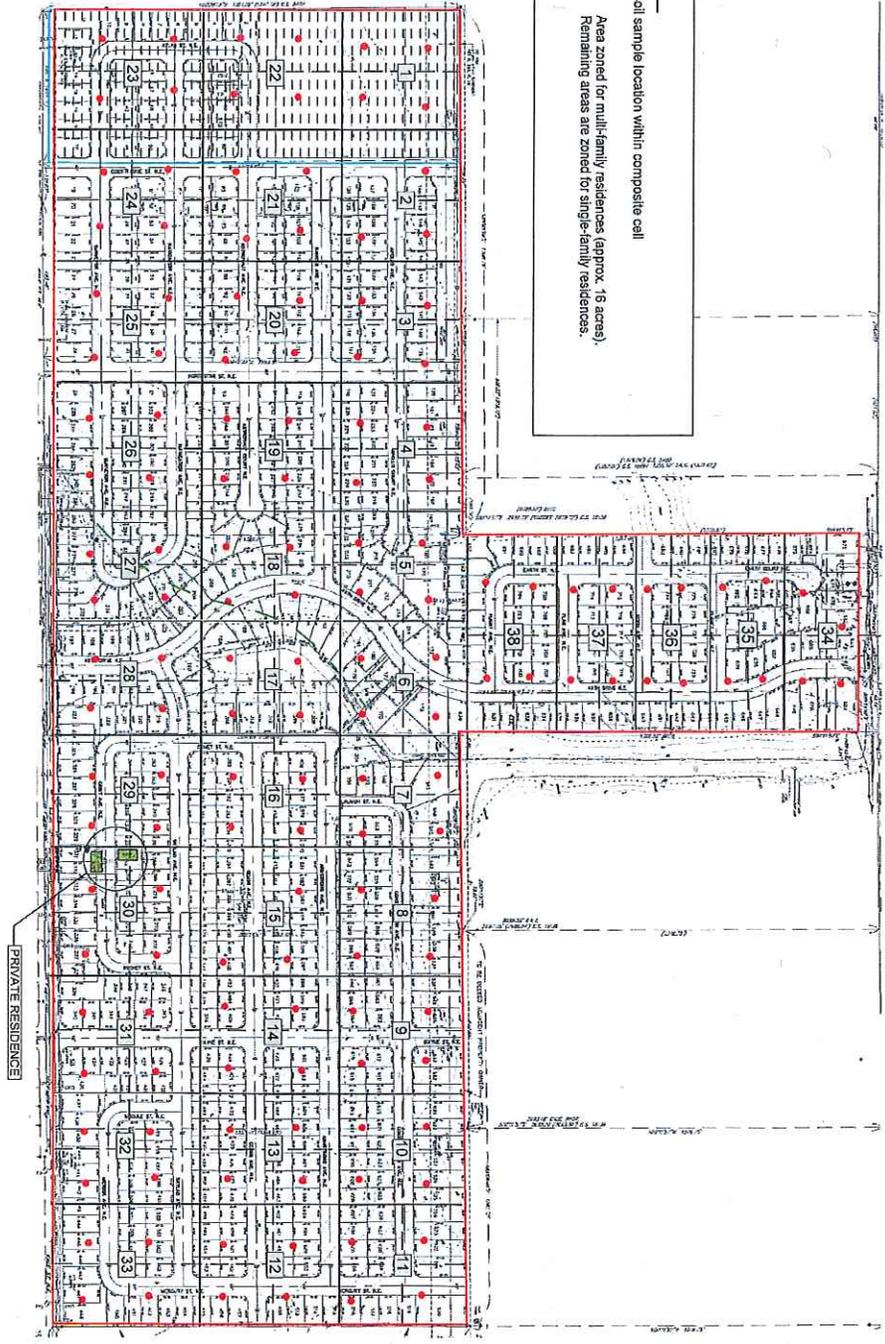
SITE PLAN - DIELRIN CONCENTRATIONS IN DITCH AND SWALE SAMPLES			
Proposed Northstar Development Salem, Oregon			
SIZE	CAGE CODE	DWG NO	PROJECT No.
B			
July 2016			FIGURE 2



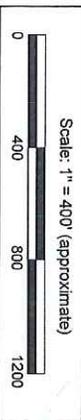
LEGEND

- Discrete soil sample location within composite cell

Area zoned for multi-family residences (approx. 16 acres).
Remaining areas are zoned for single-family residences.



Discrete sample labeling protocol within composite cell



AG ANDERSON GEOLOGICAL

COMPOSITE SOIL SAMPLE LOCATIONS

Proposed Northstar Development
Salem, Oregon

SIZE	CAGE CODE	DWG NO	PROJECT No
B			

July 2016

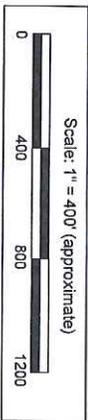
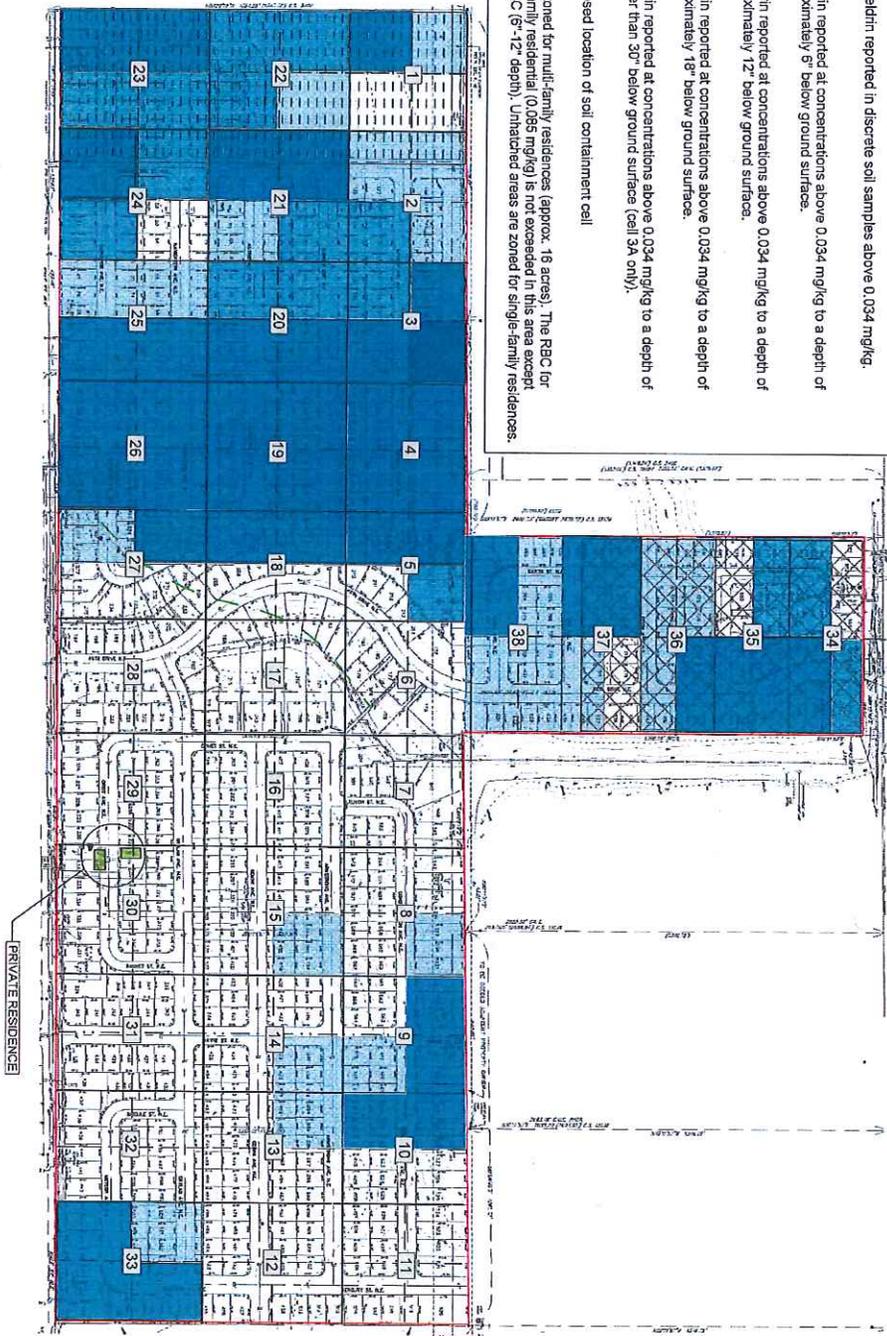
FIGURE 3



LEGEND

- No dieldrin reported in discrete soil samples above 0.034 mg/kg.
- Dieldrin reported at concentrations above 0.034 mg/kg to a depth of approximately 6" below ground surface.
- Dieldrin reported at concentrations above 0.034 mg/kg to a depth of approximately 12" below ground surface.
- Dieldrin reported at concentrations above 0.034 mg/kg to a depth of approximately 18" below ground surface.
- Dieldrin reported at concentrations above 0.034 mg/kg to a depth of greater than 30" below ground surface (cell 3A only).
- Proposed location of soil containment cell

Area zoned for multi-family residences (approx. 18 acres). The RBC for multi-family residential (0.085 mg/kg) is not exceeded in this area except cell 23C (6'-12" depth). Unshaded areas are zoned for single-family residences.



**ANDERSON
GEOLOGICAL**

**DIELDRIN CONCENTRATIONS ABOVE RESIDENTIAL
RBCs (0"-6", 0"-12", 0"-18" AND 0"-30" DEPTH)**

Proposed Northstar Development
Salem, Oregon

SIZE: B
CAGE CODE: DWG NO.
PROJECT NO.:
July 2016

FIGURE 8

TABLES

Tables are from AGI's RI/FS Report (AGI 2016)

Table 1 – Composite Analysis Summary-Metals

Table 2 – Discrete Analysis Summary-Metals

Table 3 – Discrete Analysis Summary-Metals (Ditch Samples)

Table 4 – Composite Analysis Summary-Pesticides

Table 5 – Discrete Analysis Summary-Dieldrin

Table 6 – Discrete Analysis Summary-Ditch Samples

Table 7 – Conceptual Site Model

Table 8 – Summary of Remedy Selection Factors

Table 1
Composite Analysis Summary - Metals
Proposed Northstar Development

Sample Location	Sample Number	Sample Depth (Inches)	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 1	1-COMP-0-6	0-6	3/29/2016	3.33	180	0.319	13.4	10.4	<0.085	<1.08	<0.213
	1-COMP-6-18	6-18	3/29/2016	3.61	160	0.243	13.5	9.18	<0.0846	<1.06	<0.212
	1-COMP-18-30	18-30	3/29/2016	5.17	149	0.221	15.8	9.58	<0.0983	<1.10	<0.221
Cell 2	2-COMP-0-6	0-6	3/29/2016	3.53	168	0.309	13.3	9.8	<0.0825	<1.03	<0.206
	2-COMP-6-18	6-18	3/29/2016	3.38	163	<0.226	13	8.84	<0.0905	<1.13	<0.226
	2-COMP-18-30	18-30	3/29/2016	5.07	153	0.252	16.1	10.0	<0.0915	<1.14	<0.229
Cell 3	3-COMP-0-6	0-6	4/18/2016	4.67	206	0.432	17.2	12.6	<0.0960	<2.40	<0.240
	3-COMP-6-18	6-18	4/18/2016	5.46	242	0.313	18.5	14.1	<0.104	<2.61	<0.261
	3-COMP-18-30	18-30	4/18/2016	5.66	192	<0.251	19.3	11.7	<0.101	<2.51	<0.251
Cell 4	4-COMP-0-6	0-6	4/18/2016	7.37	257	0.471	18.8	17.9	<0.102	<2.55	<0.255
	4-COMP-6-18	6-18	4/18/2016	5.30	196	0.316	17.6	13.3	<0.0972	<2.43	<0.243
	4-COMP-18-30	18-30	4/18/2016	6.48	163	<0.257	20.4	12.2	<0.103	<2.57	<0.257
Cell 5	5-COMP-0-6	0-6	4/25/2016	4.17	218	0.329	16.5	13.4	<0.0974	<2.44	<0.244
	5-COMP-6-18	6-18	4/25/2016	4.75	191	0.268	18.9	11.3	<0.102	<2.55	<0.255
	5-COMP-18-30	18-30	4/25/2016	6.49	172	<0.262	23.4	11.4	<0.105	<2.62	<0.262
Cell 6	6-COMP-0-6	0-6	4/25/2016	4.03	169	<0.279	17.1	13.8	<0.111	<2.79	<0.279
	6-COMP-6-18	6-18	4/25/2016	3.74	162	<0.255	17.8	12.0	<0.102	<2.55	<0.255
	6-COMP-18-30	18-30	4/25/2016	6.17	155	<0.261	23.4	10.8	<0.105	<2.61	<0.261
Cell 7	7-COMP-0-6	0-6	5/3/2016	5.35	186	0.275	15.9	17.0	<0.105	<1.31	<0.262
	7-COMP-6-18	6-18	5/3/2016	5.37	203	0.296	17.2	15.4	<0.103	<1.29	<0.258
	7-COMP-18-30	18-30	5/3/2016	5.44	181	0.347	16.7	16.6	<0.107	<1.34	<0.267
Cell 8	8-COMP-0-6	0-6	5/3/2016	6.06	165	0.268	19.6	12.2	<0.102	<1.28	<0.255
	8-COMP-6-18	6-18	5/3/2016	6.07	168	<0.26	20.7	10.8	<0.104	<1.30	<0.26
	8-COMP-18-30	18-30	5/3/2016	4.38	196	0.289	16.7	15.4	<0.102	<1.28	<0.256
Cell 9	9-COMP-0-6	0-6	5/17/2016	4.74	203	0.434	17.4	12.2	<0.0938	<1.17	0.434
	9-COMP-6-18	6-18	5/17/2016	6.46	200	0.395	21.5	14.6	<0.105	<1.32	<0.263
	9-COMP-18-30	18-30	5/17/2016	5.45	155	<0.275	20.8	10.9	<0.110	<1.38	<0.275
Cell 10	10-COMP-0-6	0-6	5/17/2016	4.81	235	0.397	19.0	13.0	<0.103	<1.26	0.256
	10-COMP-6-18	6-18	5/17/2016	4.69	188	0.326	18.5	15.8	<0.100	<1.26	<0.251
	10-COMP-18-30	18-30	5/17/2016	5.61	200	<0.266	20.2	11.5	<0.107	<1.33	<0.266
Cell 11	11-COMP-0-6	0-6	5/26/2016	4.24	187	0.277	14.8	12.2	<0.101	<1.26	0.340
	11-COMP-6-18	6-18	5/26/2016	5.17	180	0.293	17.0	12.4	<0.0902	<1.13	<0.225
	11-COMP-18-30	18-30	5/26/2016	6.63	169	<0.263	20.6	11.9	<0.105	<1.31	<0.263
Cell 12	12-COMP-0-6	0-6	5/26/2016	3.60	178	0.317	14.5	11.7	<0.0975	<1.22	0.451
	12-COMP-6-18	6-18	5/26/2016	5.18	177	0.278	16.9	12.1	<0.0969	<1.21	0.315
	12-COMP-18-30	18-30	5/26/2016	6.64	178	<0.257	22.5	11.7	<0.206	<1.29	<0.257
Cell 13	13-COMP-0-6	0-6	5/17/2016	4.54	213	0.343	17.5	13.0	<0.102	<1.27	0.343
	13-COMP-6-18	6-18	5/17/2016	4.83	193	0.328	18.8	12.0	<0.0936	<1.17	0.234
	13-COMP-18-30	18-30	5/17/2016	7.88	167	<0.264	25.8	12.7	<0.106	<1.32	0.449
Cell 14	14-COMP-0-6	0-6	5/17/2016	3.90	189	0.377	15.6	11.9	<0.104	<1.30	<0.260
	14-COMP-6-18	6-18	5/17/2016	4.64	194	0.258	17.4	14.6	0.103	<1.29	<0.258
	14-COMP-18-30	18-30	5/17/2016	7.26	166	<0.250	23.2	12.3	<0.100	<1.25	<0.250
Cell 15	15-COMP-0-6	0-6	5/3/2016	5.24	183	0.273	18.6	12.6	<0.095	<1.19	<0.237
	15-COMP-6-18	6-18	5/3/2016	4.69	174	0.237	16.3	12.5	<0.0948	<1.18	<0.237
	15-COMP-18-30	18-30	5/3/2016	7.25	160	<0.262	22.3	12.5	<0.105	<1.31	<0.262
Background concentration*				18	730	1.6	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Sample exceeds 1/4 background level for arsenic (4.5 mg/kg), requiring analysis of discrete samples. See Table 2.

**Table 1 (cont.)
Composite Analysis Summary - Metals
Proposed Northstar Development**

Sample Location	Sample Number	Sample Depth (Inches)	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 16	16-COMP-0-6	0-6	5/3/2016	5.64	199	0.259	14.3	20.7	<0.104	<1.29	<0.259
	16-COMP-6-18	6-18	5/3/2016	5.26	177	<0.245	15.7	14.9	<0.0979	<1.22	<0.245
	16-COMP-18-30	18-30	5/3/2016	7.30	168	<0.272	21.2	13.3	<0.109	<1.36	<0.272
Cell 17	17-COMP-0-6	0-6	4/25/2016	3.81	175	0.305	18.7	13.4	<0.102	<2.54	<0.254
	17-COMP-6-18	6-18	4/25/2016	4.73	198	<0.251	21.6	13.2	<0.100	<2.51	<0.251
	17-COMP-18-30	18-30	4/25/2016	8.01	186	0.320	25.8	12.9	<0.107	<2.67	<0.267
Cell 18	18-COMP-0-6	0-6	4/25/2016	4.61	221	0.342	17.7	13.6	<0.105	<2.63	<0.263
	18-COMP-6-18	6-18	4/25/2016	5.91	176	<0.278	21.5	11.8	<0.111	<2.78	<0.278
	18-COMP-18-30	18-30	4/25/2016	6.70	162	<0.271	23.4	11.9	<0.109	<2.71	<0.271
Cell 19	19-COMP-0-6	0-6	4/18/2016	5.38	225	0.476	17.2	16.5	<0.100	<2.50	<0.250
	19-COMP-6-18	6-18	4/18/2016	5.45	201	0.310	17.9	14.0	<0.0993	<2.48	<0.248
	19-COMP-18-30	18-30	4/18/2016	7.42	173	<0.274	23.3	13.7	<0.110	<2.74	<0.274
Cell 20	20-COMP-0-6	0-6	4/18/2016	4.53	216	0.509	16.7	13.6	<0.0969	<2.42	<0.242
	20-COMP-6-18	6-18	4/18/2016	5.89	201	0.375	19.7	13.6	<0.104	<2.59	<0.259
	20-COMP-18-30	18-30	4/18/2016	6.53	158	<0.261	21.6	11.5	<0.104	<2.61	<0.261
Cell 21	21-COMP-0-6	0-6	3/29/2016	2.73	180	0.330	11.9	9.80	<0.0881	<1.10	<0.220
	21-COMP-6-18	6-18	3/29/2016	3.51	168	0.222	15.1	9.16	<0.0845	<1.06	<0.211
	21-COMP-18-30	18-30	3/29/2016	5.32	134	<0.217	17.9	9.84	<0.0868	<1.09	<0.217
Cell 22	22-COMP-0-6	0-6	3/29/2016	2.68	169	0.307	12.0	9.52	<0.0876	<1.10	<0.219
	22-COMP-6-18	6-18	3/29/2016	3.67	168	0.244	14.4	9.97	<0.0888	<1.11	<0.222
	22-COMP-18-30	18-30	3/29/2016	5.71	154	<0.218	17.8	10.5	<0.0872	<1.09	<0.218
Cell 23	23-COMP-0-6	0-6	3/29/2016	3.07	190	0.349	13.7	16.3	<0.0902	<1.06	<0.212
	23-COMP-6-18	6-18	3/29/2016	2.96	171	0.276	13.7	13.7	<0.0840	<1.06	<0.212
	23-COMP-18-30	18-30	3/29/2016	3.94	126	<0.219	13.6	7.98	<0.0875	<1.09	<0.219
Cell 24	24-COMP-0-6	0-6	3/29/2016	3.79	160	0.276	13.9	9.89	<0.0850	<1.06	<0.212
	24-COMP-6-18	6-18	3/29/2016	3.62	153	0.273	14.7	9.69	<0.0910	<1.14	<0.212
	24-COMP-18-30	18-30	3/29/2016	5.32	132	<0.203	16.7	9.27	<0.0812	<1.02	<0.203
Cell 25	25-COMP-0-6	0-6	4/18/2016	4.14	247	0.0502	17.0	13.1	<0.100	<2.51	<0.251
	25-COMP-6-18	6-18	4/18/2016	4.90	188	0.342	18.0	11.8	<0.101	<2.54	<0.254
	25-COMP-18-30	18-30	4/18/2016	7.08	176	<0.248	22.5	12.0	<0.0991	<2.48	<0.248
Cell 26	26-COMP-0-6	0-6	4/18/2016	4.70	203	0.417	18.8	14.2	<0.104	<2.61	<0.261
	26-COMP-6-18	6-18	4/18/2016	4.67	211	0.336	17.7	12.6	<0.207	<5.17	<0.258
	26-COMP-18-30	18-30	4/18/2016	6.31	157	<0.267	20.5	11.4	<0.213	<5.33	<0.267
Cell 27	27-COMP-0-6	0-6	4/25/2016	5.34	162	<0.278	19.0	13.2	<0.110	<2.76	<0.276
	27-COMP-6-18	6-18	4/25/2016	4.94	151	<0.269	21.0	12.3	<0.108	<2.69	<0.269
	27-COMP-18-30	18-30	4/25/2016	5.26	161	<0.270	23.6	11.1	<0.108	<2.70	<0.270
Cell 28	28-COMP-0-6	0-6	4/25/2016	4.34	199	<0.265	18.2	12.8	<0.106	<2.65	<0.265
	28-COMP-6-18	6-18	4/25/2016	4.22	201	0.298	17.6	11.3	<0.0992	<2.48	<0.248
	28-COMP-18-30	18-30	4/25/2016	6.61	171	0.283	23.9	11.5	<0.103	<2.57	<0.257
Cell 29	29-COMP-0-6	0-6	5/3/2016	5.05	191	0.260	14.7	17.7	<0.0992	<1.24	<0.248
	29-COMP-6-18	6-18	5/3/2016	4.95	194	<0.251	17.1	12.9	<0.101	<1.26	<0.251
	29-COMP-18-30	18-30	5/3/2016	6.86	175	<0.263	18.9	14.3	<0.105	<1.31	<0.263
Cell 30	30-COMP-0-6	0-6	5/3/2016	3.97	193	0.304	15.9	12.8	<0.0972	<1.22	<0.243
	30-COMP-6-18	6-18	5/3/2016	4.07	195	0.307	15.2	11.6	<0.102	<1.28	<0.256
	30-COMP-18-30	18-30	5/3/2016	5.54	158	0.263	19.1	11.2	<0.105	<1.32	<0.263
Background concentration*				18	730	1.8	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - *Development of Oregon Background Metals Concentrations in Soil*, Oregon DEQ Technical Report, March, 2013.

Sample exceeds 1/4 background level for arsenic (4.5 mg/kg), requiring analysis of discrete samples. See Table 2.

Table 1 (cont.)
 Composite Analysis Summary - Metals
 Proposed Northstar Development

Sample Location	Sample Number	Sample Depth (ft)	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 31	31-COMP-0-6	0-6	5/17/2016	3.9	193	0.357	17.7	12.7	<0.102	<1.28	0.395
	31-COMP-6-18	6-18	5/17/2016	4.88	180	0.324	19	11.8	<0.104	<1.30	<0.259
	31-COMP-18-30	18-30	5/17/2016	6.15	154	<0.272	21.8	12.3	<0.109	<1.36	<0.272
Cell 32	32-COMP-0-6	0-6	5/17/2016	4.03	190	0.409	17.9	12.9	<0.992	<1.24	<0.248
	32-COMP-6-18	6-18	5/17/2016	4.53	176	0.296	19.2	11.9	<0.103	<1.29	0.901
	32-COMP-18-30	18-30	5/17/2016	7.52	162	<0.253	23.4	12.6	<0.101	<1.27	<0.253
Cell 33	33-COMP-0-6	0-6	5/26/2016	4.44	232	0.416	16.8	12	<0.180	<1.12	0.258
	33-COMP-6-18	6-18	5/26/2016	4.08	203	0.404	15.3	11.8	<0.196	<1.23	<0.245
	33-COMP-18-30	18-30	5/26/2016	4.90	148	<0.254	19.1	11.0	<0.203	<1.27	<0.254
Cell 34	34-COMP-0-6	0-6	5/26/2016	4.58	186	0.294	15.8	22.6	<0.205	<1.28	<0.256
	34-COMP-6-18	6-18	5/26/2016	4.82	187	<0.257	16.5	22.1	<0.206	<1.28	<0.257
	34-COMP-18-30	18-30	5/26/2016	5.38	184	<0.239	19.9	14.3	<0.191	<1.19	<0.239
Cell 35	35-COMP-0-6	0-6	5/26/2016	5.26	279	0.316	16.4	13.7	<0.202	<1.26	<0.252
	35-COMP-6-18	6-18	5/26/2016	5.96	198	0.268	21.1	12.3	<0.205	<1.28	<0.256
	35-COMP-18-30	18-30	5/26/2016	6.00	166	<0.256	22.1	11.8	<0.205	<1.22	<0.245
Cell 36	36-COMP-0-6	0-6	5/26/2016	3.97	193	0.281	15.3	13.8	<0.196	<1.22	<0.245
	36-COMP-6-18	6-18	5/26/2016	5.25	184	0.296	18.2	11.8	<0.206	<1.29	<0.258
	36-COMP-18-30	18-30	5/26/2016	7.50	180	0.269	25.7	13.4	<0.195	<1.22	<0.244
Cell 37	37-COMP-0-6	0-6	5/26/2016	4.10	219	0.347	15.0	19.3	<0.191	<1.20	<0.239
	37-COMP-6-18	6-18	5/26/2016	4.65	201	0.289	17.1	16.0	<0.185	<1.16	<0.231
	37-COMP-18-30	18-30	5/26/2016	6.67	149	<0.264	22.4	12.4	<0.211	<1.32	<0.264
Cell 38	38-COMP-0-6	0-6	5/26/2016	3.86	205	0.353	14.8	20.9	<0.209	<1.31	<0.261
	38-COMP-6-18	6-18	5/26/2016	4.14	190	0.300	16.5	14.1	<0.185	<1.15	<0.231
	38-COMP-18-30	18-30	5/26/2016	6.87	165	<0.244	23.2	12.2	<0.196	<1.22	<0.244
Background concentration*				18	730	1.6	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND - None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Sample exceeds 1/4 background level for arsenic (4.5 mg/kg), requiring analysis of discrete samples. See Table 2.

Table 2
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 1	0-6	1A-0-6	3/29/2016	-	-	-	-	-	-	-	-
		1B-0-6	3/29/2016	-	-	-	-	-	-	-	-
		1C-0-6	3/29/2016	-	-	-	-	-	-	-	-
		1D-0-6	3/29/2016	-	-	-	-	-	-	-	-
	6-18	1A-6-18	3/29/2016	-	-	-	-	-	-	-	-
		1B-6-18	3/29/2016	-	-	-	-	-	-	-	-
		1C-6-18	3/29/2016	-	-	-	-	-	-	-	-
		1D-6-18	3/29/2016	-	-	-	-	-	-	-	-
	18-30	1A-18-30	3/29/2016	7.42	-	-	-	-	-	-	-
		1B-18-30	3/29/2016	8.05	-	-	-	-	-	-	-
		1C-18-30	3/29/2016	4.35	-	-	-	-	-	-	-
		1D-18-30	3/29/2016	6.99	-	-	-	-	-	-	-
Cell 2	0-6	2A-0-6	3/29/2016	-	-	-	-	-	-	-	
		2B-0-6	3/29/2016	-	-	-	-	-	-	-	
		2C-0-6	3/29/2016	-	-	-	-	-	-	-	
		2D-0-6	3/29/2016	-	-	-	-	-	-	-	
	6-18	2A-6-18	3/29/2016	-	-	-	-	-	-	-	-
		2B-6-18	3/29/2016	-	-	-	-	-	-	-	-
		2C-6-18	3/29/2016	-	-	-	-	-	-	-	-
		2D-6-18	3/29/2016	-	-	-	-	-	-	-	-
	18-30	2A-18-30	3/29/2016	7.97	-	-	-	-	-	-	-
		2B-18-30	3/29/2016	7.11	-	-	-	-	-	-	-
		2C-18-30	3/29/2016	4.14	-	-	-	-	-	-	-
		2D-18-30	3/29/2016	7.27	-	-	-	-	-	-	-
Cell 3	0-6	3A-0-6	4/18/2016	4.77	-	-	-	-	-	-	
		3B-0-6	4/18/2016	3.73	-	-	-	-	-	-	
		3C-0-6	4/18/2016	3.91	-	-	-	-	-	-	
		3D-0-6	4/18/2016	5.05	-	-	-	-	-	-	
	6-18	3A-6-18	4/18/2016	5.16	-	-	-	-	-	-	
		3B-6-18	4/18/2016	3.71	-	-	-	-	-	-	
		3C-6-18	4/18/2016	5.01	-	-	-	-	-	-	
		3D-6-18	4/18/2016	6.37	-	-	-	-	-	-	
	18-30	3A-18-30	4/18/2016	4.67	-	-	-	-	-	-	
		3B-18-30	4/18/2016	5.45	-	-	-	-	-	-	
		3C-18-30	4/18/2016	5.35	-	-	-	-	-	-	
		3D-18-30	4/18/2016	7.83	-	-	-	-	-	-	
Background Level - Soil*				1B	730	1.6	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	7B	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	7B	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

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NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals								
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Cell 4	0-6	4A-0-6	4/18/2016	4.62	-	-	-	-	-	-	-	-
		4B-0-6	4/18/2016	4.74	-	-	-	-	-	-	-	-
		4C-0-6	4/18/2016	4.49	-	-	-	-	-	-	-	-
		4D-0-6	4/18/2016	4.95	-	-	-	-	-	-	-	-
	6-18	4A-6-18	4/18/2016	6.02	-	-	-	-	-	-	-	-
		4B-6-18	4/18/2016	5.94	-	-	-	-	-	-	-	-
		4C-6-18	4/18/2016	6.28	-	-	-	-	-	-	-	-
		4D-6-18	4/18/2016	6.21	-	-	-	-	-	-	-	-
	18-30	4A-18-30	4/18/2016	7.46	-	-	-	-	-	-	-	-
		4B-18-30	4/18/2016	7.28	-	-	-	-	-	-	-	-
		4C-18-30	4/18/2016	6.36	-	-	-	-	-	-	-	-
		4D-18-30	4/18/2016	4.95	-	-	-	-	-	-	-	-
Cell 5	0-6	5A-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		5B-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		5C-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		5D-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
	6-18	5A-6-18	4/25/2016	5.76	-	-	-	-	-	-	-	-
		5B-6-18	4/25/2016	4.97	-	-	-	-	-	-	-	-
		5C-6-18	4/25/2016	5.01	-	-	-	-	-	-	-	-
		5D-6-18	4/25/2016	5.02	-	-	-	-	-	-	-	-
	18-30	5A-18-30	4/25/2016	6.72	-	-	-	-	-	-	-	-
		5B-18-30	4/25/2016	6.53	-	-	-	-	-	-	-	-
		5C-18-30	4/25/2016	7.25	-	-	-	-	-	-	-	-
		5D-18-30	4/25/2016	6.05	-	-	-	-	-	-	-	-
Cell 6	0-6	6A-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		6B-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		6C-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
		6D-0-6	4/25/2016	-	-	-	-	-	-	-	-	-
	6-18	6A-6-18	4/25/2016	-	-	-	-	-	-	-	-	-
		6B-6-18	4/25/2016	-	-	-	-	-	-	-	-	-
		6C-6-18	4/25/2016	-	-	-	-	-	-	-	-	-
		6D-6-18	4/25/2016	-	-	-	-	-	-	-	-	-
	18-30	6A-18-30	4/25/2016	6.3	-	-	-	-	-	-	-	-
		6B-18-30	4/25/2016	7.78	-	-	-	-	-	-	-	-
		6C-18-30	4/25/2016	4.82	-	-	-	-	-	-	-	-
		6D-18-30	4/25/2016	3.41	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33	
Generic Risk-Based Levels (Residential)												
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	48,000	
Generic Risk-Based Levels (Urban Residential)												
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	48,000	

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 >Csat: The soil RBC exceeds the saturation limit of the soil
 >Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 ne - Not established
 ND- None detected
 All values in milligrams per kilogram (mg/kg)
 -- Sample not tested
 *From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 7	0-6	7A-0-6	5/3/2016	--	--	--	--	--	--	--	--
		7B-0-6	5/3/2016	--	--	--	--	--	--	--	--
		7C-0-6	5/3/2016	--	--	--	--	--	--	--	--
		7D-0-6	5/3/2016	--	--	--	--	--	--	--	--
	6-18	7A-6-18	5/3/2016	--	--	--	--	--	--	--	--
		7B-6-18	5/3/2016	--	--	--	--	--	--	--	--
		7C-6-18	5/3/2016	--	--	--	--	--	--	--	--
		7D-6-18	5/3/2016	--	--	--	--	--	--	--	--
	18-30	7A-18-30	5/3/2016	--	--	--	--	--	--	--	--
		7B-18-30	5/3/2016	--	--	--	--	--	--	--	--
		7C-18-30	5/3/2016	--	--	--	--	--	--	--	--
		7D-18-30	5/3/2016	--	--	--	--	--	--	--	--
Cell 8	0-6	8A-0-6	5/3/2016	--	--	--	--	--	--	--	
		8B-0-6	5/3/2016	--	--	--	--	--	--	--	
		8C-0-6	5/3/2016	--	--	--	--	--	--	--	
		8D-0-6	5/3/2016	--	--	--	--	--	--	--	
	6-18	8A-6-18	5/3/2016	--	--	--	--	--	--	--	--
		8B-6-18	5/3/2016	--	--	--	--	--	--	--	--
		8C-6-18	5/3/2016	--	--	--	--	--	--	--	--
		8D-6-18	5/3/2016	--	--	--	--	--	--	--	--
	18-30	8A-18-30	5/3/2016	--	--	--	--	--	--	--	--
		8B-18-30	5/3/2016	--	--	--	--	--	--	--	--
		8C-18-30	5/3/2016	--	--	--	--	--	--	--	--
		8D-18-30	5/3/2016	--	--	--	--	--	--	--	--
Cell 9	0-6	9A-0-6	5/17/2016	4.42	--	--	--	--	--	--	
		9B-0-6	5/17/2016	4.87	--	--	--	--	--	--	
		9C-0-6	5/17/2016	4.70	--	--	--	--	--	--	
		9D-0-6	5/17/2016	4.45	--	--	--	--	--	--	
	6-18	9A-6-18	5/17/2016	5.34	--	--	--	--	--	--	
		9B-6-18	5/17/2016	5.07	--	--	--	--	--	--	
		9C-6-18	5/17/2016	5.28	--	--	--	--	--	--	
		9D-6-18	5/17/2016	6.20	--	--	--	--	--	--	
	18-30	9A-18-30	5/17/2016	6.89	--	--	--	--	--	--	
		9B-18-30	5/17/2016	6.65	--	--	--	--	--	--	
		9C-18-30	5/17/2016	7.17	--	--	--	--	--	--	
		9D-18-30	5/17/2016	7.08	--	--	--	--	--	--	
Background Level - Soil*				18	730	1.8	100	28	0.07	0.88	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 10	0-6	10A-0-6	5/17/2016	4.85	-	-	-	-	-	-	-	-	-
		10B-0-6	5/17/2016	4.33	-	-	-	-	-	-	-	-	-
		10C-0-6	5/17/2016	3.99	-	-	-	-	-	-	-	-	-
		10D-0-6	5/17/2016	4.56	-	-	-	-	-	-	-	-	-
	6-18	10A-6-18	5/17/2016	6.00	-	-	-	-	-	-	-	-	-
		10B-6-18	5/17/2016	4.99	-	-	-	-	-	-	-	-	-
		10C-6-18	5/17/2016	3.71	-	-	-	-	-	-	-	-	-
		10D-6-18	5/17/2016	4.62	-	-	-	-	-	-	-	-	-
	18-30	10A-18-30	5/17/2016	5.95	-	-	-	-	-	-	-	-	-
		10B-18-30	5/17/2016	5.28	-	-	-	-	-	-	-	-	-
		10C-18-30	5/17/2016	4.24	-	-	-	-	-	-	-	-	-
		10D-18-30	5/17/2016	5.41	-	-	-	-	-	-	-	-	-
Cell 11	0-6	11A-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		11B-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		11C-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		11D-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
	6-18	11A-6-18	5/26/2016	6.44	-	-	-	-	-	-	-	-	-
		11B-6-18	5/26/2016	6.29	-	-	-	-	-	-	-	-	-
		11C-6-18	5/26/2016	4.43	-	-	-	-	-	-	-	-	-
		11D-6-18	5/26/2016	5.09	-	-	-	-	-	-	-	-	-
	18-30	11A-18-30	5/26/2016	7.22	-	-	-	-	-	-	-	-	-
		11B-18-30	5/26/2016	6.4	-	-	-	-	-	-	-	-	-
		11C-18-30	5/26/2016	6.96	-	-	-	-	-	-	-	-	-
		11D-18-30	5/26/2016	-	-	-	-	-	-	-	-	-	-
Cell 12	0-6	12A-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		12B-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		12C-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		12D-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
	6-18	12A-6-18	5/26/2016	4.16	-	-	-	-	-	-	-	-	-
		12B-6-18	5/26/2016	4.06	-	-	-	-	-	-	-	-	-
		12C-6-18	5/26/2016	4.13	-	-	-	-	-	-	-	-	-
		12D-6-18	5/26/2016	4.54	-	-	-	-	-	-	-	-	-
	18-30	12A-18-30	5/26/2016	5.01	-	-	-	-	-	-	-	-	-
		12B-18-30	5/26/2016	5.68	-	-	-	-	-	-	-	-	-
		12C-18-30	5/26/2016	5.52	-	-	-	-	-	-	-	-	-
		12D-18-30	5/26/2016	5.66	-	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33		
Generic Risk-Based Levels (Residential)				0.43	15,000	78	120,000	400	23	ne	390		
Soil Ingestion, Dermal Contact, Inhalation				NV	NV	NV	NV	NV	NV	ne	NV		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				ne	ne	ne	ne	30	ne	ne	ne		
Leaching to Groundwater				15	69,000	350	530,000	800	110	ne	1,800		
Construction Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Excavation Worker				-	-	-	-	-	-	-	-		
Generic Risk-Based Levels (Urban Residential)				1.0	31,000	78	230,000	400	47	ne	780		
Soil Ingestion, Dermal Contact, Inhalation				NV	NV	NV	NV	NV	NV	ne	NV		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				ne	ne	ne	ne	30	ne	ne	ne		
Leaching to Groundwater				15	69,000	350	530,000	800	110	ne	1,800		
Construction Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Excavation Worker				-	-	-	-	-	-	-	-		

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

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 >Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 ne - Not established
 ND- None detected
 All values in milligrams per kilogram (mg/kg)
 - Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals								
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Cell 13	0-6	13A-0-6	5/17/2016	3.98	--	--	--	--	--	--	--	--
		13B-0-6	5/17/2016	4.66	--	--	--	--	--	--	--	--
		13C-0-6	5/17/2016	3.70	--	--	--	--	--	--	--	--
		13D-0-6	5/17/2016	3.70	--	--	--	--	--	--	--	--
	6-18	13A-6-18	5/17/2016	4.66	--	--	--	--	--	--	--	--
		13B-6-18	5/17/2016	4.15	--	--	--	--	--	--	--	--
		13C-6-18	5/17/2016	4.97	--	--	--	--	--	--	--	--
		13D-6-18	5/17/2016	4.26	--	--	--	--	--	--	--	--
	18-30	13A-18-30	5/17/2016	6.18	--	--	--	--	--	--	--	--
		13B-18-30	5/17/2016	5.92	--	--	--	--	--	--	--	--
		13C-18-30	5/17/2016	6.11	--	--	--	--	--	--	--	--
		13D-18-30	5/17/2016	7.08	--	--	--	--	--	--	--	--
Cell 14	0-6	14A-0-6	5/17/2016	--	--	--	--	--	--	--	--	
		14B-0-6	5/17/2016	--	--	--	--	--	--	--	--	
		14C-0-6	5/17/2016	--	--	--	--	--	--	--	--	
		14D-0-6	5/17/2016	--	--	--	--	--	--	--	--	
	6-18	14A-6-18	5/17/2016	4.37	--	--	--	--	--	--	--	--
		14B-6-18	5/17/2016	3.82	--	--	--	--	--	--	--	--
		14C-6-18	5/17/2016	4.08	--	--	--	--	--	--	--	--
		14D-6-18	5/17/2016	4.32	--	--	--	--	--	--	--	--
	18-30	14A-18-30	5/17/2016	8.42	--	--	--	--	--	--	--	--
		14B-18-30	5/17/2016	6.69	--	--	--	--	--	--	--	--
		14C-18-30	5/17/2016	6.59	--	--	--	--	--	--	--	--
		14D-18-30	5/17/2016	7.65	--	--	--	--	--	--	--	--
Cell 15	0-6	15A-0-6	5/3/2016	--	--	--	--	--	--	--	--	
		15B-0-6	5/3/2016	--	--	--	--	--	--	--	--	
		15C-0-6	5/3/2016	--	--	--	--	--	--	--	--	
		15D-0-6	5/3/2016	--	--	--	--	--	--	--	--	
	6-18	15A-6-18	5/3/2016	--	--	--	--	--	--	--	--	--
		15B-6-18	5/3/2016	--	--	--	--	--	--	--	--	--
		15C-6-18	5/3/2016	--	--	--	--	--	--	--	--	--
		15D-6-18	5/3/2016	--	--	--	--	--	--	--	--	--
	18-30	15A-18-30	5/3/2016	--	--	--	--	--	--	--	--	--
		15B-18-30	5/3/2016	--	--	--	--	--	--	--	--	--
		15C-18-30	5/3/2016	--	--	--	--	--	--	--	--	--
		15D-18-30	5/3/2016	--	--	--	--	--	--	--	--	--
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33	
Generic Risk-Based Levels (Residential)												
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000	
Generic Risk-Based Levels (Urban Residential)												
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000	

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 16	0-6	16A-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		16B-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		16C-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		16D-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
	6-18	16A-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16B-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16C-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16D-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
	18-30	16A-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16B-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16C-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		16D-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
Cell 17	0-6	17A-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
		17B-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
		17C-0-6	4/26/2016	--	--	--	--	--	--	--	--	--	
		17D-0-6	4/26/2016	--	--	--	--	--	--	--	--	--	
	6-18	17A-6-18	4/26/2016	7.12	--	--	--	--	--	--	--	--	--
		17B-6-18	4/26/2016	4.6	--	--	--	--	--	--	--	--	--
		17C-6-18	4/26/2016	4.53	--	--	--	--	--	--	--	--	--
		17D-6-18	4/26/2016	4.36	--	--	--	--	--	--	--	--	--
	18-30	17A-18-30	4/26/2016	7.22	--	--	--	--	--	--	--	--	--
		17B-18-30	4/26/2016	4.19	--	--	--	--	--	--	--	--	--
		17C-18-30	4/26/2016	12.4	--	--	--	--	--	--	--	--	--
		17D-18-30	4/26/2016	6.38	--	--	--	--	--	--	--	--	--
Cell 18	0-6	18A-0-6	4/25/2016	3.69	--	--	--	--	--	--	--	--	
		18B-0-6	4/25/2016	5.10	--	--	--	--	--	--	--	--	
		18C-0-6	4/25/2016	4.22	--	--	--	--	--	--	--	--	
		18D-0-6	4/25/2016	3.23	--	--	--	--	--	--	--	--	
	6-18	18A-6-18	4/25/2016	4.87	--	--	--	--	--	--	--	--	--
		18B-6-18	4/26/2016	4.2	--	--	--	--	--	--	--	--	--
		18C-6-18	4/25/2016	3.78	--	--	--	--	--	--	--	--	--
		18D-6-18	4/25/2016	5.22	--	--	--	--	--	--	--	--	--
	18-30	18A-18-30	4/25/2016	5.87	--	--	--	--	--	--	--	--	--
		18B-18-30	4/25/2016	5.91	--	--	--	--	--	--	--	--	--
		18C-18-30	4/25/2016	5.87	--	--	--	--	--	--	--	--	--
		18D-18-30	4/25/2016	6.07	--	--	--	--	--	--	--	--	--
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33		
Generic Risk-Based Levels (Residential)													
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Generic Risk-Based Levels (Urban Residential)													
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		

Generic Risk-Based Levels are based on *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 >Csat: The soil RBC exceeds the saturation limit of the soil
 >Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 ne - Not established
 ND- None detected
 All values in milligrams per kilogram (mg/kg)
 -- Sample not tested
 *From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
 Discrete Analysis Summary -Metals
 Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals								
				Arsenic	Barium	Calcium	Chromium	Lead	Mercury	Selenium	Silver	
Cell 19	0-6	19A-0-6	4/18/2016	5.00	-	-	-	-	-	-	-	-
		19B-0-6	4/18/2016	4.42	-	-	-	-	-	-	-	-
		19C-0-6	4/18/2016	4.72	-	-	-	-	-	-	-	-
		19D-0-6	4/18/2016	5.39	-	-	-	-	-	-	-	-
	6-18	19A-6-18	4/18/2016	5.46	-	-	-	-	-	-	-	-
		19B-6-18	4/18/2016	5.88	-	-	-	-	-	-	-	-
		19C-6-18	4/18/2016	4.58	-	-	-	-	-	-	-	-
		19D-6-18	4/18/2016	6.29	-	-	-	-	-	-	-	-
	18-30	19A-18-30	4/18/2016	7.42	-	-	-	-	-	-	-	-
		19B-18-30	4/18/2016	7.69	-	-	-	-	-	-	-	-
		19C-18-30	4/18/2016	5.87	-	-	-	-	-	-	-	-
		19D-18-30	4/18/2016	6.07	-	-	-	-	-	-	-	-
Cell 20	0-6	20A-0-6	4/18/2016	4.68	-	-	-	-	-	-	-	-
		20B-0-6	4/18/2016	4.17	-	-	-	-	-	-	-	-
		20C-0-6	4/18/2016	4.15	-	-	-	-	-	-	-	-
		20D-0-6	4/18/2016	5.45	-	-	-	-	-	-	-	-
	6-18	20A-6-18	4/18/2016	6.32	-	-	-	-	-	-	-	-
		20B-6-18	4/18/2016	4.5	-	-	-	-	-	-	-	-
		20C-6-18	4/18/2016	4.81	-	-	-	-	-	-	-	-
		20D-6-18	4/18/2016	5.61	-	-	-	-	-	-	-	-
	18-30	20A-18-30	4/18/2016	6.89	-	-	-	-	-	-	-	-
		20B-18-30	4/18/2016	5.82	-	-	-	-	-	-	-	-
		20C-18-30	4/18/2016	5.23	-	-	-	-	-	-	-	-
		20D-18-30	4/18/2016	6.17	-	-	-	-	-	-	-	-
Cell 21	0-6	21A-0-6	3/29/2016	-	-	-	-	-	-	-	-	-
		21B-0-6	3/29/2016	-	-	-	-	-	-	-	-	-
		21C-0-6	3/29/2016	-	-	-	-	-	-	-	-	-
		21D-0-6	3/29/2016	-	-	-	-	-	-	-	-	-
	6-18	21A-6-18	3/29/2016	-	-	-	-	-	-	-	-	-
		21B-6-18	3/29/2016	-	-	-	-	-	-	-	-	-
		21C-6-18	3/29/2016	-	-	-	-	-	-	-	-	-
		21D-6-18	3/29/2016	-	-	-	-	-	-	-	-	-
	18-30	21A-18-30	3/29/2016	6.00	-	-	-	-	-	-	-	-
		21B-18-30	3/29/2016	6.92	-	-	-	-	-	-	-	-
		21C-18-30	3/29/2016	5.77	-	-	-	-	-	-	-	-
		21D-18-30	3/29/2016	6.5	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33	
Generic Risk-Based Levels (Residential)												
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000	
Generic Risk-Based Levels (Urban Residential)												
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion Into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000	

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Casat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations In Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 22	0-6	22A-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		22B-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		22C-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		22D-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
	6-18	22A-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		22B-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		22C-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		22D-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
	18-30	22A-18-30	3/29/2016	6.43	-	-	-	-	-	-	-	-	-
		22B-18-30	3/29/2016	7.06	-	-	-	-	-	-	-	-	-
		22C-18-30	3/29/2016	7.21	-	-	-	-	-	-	-	-	-
		22D-18-30	3/29/2016	6.64	-	-	-	-	-	-	-	-	-
Cell 23	0-6	23A-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		23B-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		23C-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		23D-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
	6-18	23A-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23B-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23C-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23D-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
	18-30	23A-18-30	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23B-18-30	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23C-18-30	3/29/2016	-	-	-	-	-	-	-	-	-	-
		23D-18-30	3/29/2016	-	-	-	-	-	-	-	-	-	-
Cell 24	0-6	24A-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		24B-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		24C-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
		24D-0-6	3/29/2016	-	-	-	-	-	-	-	-	-	
	6-18	24A-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		24B-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		24C-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
		24D-6-18	3/29/2016	-	-	-	-	-	-	-	-	-	-
	18-30	24A-18-30	3/29/2016	6.02	-	-	-	-	-	-	-	-	-
		24B-18-30	3/29/2016	7.88	-	-	-	-	-	-	-	-	-
		24C-18-30	3/29/2016	6.63	-	-	-	-	-	-	-	-	-
		24D-18-30	3/29/2016	7.36	-	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33		
Generic Risk-Based Levels (Residential)													
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Generic Risk-Based Levels (Urban Residential)													
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		

Generic Risk-Based Levels are based on *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 >Csat: The soil RBC exceeds the saturation limit of the soil
 >Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 ne - Not established
 ND- None detected
 All values in milligrams per kilogram (mg/kg)
 - Sample not tested
 *From Table 4 - *Development of Oregon Background Metals Concentrations in Soil*, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
 Discrete Analysis Summary -Metals
 Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Cell 25	0-6	25A-0-6	4/18/2016	-	-	-	-	-	-	-	-
		25B-0-6	4/18/2016	-	-	-	-	-	-	-	-
		25C-0-6	4/18/2016	-	-	-	-	-	-	-	-
		25D-0-6	4/18/2016	-	-	-	-	-	-	-	-
	6-18	25A-6-18	4/18/2016	6.72	-	-	-	-	-	-	-
		25B-6-18	4/18/2016	4.92	-	-	-	-	-	-	-
		25C-6-18	4/18/2016	3.84	-	-	-	-	-	-	-
		25D-6-18	4/18/2016	6.37	-	-	-	-	-	-	-
	18-30	25A-18-30	4/18/2016	5.16	-	-	-	-	-	-	-
		25B-18-30	4/18/2016	3.98	-	-	-	-	-	-	-
		25C-18-30	4/18/2016	3.9	-	-	-	-	-	-	-
		25D-18-30	4/18/2016	4.43	-	-	-	-	-	-	-
Cell 26	0-6	26A-0-6	4/18/2016	4.21	-	-	-	-	-	-	
		26B-0-6	4/18/2016	4.95	-	-	-	-	-	-	
		26C-0-6	4/18/2016	3.92	-	-	-	-	-	-	
		26D-0-6	4/18/2016	4.41	-	-	-	-	-	-	
	6-18	26A-6-18	4/18/2016	4.01	-	-	-	-	-	-	
		26B-6-18	4/18/2016	3.95	-	-	-	-	-	-	
		26C-6-18	4/18/2016	3.16	-	-	-	-	-	-	
		26D-6-18	4/18/2016	2.94	-	-	-	-	-	-	
	18-30	26A-18-30	4/18/2016	5.69	-	-	-	-	-	-	
		26B-18-30	4/18/2016	5.4	-	-	-	-	-	-	
		26C-18-30	4/18/2016	6.97	-	-	-	-	-	-	
		26D-18-30	4/18/2016	3.49	-	-	-	-	-	-	
Cell 27	0-6	27A-0-6	4/25/2016	4.64	-	-	-	-	-	-	
		27B-0-6	4/25/2016	3.67	-	-	-	-	-	-	
		27C-0-6	4/25/2016	6.05	-	-	-	-	-	-	
		27D-0-6	4/25/2016	4.91	-	-	-	-	-	-	
	6-18	27A-6-18	4/25/2016	5.59	-	-	-	-	-	-	
		27B-6-18	4/25/2016	4.85	-	-	-	-	-	-	
		27C-6-18	4/25/2016	6.75	-	-	-	-	-	-	
		27D-6-18	4/25/2016	4.78	-	-	-	-	-	-	
	18-30	27A-18-30	4/25/2016	5.34	-	-	-	-	-	-	
		27B-18-30	4/25/2016	6.47	-	-	-	-	-	-	
		27C-18-30	4/25/2016	3.84	-	-	-	-	-	-	
		27D-18-30	4/25/2016	5.3	-	-	-	-	-	-	
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND - None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 28	0-6	28A-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
		28B-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
		28C-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
		28D-0-6	4/25/2016	--	--	--	--	--	--	--	--	--	
	6-18	28A-6-18	4/25/2016	--	--	--	--	--	--	--	--	--	--
		28B-6-18	4/25/2016	--	--	--	--	--	--	--	--	--	--
		28C-6-18	4/25/2016	--	--	--	--	--	--	--	--	--	--
		28D-6-18	4/25/2016	--	--	--	--	--	--	--	--	--	--
	18-30	28A-18-30	4/25/2016	6.33	--	--	--	--	--	--	--	--	--
		28B-18-30	4/25/2016	4.77	--	--	--	--	--	--	--	--	--
		28C-18-30	4/25/2016	6.81	--	--	--	--	--	--	--	--	--
		28D-18-30	4/25/2016	8.06	--	--	--	--	--	--	--	--	--
Cell 29	0-6	29A-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		29B-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		29C-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		29D-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
	6-18	29A-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29B-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29C-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29D-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
	18-30	29A-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29B-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29C-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		29D-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
Cell 30	0-6	30A-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		30B-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		30C-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
		30D-0-6	5/3/2016	--	--	--	--	--	--	--	--	--	
	6-18	30A-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30B-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30C-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30D-6-18	5/3/2016	--	--	--	--	--	--	--	--	--	--
	18-30	30A-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30B-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30C-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
		30D-18-30	5/3/2016	--	--	--	--	--	--	--	--	--	--
Background Level - Soil*				18	730	1.6	100	28	0.07	0.66	0.33		
Generic Risk-Based Levels (Residential)				0.43	15,000	78	120,000	400	23	ne	390		
Soil Ingestion, Dermal Contact, Inhalation				NV	NV	NV	NV	NV	NV	ne	NV		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				ne	ne	ne	ne	30	ne	ne	ne		
Leaching to Groundwater				15	69,000	350	530,000	800	110	ne	1,800		
Construction Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Excavation Worker													
Generic Risk-Based Levels (Urban Residential)				1.0	31,000	78	230,000	400	47	ne	780		
Soil Ingestion, Dermal Contact, Inhalation				NV	NV	NV	NV	NV	NV	ne	NV		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				ne	ne	ne	ne	30	ne	ne	ne		
Leaching to Groundwater				15	69,000	350	530,000	800	110	ne	1,800		
Construction Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Excavation Worker													

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
 Discrete Analysis Summary -Metals
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 31	0-6	31A-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		31B-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		31C-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		31D-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
	6-18	31A-6-18	5/17/2016	5.25	-	-	-	-	-	-	-	-	-
		31B-6-18	5/17/2016	5.39	-	-	-	-	-	-	-	-	-
		31C-6-18	5/17/2016	5.51	-	-	-	-	-	-	-	-	-
		31D-6-18	5/17/2016	4.39	-	-	-	-	-	-	-	-	-
	18-30	31A-18-30	5/17/2016	6.03	-	-	-	-	-	-	-	-	-
		31B-18-30	5/17/2016	5.85	-	-	-	-	-	-	-	-	-
		31C-18-30	5/17/2016	6.89	-	-	-	-	-	-	-	-	-
		31D-18-30	5/17/2016	7.1	-	-	-	-	-	-	-	-	-
Cell 32	0-6	32A-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		32B-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		32C-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
		32D-0-6	5/17/2016	-	-	-	-	-	-	-	-	-	
	6-18	32A-6-18	5/17/2016	4.32	-	-	-	-	-	-	-	-	-
		32B-6-18	5/17/2016	4.23	-	-	-	-	-	-	-	-	-
		32C-6-18	5/17/2016	4.49	-	-	-	-	-	-	-	-	-
		32D-6-18	5/17/2016	4.29	-	-	-	-	-	-	-	-	-
	18-30	32A-18-30	5/17/2016	5.85	-	-	-	-	-	-	-	-	-
		32B-18-30	5/17/2016	6.86	-	-	-	-	-	-	-	-	-
		32C-18-30	5/17/2016	6.16	-	-	-	-	-	-	-	-	-
		32D-18-30	5/17/2016	6.35	-	-	-	-	-	-	-	-	-
Cell 33	0-6	33A-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		33B-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		33C-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
		33D-0-6	5/26/2016	-	-	-	-	-	-	-	-	-	
	6-18	33A-6-18	5/26/2016	-	-	-	-	-	-	-	-	-	-
		33B-6-18	5/26/2016	-	-	-	-	-	-	-	-	-	-
		33C-6-18	5/26/2016	-	-	-	-	-	-	-	-	-	-
		33D-6-18	5/26/2016	-	-	-	-	-	-	-	-	-	-
	18-30	33A-18-30	5/26/2016	4.65	-	-	-	-	-	-	-	-	-
		33B-18-30	5/26/2016	5.16	-	-	-	-	-	-	-	-	-
		33C-18-30	5/26/2016	4.45	-	-	-	-	-	-	-	-	-
		33D-18-30	5/26/2016	6.14	-	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33		
Generic Risk-Based Levels (Residential)													
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Generic Risk-Based Levels (Urban Residential)													
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csal: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND - None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
Discrete Analysis Summary -Metals
Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals								
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Cell 34	0-6	34A-0-6	5/26/2016	4.4	-	-	-	-	-	-	-	-
		34B-0-6	5/26/2016	4.78	-	-	-	-	-	-	-	-
		34C-0-6	5/26/2016	5.04	-	-	-	-	-	-	-	-
		34D-0-6	5/26/2016	4.2	-	-	-	-	-	-	-	-
	6-18	34A-6-18	5/26/2016	5.62	-	-	-	-	-	-	-	-
		34B-6-18	5/26/2016	5.67	-	-	-	-	-	-	-	-
		34C-6-18	5/26/2016	4.93	-	-	-	-	-	-	-	-
		34D-6-18	5/26/2016	4.33	-	-	-	-	-	-	-	-
	18-30	34A-18-30	5/26/2016	6.59	-	-	-	-	-	-	-	-
		34B-18-30	5/26/2016	3.27	-	-	-	-	-	-	-	-
		34C-18-30	5/26/2016	6.12	-	-	-	-	-	-	-	-
		34D-18-30	5/26/2016	6.17	-	-	-	-	-	-	-	-
Cell 35	0-6	35A-0-6	5/26/2016	3.88	-	-	-	-	-	-	-	-
		35B-0-6	5/26/2016	5.54	-	-	-	-	-	-	-	-
		35C-0-6	5/26/2016	5.84	-	-	-	-	-	-	-	-
		35D-0-6	5/26/2016	4.14	-	-	-	-	-	-	-	-
	6-18	35A-6-18	5/26/2016	4.48	-	-	-	-	-	-	-	-
		35B-6-18	5/26/2016	6.43	-	-	-	-	-	-	-	-
		35C-6-18	5/26/2016	7.53	-	-	-	-	-	-	-	-
		35D-6-18	5/26/2016	6.63	-	-	-	-	-	-	-	-
	18-30	35A-18-30	5/26/2016	5.51	-	-	-	-	-	-	-	-
		35B-18-30	5/26/2016	7.34	-	-	-	-	-	-	-	-
		35C-18-30	5/26/2016	7.22	-	-	-	-	-	-	-	-
		35D-18-30	5/26/2016	6.67	-	-	-	-	-	-	-	-
Cell 36	0-6	36A-0-6	5/26/2016	-	-	-	-	-	-	-	-	-
		36B-0-6	5/26/2016	-	-	-	-	-	-	-	-	-
		36C-0-6	5/26/2016	-	-	-	-	-	-	-	-	-
		36D-0-6	5/26/2016	-	-	-	-	-	-	-	-	-
	6-18	36A-6-18	5/26/2016	4.89	-	-	-	-	-	-	-	-
		36B-6-18	5/26/2016	6.82	-	-	-	-	-	-	-	-
		36C-6-18	5/26/2016	5.43	-	-	-	-	-	-	-	-
		36D-6-18	5/26/2016	4.35	-	-	-	-	-	-	-	-
	18-30	36A-18-30	5/26/2016	8.01	-	-	-	-	-	-	-	-
		36B-18-30	5/26/2016	7.47	-	-	-	-	-	-	-	-
		36C-18-30	5/26/2016	6.9	-	-	-	-	-	-	-	-
		36D-18-30	5/26/2016	6.09	-	-	-	-	-	-	-	-
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33	
Generic Risk-Based Levels (Residential)												
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	8,700	>Max	800	2,900	ne	49,000	
Generic Risk-Based Levels (Urban Residential)												
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780	
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV	
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV	
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne	
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800	
Excavation Worker				420	>Max	8,700	>Max	800	2,900	ne	49,000	

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND - None detected

All values in milligrams per kilogram (mg/kg)

- Sample not tested

*From Table 4 - Development of Oregon Background Metals Concentrations in Soil, Oregon DEQ Technical Report, March, 2013.

Table 2 (cont.)
 Discrete Analysis Summary - Metals (Field Samples)
 Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Metals									
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver		
Cell 37	0-6	37A-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		37B-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		37C-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		37D-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
	6-18	37A-6-18	5/26/2016	4.17	--	--	--	--	--	--	--	--	--
		37B-6-18	5/26/2016	5.53	--	--	--	--	--	--	--	--	--
		37C-6-18	5/26/2016	4.93	--	--	--	--	--	--	--	--	--
		37D-6-18	5/26/2016	5.83	--	--	--	--	--	--	--	--	--
	18-30	37A-18-30	5/26/2016	6.7	--	--	--	--	--	--	--	--	--
		37B-18-30	5/26/2016	9.27	--	--	--	--	--	--	--	--	--
		37C-18-30	5/26/2016	5.78	--	--	--	--	--	--	--	--	--
		37D-18-30	5/26/2016	8.54	--	--	--	--	--	--	--	--	--
Cell 38	0-6	38A-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		38B-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		38C-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
		38D-0-6	5/26/2016	--	--	--	--	--	--	--	--	--	
	6-18	38A-6-18	5/26/2016	--	--	--	--	--	--	--	--	--	--
		38B-6-18	5/26/2016	--	--	--	--	--	--	--	--	--	--
		38C-6-18	5/26/2016	--	--	--	--	--	--	--	--	--	--
		38D-6-18	5/26/2016	--	--	--	--	--	--	--	--	--	--
	18-30	38A-18-30	5/26/2016	7.82	--	--	--	--	--	--	--	--	--
		38B-18-30	5/26/2016	8.93	--	--	--	--	--	--	--	--	--
		38C-18-30	5/26/2016	8.93	--	--	--	--	--	--	--	--	--
		38D-18-30	5/26/2016	8.17	--	--	--	--	--	--	--	--	--
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33		
Generic Risk-Based Levels (Residential)													
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	390		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		
Generic Risk-Based Levels (Urban Residential)													
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780		
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV		
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV		
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne		
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800		
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000		

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2016)

>Csal: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

Table 3
Discrete Analysis Summary - Metals (Ditch Samples)
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Metals							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Ditch/Creek - Tax lot 200	0-6	DITCH1-0-6	6/2/2016	2.38	132	<0.339	17.2	16.3	<0.196	<1.70	<0.339
	6-18	DITCH1-6-18	6/2/2016	4.02	193	<0.316	22.4	15.3	<0.127	<1.58	<0.316
	0-6	DITCH2-0-6	6/2/2016	5.12	174	0.264	17.6	13.5	<0.0959	<1.20	<0.240
	6-18	DITCH2-6-18	6/2/2016	4.94	218	<0.248	20.4	16.5	<0.0982	<1.23	<0.246
	0-6	DITCH3-0-6	6/2/2016	3.86	172	0.274	18.2	13.9	<0.0997	<1.25	<0.249
	6-18	DITCH3-6-18	6/2/2016	4.24	180	0.263	18.1	13.4	<0.100	<1.25	<0.251
Ditch/Creek - Tax lot 900	0-6	DITCH4-0-6	6/2/2016	6.3	247	<0.306	27.3	14.9	<0.122	<1.53	<0.306
Ecological Screening Levels - Sediment (1)											
Freshwater				6	n/a	0.6	37	35	0.2	n/a	4.5
Bioaccumulation				4	n/a	0.003	4,200	128	n/a	0.1	n/a
Background Level - Soil*				18	730	1.6	100	28	0.07	0.68	0.33
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation				0.43	15,000	78	120,000	400	23	ne	300
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation				1.0	31,000	78	230,000	400	47	ne	780
Volatilization To Outdoor Air				NV	NV	NV	NV	NV	NV	ne	NV
Vapor Intrusion into Building				NV	NV	NV	NV	NV	NV	ne	NV
Leaching to Groundwater				ne	ne	ne	ne	30	ne	ne	ne
Construction Worker				15	69,000	350	530,000	800	110	ne	1,800
Excavation Worker				420	>Max	9,700	>Max	800	2,900	ne	49,000

Generic Risk-Based Levels are based on *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*,

Oregon DEQ, Sept., 2003 (revised November 1, 2015)

>Csa: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

ND- None detected

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

Table 4 (cont.)
Composite Analysis Summary -Pesticides
Proposed Northstar Development

Sample Location	Sample Number	Sample Depth (Inches)	Pesticides								
			Dieldrin	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Atrazine	Chlorpyrifos	Diuron	Endrin
Cell 16	16-COMP-0-6	0-6	<0.00209	0.00862	0.0582	0.123	<0.0021	<0.0067	-	0.61	<0.0021
	16-COMP-6-18	6-18	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.011	<0.0067
	16-COMP-18-30	18-30	<0.0067	<0.0067	0.028	0.050	<0.0067	<0.0067	<0.0067	0.098	<0.0067
Cell 17	17-COMP-0-6	0-6	<0.00211	0.0022	0.0366	0.0351	<0.0021	<0.0067	-	0.36	<0.0021
	17-COMP-6-18	6-18	<0.0067	<0.0067	0.022	0.021	<0.0067	<0.0067	<0.0067	0.099	<0.0067
	17-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.099	<0.0067
Cell 18	18-COMP-0-6	0-6	0.0322	0.031	0.0662	0.071	<0.0019	<0.0067	-	0.39	<0.0019
	18-COMP-6-18	6-18	0.061	<0.0067	0.082	0.11	<0.0067	<0.0067	<0.0067	0.11	<0.0067
	18-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067
Cell 19	19-COMP-0-6	0-6	0.365	0.0053	0.139	0.127	<0.002	<0.0067	0.023	0.25	<0.0061
	19-COMP-6-18	6-18	0.29	0.0067	0.17	0.22	<0.0067	<0.0067	<0.017	0.15	<0.0067
	19-COMP-18-30	18-30	0.012	<0.0067	0.007	0.01	<0.0067	<0.0067	<0.017	0.0098	<0.0067
Cell 20	20-COMP-0-6	0-6	0.167	0.004	0.12	0.0946	<0.002	0.0091	0.032	0.26	<0.006
	20-COMP-6-18	6-18	0.18	<0.0067	0.16	0.19	<0.0067	<0.0067	<0.017	0.14	<0.0067
	20-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.017	<0.0067	<0.0067
Cell 21	21-COMP-0-6	0-6	0.0639	<0.0021	0.0508	0.0283	<0.0021	<0.0067	-	0.25	<0.002
	21-COMP-6-18	6-18	0.051	<0.0067	0.052	0.041	<0.0067	<0.0067	<0.0067	0.12	<0.0067
	21-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067
Cell 22	22-COMP-0-6	0-6	0.0373	<0.0021	0.0341	0.0206	<0.0021	<0.0067	-	0.25	<0.002
	22-COMP-6-18	6-18	0.030	<0.0067	0.067	0.045	<0.0067	<0.0067	<0.030	0.10	<0.0067
	22-COMP-18-30	18-30	<0.0067	<0.0067	0.025	0.012	<0.0067	<0.0067	<0.0067	0.013	<0.0067
Cell 23	23-COMP-0-6	0-6	0.042	<0.00206	0.041	0.0227	<0.00206	<0.0067	-	0.24	<0.002
	23-COMP-6-18	6-18	0.065	0.007	0.0083	0.06	<0.0067	<0.0067	0.0077	0.11	<0.0067
	23-COMP-18-30	18-30	<0.0067	<0.0067	0.0076	<0.0067	<0.0067	<0.0067	<0.0067	0.011	<0.0067
Cell 24	24-COMP-0-6	0-6	0.0735	<0.0021	0.0591	0.0366	<0.0021	<0.0067	-	0.16	<0.002
	24-COMP-6-18	6-18	0.044	<0.0067	0.048	0.04	<0.0067	<0.0067	<0.0067	0.081	<0.0067
	24-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067
Cell 25	25-COMP-0-6	0-6	0.123	0.0035	0.102	0.0656	<0.002	0.011	0.036	0.2	<0.002
	25-COMP-6-18	6-18	0.16	<0.0067	0.15	0.14	<0.0067	<0.0067	<0.017	0.14	<0.0067
	25-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.017	<0.0067	<0.0067
Cell 26	26-COMP-0-6	0-6	0.461	0.0058	0.117	0.0833	0.0028	0.0088	0.039	0.26	<0.0075
	26-COMP-6-18	6-18	0.31	<0.0067	0.18	0.21	<0.0067	<0.0067	<0.017	0.17	<0.0067
	26-COMP-18-30	18-30	0.014	<0.0067	0.0076	0.01	<0.0067	<0.0067	<0.017	0.017	<0.0067
Cell 27	27-COMP-0-6	0-6	0.035	0.0055	0.076	0.112	<0.0022	<0.0067	<0.0067	0.33	<0.0022
	27-COMP-6-18	6-18	0.030	<0.0067	0.071	0.085	<0.0067	<0.0067	<0.0067	0.13	<0.0067
	27-COMP-18-30	18-30	<0.0067	<0.0067	0.066	0.054	<0.0067	<0.0067	<0.0067	0.049	<0.0067
Cell 28	28-COMP-0-6	0-6	<0.00212	<0.0021	0.0341	0.0589	<0.0021	<0.0067	-	0.46	<0.0021
	28-COMP-6-18	6-18	<0.0067	<0.0067	0.026	0.045	<0.0067	<0.0067	<0.0067	0.28	<0.0067
	28-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.027	<0.0067
Cell 29	29-COMP-0-6	0-6	<0.00195	0.00342	0.0167	0.0486	<0.00195	<0.0067	-	0.45	<0.0019
	29-COMP-6-18	6-18	<0.0067	<0.0067	0.014	0.034	<0.0067	<0.0067	<0.0067	0.098	<0.0067
	29-COMP-18-30	18-30	<0.0067	<0.0067	0.0081	0.01	<0.0067	<0.0067	<0.0067	0.014	<0.0067
Cell 30	30-COMP-0-6	0-6	<0.00203	<0.002	0.0489	0.0446	<0.002	<0.0067	-	0.50	<0.002
	30-COMP-6-18	6-18	<0.0067	<0.0067	0.042	0.033	<0.0067	<0.0067	<0.0067	0.23	<0.0067
	30-COMP-18-30	18-30	<0.0067	<0.0067	0.024	0.022	<0.0067	<0.0067	<0.0067	0.052	<0.0067
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation			0.034	2.7	1.8	1.9	0.03	2.4**	63**	130**	19
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Vapor Intrusion Into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Construction Worker			1.2	94	66	66	1	n/a	n/a	n/a	80
Excavation Worker			33	2,600	1,800	1,800	30	n/a	n/a	n/a	2,200
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation			0.085	6.6	4.5	4.6	0.08	2.4**	63**	130**	38
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Vapor Intrusion Into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Construction Worker			1.2	94	66	66	1.1	n/a	n/a	n/a	80
Excavation Worker			33	2,800	1,800	1,800	30	n/a	n/a	n/a	2,200

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015), except where noted otherwise.

** From EPA Regional Screening Levels (May 2016)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

n/a: Generic risk-based levels are not available for these pathways.

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Sample exceeds 1/4 residential risk-based concentration (0.0085 mg/kg), requiring analysis of discrete samples. See Table 4.

**Table 4 (cont.)
Composite Analysis Summary - Pesticides
Proposed Northstar Development**

Sample Location	Sample Number	Sample Depth (inches)	Pesticides								
			Dieldrin	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Atrazine	Chlorpyrifos	Diuron	Endrin
Cell 31	1-COMP-0-6	0-6	<0.00209	<0.0021	0.0548	0.0427	<0.0021	<0.0067	-	0.48	<0.0021
	1-COMP-6-18	6-18	<0.0067	<0.0067	0.068	0.071	<0.0067	<0.0067	0.0087	0.28	<0.0067
	1-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.15	<0.0067
Cell 32	2-COMP-0-6	0-6	0.0147	0.0926	0.148	0.106	<0.002	<0.0067	-	0.34	<0.0032
	2-COMP-6-18	6-18	0.013	<0.0067	0.21	0.23	<0.0067	<0.0067	<0.0067	0.18	<0.0067
	2-COMP-18-30	18-30	<0.0067	<0.0067	0.014	0.017	<0.0067	<0.0067	<0.0067	0.12	<0.0067
Cell 33	3-COMP-0-6	0-6	0.0526	0.0337	0.147	0.0526	<0.00183	<0.0067	-	0.41	<0.0018
	3-COMP-6-18	6-18	0.06	<0.0067	0.44	0.3	<0.0067	<0.0067	<0.0067	0.23	<0.0067
	3-COMP-18-30	18-30	<0.0067	<0.0067	0.018	0.013	<0.0067	<0.0067	<0.0067	0.0096	<0.0067
Cell 34	4-COMP-0-6	0-6	0.0319	0.0218	0.116	0.0319	<0.0021	<0.0067	-	0.76	<0.0027
	4-COMP-6-18	6-18	0.030	<0.0067	0.29	0.033	<0.0067	<0.0067	<0.0067	0.29	<0.0067
	4-COMP-18-30	18-30	<0.0067	<0.0067	0.054	0.064	<0.0067	<0.0067	<0.0067	0.041	<0.0067
Cell 35	5-COMP-0-6	0-6	0.056	0.00327	0.149	0.146	<0.002	<0.0067	-	0.39	<0.0028
	5-COMP-6-18	6-18	0.032	<0.0067	0.20	0.29	<0.0067	<0.0067	<0.0067	0.11	<0.0067
	5-COMP-18-30	18-30	<0.0067	<0.0067	0.015	0.027	<0.0067	<0.0067	<0.0067	0.0087	<0.0067
Cell 36	6-COMP-0-6	0-6	0.0478	0.0031	0.108	0.143	<0.0021	<0.0067	-	0.47	<0.0027
	6-COMP-6-18	6-18	0.033	<0.0067	0.090	0.15	<0.0067	<0.0067	<0.0067	0.11	<0.0067
	6-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.0099	<0.0067
Cell 37	7-COMP-0-6	0-6	0.0352	0.0032	0.0934	0.117	<0.0021	<0.0067	-	0.61	<0.0021
	7-COMP-6-18	6-18	0.035	<0.0067	0.16	0.25	<0.0067	<0.0067	<0.0067	0.20	<0.0067
	7-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	0.0076	<0.0067	<0.0067	<0.0067	0.010	<0.0067
Cell 38	8-COMP-0-6	0-6	0.0343	<0.002	0.0916	0.103	<0.002	<0.0067	-	0.41	<0.0028
	8-COMP-6-18	6-18	0.033	<0.0067	0.11	0.17	<0.0067	<0.0067	<0.0067	0.13	<0.0067
	8-COMP-18-30	18-30	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.013	<0.0067
Generic Risk-Based Levels (Residential)											
Soil Ingestion, Dermal Contact, Inhalation			0.034	2.7	1.8	1.9	0.03	2.4**	63**	130**	19
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Vapor Intrusion Into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Construction Worker			1.2	94	66	66	1	n/a	n/a	n/a	80
Excavation Worker			33	2,600	1,800	1,800	30	n/a	n/a	n/a	2,200
Generic Risk-Based Levels (Urban Residential)											
Soil Ingestion, Dermal Contact, Inhalation			0.085	6.6	4.5	4.6	0.08	2.4**	63**	130**	38
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Vapor Intrusion Into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV
Construction Worker			1.2	94	66	66	1.1	n/a	n/a	n/a	80
Excavation Worker			33	2,600	1,800	1,800	30	n/a	n/a	n/a	2,200

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites,

Oregon DEQ, Sept., 2003 (revised November 1, 2015), except where noted otherwise.

** From EPA Regional Screening Levels (May 2016)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

ne - Not established

n/a: Generic risk-based levels are not available for these pathways.

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Sample exceeds 1/4 residential risk-based concentration (0.0085 mg/kg), requiring analysis of discrete samples. See Table 4.

Table 5
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 1	0-6	1A-0-6	9/16/2015	0.0266
		1B-0-6	9/16/2015	0.0497
		1C-0-6	9/16/2015	0.050
		1D-0-6	9/16/2015	0.0234
	6-18	1A-6-18	3/29/2016	0.00864
		1B-6-18	3/29/2016	0.0197
		1C-6-18	3/29/2016	0.0388
		1D-6-18	3/29/2016	0.00859
	18-30	1A-18-30	4/18/2016	-
		1B-18-30	4/18/2016	-
		1C-18-30	4/18/2016	-
		1D-18-30	4/18/2016	-
Cell 2	0-6	2A-0-6	9/16/2015	0.0367
		2B-0-6	9/16/2015	0.0452
		2C-0-6	9/16/2015	0.0725
		2D-0-6	9/16/2015	0.0624
	6-18	2A-6-18	3/29/2016	0.0107
		2B-6-18	3/29/2016	0.0128
		2C-6-18	3/29/2016	0.0156
		2D-6-18	3/29/2016	0.0158
	18-30	2A-18-30	4/18/2016	-
		2B-18-30	4/18/2016	-
		2C-18-30	4/18/2016	-
		2D-18-30	4/18/2016	-
Cell 3	0-6	3A-0-6	9/16/2015	n/a
		3B-0-6	9/16/2015	n/a
		3C-0-6	9/16/2015	n/a
		3D-0-6	9/16/2015	n/a
	6-18	3A-6-18	4/18/2016	0.185
		3B-6-18	4/18/2016	0.0423
		3C-6-18	4/18/2016	0.0177
		3D-6-18	4/18/2016	0.127
	18-30	3A-18-30	4/18/2016	0.0979
		3B-18-30	4/18/2016	0.00273
		3C-18-30	4/18/2016	<0.0011
		3D-18-30	4/18/2016	0.00396
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
n/a - Sample was not analyzed, but assumed to contain elevated dieldrin concentration based on the analysis of the corresponding composite sample.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 4	0-6	4A-0-6	9/16/2015	n/a
		4B-0-6	9/16/2015	n/a
		4C-0-6	9/16/2015	n/a
		4D-0-6	9/16/2015	n/a
	6-18	4A-6-18	4/18/2016	0.0817
		4B-6-18	4/18/2016	0.0995
		4C-6-18	4/18/2016	0.0748
		4D-6-18	4/18/2016	0.0922
	18-30	4A-18-30	4/18/2016	--
		4B-18-30	4/18/2016	--
		4C-18-30	4/18/2016	--
		4D-18-30	4/18/2016	--
Cell 5	0-6	5A-0-6	9/16/2015	0.0604
		5B-0-6	9/16/2015	0.0923
		5C-0-6	9/16/2015	0.0446
		5D-0-6	9/16/2015	<0.00181
	6-18	5A-6-18	4/25/2016	0.017
		5B-6-18	4/25/2016	0.106
		5C-6-18	4/25/2016	0.117
		5D-6-18	4/25/2016	<0.0014
	18-30	5A-18-30	4/25/2016	--
		5B-18-30	4/25/2016	--
		5C-18-30	4/25/2016	--
		5D-18-30	4/25/2016	--
Cell 6	0-6	6A-0-6	4/25/2016	<0.0098
		6B-0-6	4/25/2016	<0.0206
		6C-0-6	4/25/2016	<0.00616
		6D-0-6	4/25/2016	<0.00728
	6-18	6A-6-18	4/25/2016	0.00276
		6B-6-18	4/25/2016	0.00978
		6C-6-18	4/25/2016	0.00376
		6D-6-18	4/25/2016	0.00304
	18-30	6A-18-30	4/25/2016	--
		6B-18-30	4/25/2016	--
		6C-18-30	4/25/2016	--
		6D-18-30	4/25/2016	--
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 7	0-6	7A-0-6	9/16/2015	--
		7B-0-6	9/16/2015	--
		7C-0-6	9/16/2015	--
		7D-0-6	9/16/2015	--
	6-18	7A-6-18	5/3/2016	--
		7B-6-18	5/3/2016	--
		7C-6-18	5/3/2016	--
		7D-6-18	5/3/2016	--
	18-30	7A-18-30	5/3/2016	--
		7B-18-30	5/3/2016	--
		7C-18-30	5/3/2016	--
		7D-18-30	5/3/2016	--
Cell 8	0-6	8A-0-6	5/3/2016	0.103
		8B-0-6	5/3/2016	<0.0017
		8C-0-6	5/3/2016	<0.00226
		8D-0-6	5/3/2016	0.0264
	6-18	8A-6-18	5/3/2016	0.0977
		8B-6-18	5/3/2016	<0.00115
		8C-6-18	5/3/2016	<0.00112
		8D-6-18	5/3/2016	0.00552
	18-30	8A-18-30	5/3/2016	--
		8B-18-30	5/3/2016	--
		8C-18-30	5/3/2016	--
		8D-18-30	5/3/2016	--
Cell 9	0-6	9A-0-6	9/16/2015	0.0552
		9B-0-6	9/16/2015	0.0651
		9C-0-6	9/16/2015	0.0330
		9D-0-6	9/16/2015	0.0441
	6-18	9A-6-18	5/17/2016	0.0432
		9B-6-18	5/17/2016	0.0383
		9C-6-18	5/17/2016	0.0229
		9D-6-18	5/17/2016	0.0204
	18-30	9A-18-30	5/17/2016	--
		9B-18-30	5/17/2016	--
		9C-18-30	5/17/2016	--
		9D-18-30	5/17/2016	--
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

-- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 10	0-6	10A-0-6	9/16/2015	0.0144
		10B-0-6	9/16/2015	0.0416
		10C-0-6	9/16/2015	0.0964
		10D-0-6	9/16/2015	0.0230
	6-18	10A-6-18	5/17/2016	0.0155
		10B-6-18	5/17/2016	0.0356
		10C-6-18	5/17/2016	0.137
		10D-6-18	5/17/2016	0.0151
	18-30	10A-18-30	5/17/2016	<0.00252
		10B-18-30	5/17/2016	<0.00241
		10C-18-30	5/17/2016	0.0312
		10D-18-30	5/17/2016	<0.00234
Cell 11	0-6	11A-0-6	5/26/2016	0.0329
		11B-0-6	5/26/2016	0.0178
		11C-0-6	5/26/2016	0.0268
		11D-0-6	5/26/2016	0.0163
	6-18	11A-6-18	5/26/2016	0.0119
		11B-6-18	5/26/2016	0.0113
		11C-6-18	5/26/2016	0.0222
		11D-6-18	5/26/2016	0.0148
	18-30	11A-18-30	5/26/2016	—
		11B-18-30	5/26/2016	—
		11C-18-30	5/26/2016	—
		11D-18-30	5/26/2016	—
Cell 12	0-6	12A-0-6	5/26/2016	0.0174
		12B-0-6	5/26/2016	0.0165
		12C-0-6	5/26/2016	0.0233
		12D-0-6	5/26/2016	0.0261
	6-18	12A-6-18	5/26/2016	0.0112
		12B-6-18	5/26/2016	0.0108
		12C-6-18	5/26/2016	0.0202
		12D-6-18	5/26/2016	0.020
	18-30	12A-18-30	5/26/2016	—
		12B-18-30	5/26/2016	—
		12C-18-30	5/26/2016	—
		12D-18-30	5/26/2016	—
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

— Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 13	0-6	13A-0-6	5/17/2016	0.0214
		13B-0-6	5/17/2016	0.0377
		13C-0-6	5/17/2016	0.0147
		13D-0-6	5/17/2016	0.0201
	6-18	13A-6-18	5/17/2016	0.0168
		13B-6-18	5/17/2016	0.0332
		13C-6-18	5/17/2016	0.00796
		13D-6-18	5/17/2016	0.0184
	18-30	13A-18-30	5/17/2016	-
		13B-18-30	5/17/2016	-
		13C-18-30	5/17/2016	-
		13D-18-30	5/17/2016	-
Cell 14	0-6	14A-0-6	5/17/2016	0.0347
		14B-0-6	5/17/2016	0.0249
		14C-0-6	5/17/2016	0.00562
		14D-0-6	5/17/2016	0.00702
	6-18	14A-6-18	5/17/2016	0.0119
		14B-6-18	5/17/2016	0.0188
		14C-6-18	5/17/2016	<0.00217
		14D-6-18	5/17/2016	0.0044
	18-30	14A-18-30	5/17/2016	-
		14B-18-30	5/17/2016	-
		14C-18-30	5/17/2016	-
		14D-18-30	5/17/2016	-
Cell 15	0-6	15A-0-6	5/3/2016	0.0354
		15B-0-6	5/3/2016	<0.0013
		15C-0-6	5/3/2016	<0.00251
		15D-0-6	5/3/2016	<0.00683
	6-18	15A-6-18	5/3/2016	-
		15B-6-18	5/3/2016	-
		15C-6-18	5/3/2016	-
		15D-6-18	5/3/2016	-
	18-30	15A-18-30	5/3/2016	-
		15B-18-30	5/3/2016	-
		15C-18-30	5/3/2016	-
		15D-18-30	5/3/2016	-
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 All values in milligrams per kilogram (mg/kg)
 - Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 16	0-6	16A-0-6	9/16/2015	-
		16B-0-6	9/16/2015	-
		16C-0-6	9/16/2015	-
		16D-0-6	9/16/2015	-
	6-18	16A-6-18	5/4/2016	-
		16B-6-18	5/4/2016	-
		16C-6-18	5/4/2016	-
		16D-6-18	5/4/2016	-
	18-30	16A-18-30	5/4/2016	-
		16B-18-30	5/4/2016	-
		16C-18-30	5/4/2016	-
		16D-18-30	5/4/2016	-
Cell 17	0-6	17A-0-6	9/16/2015	-
		17B-0-6	9/16/2015	-
		17C-0-6	9/16/2015	-
		17D-0-6	9/16/2015	-
	6-18	17A-6-18	4/25/2016	-
		17B-6-18	4/25/2016	-
		17C-6-18	4/25/2016	-
		17D-6-18	4/25/2016	-
	18-30	17A-18-30	4/25/2016	-
		17B-18-30	4/25/2016	-
		17C-18-30	4/25/2016	-
		17D-18-30	4/25/2016	-
Cell 18	0-6	18A-0-6	9/16/2015	<0.00196
		18B-0-6	9/16/2015	0.0436
		18C-0-6	9/16/2015	0.0761
		18D-0-6	9/16/2015	<0.00192
	6-18	18A-6-18	4/25/2016	<0.00112
		18B-6-18	4/25/2016	0.0718
		18C-6-18	4/25/2016	0.063
		18D-6-18	4/25/2016	<0.00115
	18-30	18A-18-30	4/25/2016	-
		18B-18-30	4/25/2016	-
		18C-18-30	4/25/2016	-
		18D-18-30	4/25/2016	-
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion Into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

**Table 5 (cont.)
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development**

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 19	0-6	19A-0-6	9/16/2015	n/a
		19B-0-6	9/16/2015	n/a
		19C-0-6	9/16/2015	n/a
		19D-0-6	9/16/2015	n/a
	6-18	19A-6-18	4/18/2016	0.0819
		19B-6-18	4/18/2016	0.0825
		19C-6-18	4/18/2016	0.0764
		19D-6-18	4/18/2016	0.123
	18-30	19A-18-30	4/18/2016	0.00359
		19B-18-30	4/18/2016	0.00394
		19C-18-30	4/18/2016	0.00383
		19D-18-30	4/18/2016	0.0128
Cell 20	0-6	20A-0-6	9/16/2015	n/a
		20B-0-6	9/16/2015	n/a
		20C-0-6	9/16/2015	n/a
		20D-0-6	9/16/2015	n/a
	6-18	20A-6-18	4/18/2016	0.0877
		20B-6-18	4/18/2016	0.0145
		20C-6-18	4/18/2016	0.0317
		20D-6-18	4/18/2016	0.146
	18-30	20A-18-30	4/18/2016	-
		20B-18-30	4/18/2016	-
		20C-18-30	4/18/2016	-
		20D-18-30	4/18/2016	-
Cell 21	0-6	21A-0-6	9/16/2015	0.0805
		21B-0-6	9/16/2015	0.0844
		21C-0-6	9/16/2015	0.0770
		21D-0-6	9/16/2015	0.0692
	6-18	21A-6-18	3/29/2016	0.0127
		21B-6-18	3/29/2016	0.0342
		21C-6-18	3/29/2016	0.038
		21D-6-18	3/29/2016	0.0153
	18-30	21A-18-30	3/29/2016	<0.0089
		21B-18-30	3/29/2016	<0.0009
		21C-18-30	3/29/2016	0.00345
		21D-18-30	3/29/2016	<0.00093
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
n/a - Sample was not analyzed, but assumed to contain elevated dieldrin concentration based on the analysis of the corresponding composite sample.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 22	0-6	22A-0-6	9/16/2015	0.0352
		22B-0-6	9/16/2015	0.0635
		22C-0-6	9/16/2015	0.0627
		22D-0-6	9/16/2015	0.0407
	6-18	22A-6-18	3/29/2016	0.0139
		22B-6-18	3/29/2016	0.011
		22C-6-18	3/29/2016	0.0273
		22D-6-18	3/29/2016	0.013
	18-30	22A-18-30	3/29/2016	-
		22B-18-30	3/29/2016	-
		22C-18-30	3/29/2016	-
		22D-18-30	3/29/2016	-
Cell 23	0-6	23A-0-6	9/16/2015	0.0414
		23B-0-6	9/16/2015	0.067
		23C-0-6	9/16/2015	0.0785
		23D-0-6	9/16/2015	0.050
	6-18	23A-6-18	3/29/2016	0.0134
		23B-6-18	3/29/2016	0.0341
		23C-6-18	3/29/2016	0.0555
		23D-6-18	3/29/2016	0.0133
	18-30	23A-18-30	3/29/2016	0.0001
		23B-18-30	3/29/2016	0.00096
		23C-18-30	3/29/2016	0.0034
		23D-18-30	3/29/2016	<0.0008
Cell 24	0-6	24A-0-6	9/16/2015	0.0330
		24B-0-6	9/16/2015	0.0614
		24C-0-6	9/16/2015	0.0765
		24D-0-6	9/16/2015	0.0554
	6-18	24A-6-18	3/29/2016	0.0165
		24B-6-18	3/29/2016	0.022
		24C-6-18	3/29/2016	0.0415
		24D-6-18	3/29/2016	0.0254
	18-30	24A-18-30	3/29/2016	<0.0008
		24B-18-30	3/29/2016	<0.0008
		24C-18-30	3/29/2016	0.0016
		24D-18-30	3/29/2016	0.00131
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 25	0-6	25A-0-6	9/16/2015	n/a
		25B-0-6	9/16/2015	n/a
		25C-0-6	9/16/2015	n/a
		25D-0-6	9/16/2015	n/a
	6-18	25A-6-18	4/18/2016	0.0899
		25B-6-18	4/18/2016	0.027
		25C-6-18	4/18/2016	0.0268
		25D-6-18	4/18/2016	0.0921
	18-30	25A-18-30	4/18/2016	—
		25B-18-30	4/18/2016	—
		25C-18-30	4/18/2016	—
		25D-18-30	4/18/2016	—
Cell 26	0-6	26A-0-6	9/16/2015	n/a
		26B-0-6	9/16/2015	n/a
		26C-0-6	9/16/2015	n/a
		26D-0-6	9/16/2015	n/a
	6-18	26A-6-18	4/18/2016	0.159
		26B-6-18	4/18/2016	0.228
		26C-6-18	4/18/2016	0.0902
		26D-6-18	4/18/2016	0.168
	18-30	26A-18-30	4/18/2016	0.012
		26B-18-30	4/18/2016	0.00503
		26C-18-30	4/18/2016	0.00296
		26D-18-30	4/18/2016	0.00945
Cell 27	0-6	27A-0-6	9/16/2015	<0.00193
		27B-0-6	9/16/2015	0.117
		27C-0-6	9/16/2015	0.0133
		27D-0-6	9/16/2015	<0.00199
	6-18	27A-6-18	4/25/2016	<0.00113
		27B-6-18	4/25/2016	0.061
		27C-6-18	4/25/2016	<0.00265
		27D-6-18	4/25/2016	<0.00211
	18-30	27A-18-30	4/25/2016	—
		27B-18-30	4/25/2016	—
		27C-18-30	4/25/2016	—
		27D-18-30	4/25/2016	—
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 n/a - Sample was not analyzed, but assumed to contain elevated dieldrin concentration based on the analysis of the corresponding composite sample.
 All values in milligrams per kilogram (mg/kg)
 — Sample not tested
 Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 28	0-6	28A-0-6	9/16/2015	--
		28B-0-6	9/16/2015	--
		28C-0-6	9/16/2015	--
		28D-0-6	9/16/2015	--
	6-18	28A-6-18	4/25/2016	--
		28B-6-18	4/25/2016	--
		28C-6-18	4/25/2016	--
		28D-6-18	4/25/2016	--
	18-30	28A-18-30	4/25/2016	--
		28B-18-30	4/25/2016	--
		28C-18-30	4/25/2016	--
		28D-18-30	4/25/2016	--
Cell 29	0-6	29A-0-6	9/16/2015	--
		29B-0-6	9/16/2015	--
		29C-0-6	9/16/2015	--
		29D-0-6	9/16/2015	--
	6-18	29A-6-18	5/4/2016	--
		29B-6-18	5/4/2016	--
		29C-6-18	5/4/2016	--
		29D-6-18	5/4/2016	--
	18-30	29A-18-30	5/4/2016	--
		29B-18-30	5/4/2016	--
		29C-18-30	5/4/2016	--
		29D-18-30	5/4/2016	--
Cell 30	0-6	30A-0-6	9/16/2015	--
		30B-0-6	9/16/2015	--
		30C-0-6	9/16/2015	--
		30D-0-6	9/16/2015	--
	6-18	30A-6-18	5/4/2016	--
		30B-6-18	5/4/2016	--
		30C-6-18	5/4/2016	--
		30D-6-18	5/4/2016	--
	18-30	30A-18-30	5/4/2016	--
		30B-18-30	5/4/2016	--
		30C-18-30	5/4/2016	--
		30D-18-30	5/4/2016	--
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 All values in milligrams per kilogram (mg/kg)

-- Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
Discrete Analysis Summary - Dieldrin
Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 31	0-6	31A-0-6	5/17/2016	--
		31B-0-6	5/17/2016	--
		31C-0-6	5/17/2016	--
		31D-0-6	5/17/2016	--
	6-18	31A-6-18	5/17/2016	--
		31B-6-18	5/17/2016	--
		31C-6-18	5/17/2016	--
		31D-6-18	5/17/2016	--
	18-30	31A-18-30	5/17/2016	--
		31B-18-30	5/17/2016	--
		31C-18-30	5/17/2016	--
		31D-18-30	5/17/2016	--
Cell 32	0-6	32A-0-6	5/17/2016	0.029
		32B-0-6	5/17/2016	0.00568
		32C-0-6	5/17/2016	0.00832
		32D-0-6	5/17/2016	0.0325
	6-18	32A-6-18	5/17/2016	0.0205
		32B-6-18	5/17/2016	0.00324
		32C-6-18	5/17/2016	0.00480
		32D-6-18	5/17/2016	0.0249
	18-30	32A-18-30	5/17/2016	--
		32B-18-30	5/17/2016	--
		32C-18-30	5/17/2016	--
		32D-18-30	5/17/2016	--
Cell 33	0-6	33A-0-6	5/26/2016	0.0283
		33B-0-6	5/26/2016	0.0415
		33C-0-6	5/26/2016	0.0666
		33D-0-6	5/26/2016	0.0969
	6-18	33A-6-18	5/26/2016	0.0348
		33B-6-18	5/26/2016	0.030
		33C-6-18	5/26/2016	0.0764
		33D-6-18	5/26/2016	0.0534
	18-30	33A-18-30	5/26/2016	--
		33B-18-30	5/26/2016	--
		33C-18-30	5/26/2016	--
		33D-18-30	5/26/2016	--
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 All values in milligrams per kilogram (mg/kg)
 -- Sample not tested
 Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Pesticides
				Dieldrin
Cell 34	0-6	34A-0-6	9/17/2015	0.0807
		34B-0-6	9/17/2015	0.0141
		34C-0-6	9/17/2015	0.0739
		34D-0-6	9/17/2015	0.0470
	6-18	34A-6-18	5/26/2016	0.0278
		34B-6-18	5/26/2016	0.0155
		34C-6-18	5/26/2016	0.00879
		34D-6-18	5/26/2016	0.0370
	18-30	34A-18-30	5/26/2016	-
		34B-18-30	5/26/2016	-
34C-18-30		5/26/2016	-	
34D-18-30		5/26/2016	-	
Cell 35	0-6	35A-0-6	9/18/2015	0.152
		35B-0-6	9/18/2015	0.0432
		35C-0-6	9/18/2015	0.0284
		35D-0-6	9/18/2015	0.153
	6-18	35A-6-18	5/26/2016	0.0414
		35B-6-18	5/26/2016	0.0166
		35C-6-18	5/26/2016	0.0122
		35D-6-18	5/26/2016	0.036
	18-30	35A-18-30	5/26/2016	-
		35B-18-30	5/26/2016	-
35C-18-30		5/26/2016	-	
35D-18-30		5/26/2016	-	
Cell 36	0-6	363A-0-6	9/17/2015	0.150
		36B-0-6	9/17/2015	0.0373
		36C-0-6	9/17/2015	0.0477
		36D-0-6	9/17/2015	0.0396
	6-18	36A-6-18	5/26/2016	0.0398
		36B-6-18	5/26/2016	0.0132
		36C-6-18	5/26/2016	0.0219
		36D-6-18	5/26/2016	0.00519
	18-30	36A-18-30	5/26/2016	-
		36B-18-30	5/26/2016	-
36C-18-30		5/26/2016	-	
36-18-30		5/26/2016	-	
Generic Risk-Based Levels (Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.034
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33
Generic Risk-Based Levels (Urban Residential)				
Soil Ingestion, Dermal Contact, Inhalation				0.085
Volatilization To Outdoor Air				NV
Vapor Intrusion into Building				NV
Construction Worker				1.2
Excavation Worker				33

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)
 NV: This chemical is considered "non-volatile" for purposes of the exposure calculations
 All values in milligrams per kilogram (mg/kg)
 - Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 5 (cont.)
 Discrete Analysis Summary - Dieldrin
 Proposed Northstar Development

Sample Location	Sample Depth (Inches)	Sample Number	Date Collected	Pesticides	
				Dieldrin	
Cell 37	0-6	37A-0-6	9/18/2015	0.0298	
		37B-0-6	9/18/2015	0.0415	
		37C-0-6	9/18/2015	0.0444	
		37D-0-6	9/18/2015	0.0376	
	6-18	37A-6-18	5/26/2016	0.0147	
		37B-6-18	5/26/2016	0.0395	
		37C-6-18	5/26/2016	0.0382	
	18-30	37D-6-18	5/26/2016	0.0222	
		37A-18-30	5/26/2016	—	
		37B-18-30	5/26/2016	—	
		37C-18-30	5/26/2016	—	
	Cell 38	0-6	37D-18-30	5/26/2016	—
38A-0-6			9/18/2015	0.0468	
38B-0-6			9/18/2015	0.0509	
38C-0-6			9/18/2015	0.0591	
6-18		38D-0-6	9/18/2015	0.0355	
		38A-6-18	5/26/2016	0.0127	
		38B-6-18	5/26/2016	0.0276	
		38C-6-18	5/26/2016	0.0533	
18-30		38D-6-18	5/26/2016	0.0144	
		38A-18-30	5/26/2016	—	
		38B-18-30	5/26/2016	—	
		38C-18-30	5/26/2016	—	
38D-18-30				5/26/2016	—
Generic Risk-Based Levels (Residential)					
Soil Ingestion, Dermal Contact, Inhalation				0.034	
Volatilization To Outdoor Air				NV	
Vapor Intrusion into Building				NV	
Construction Worker				1.2	
Excavation Worker				33	
Generic Risk-Based Levels (Urban Residential)					
Soil Ingestion, Dermal Contact, Inhalation				0.085	
Volatilization To Outdoor Air				NV	
Vapor Intrusion into Building				NV	
Construction Worker				1.2	
Excavation Worker				33	

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015)

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

All values in milligrams per kilogram (mg/kg)

— Sample not tested

Value exceeds Residential risk-based concentration (0.034 mg/kg)

Table 6
Discrete Analysis Summary - Ditch Samples
Proposed Northstar Development

Sample Location	Sample Number	Sample Depth (Inches)	Pesticides									
			Dieldrin	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	Atrazine	Chlorpyrifos	Diuron	Endrin	Permethrin
Tax lot 200	DITCH1-0-6	0-6	0.027	0.027	0.11	0.014	<0.0067	<0.0067	<0.017	0.58	<0.0067	0.015
	DITCH1-6-18	6-18	0.018	0.022	0.084	0.0092	<0.0067	<0.0067	<0.017	0.098	<0.0067	<0.0067
	DITCH2-0-6	0-6	<0.0067	<0.0067	0.068	0.055	<0.0067	<0.0067	<0.017	0.17	<0.0067	0.15
	DITCH2-6-18	6-18	<0.0067	<0.0067	0.055	0.037	<0.0067	<0.0067	<0.017	0.084	<0.0067	0.039
	DITCH3-0-6	0-6	0.0091	0.022	0.13	0.081	<0.0067	<0.0067	<0.017	0.48	<0.0067	0.06
	DITCH3-6-18	6-18	0.013	0.032	0.21	0.13	<0.0067	<0.0067	<0.017	0.28	<0.0067	0.034
Tax lot 900	DITCH4-0-6	0-6	0.012	<0.0067	0.023	<0.0067	<0.0067	<0.0067	<0.017	<0.0095	<0.0067	<0.0067
Ecological Screening Levels - Sediment (1)												
Freshwater			3	4	1.5	4	40	n/a	n/a	n/a	3	n/a
Bioaccumulation			4	0.3	0.3	0.3	40	n/a	n/a	n/a	4	n/a
Generic Risk-Based Levels (Residential)												
Soil Ingestion, Dermal Contact, Inhalation			0.034	2.7	1.8	1.8	0.03	2.4**	63**	130**	19	2,500**
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV	n/a
Vapor Intrusion into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV	n/a
Leaching to Groundwater			0.010	1.1	1.6	1.2	0.023	0.0002**	0.13**	0.015**	>Csat	2.1**
Construction Worker			1.2	94	66	66	1	n/a	n/a	n/a	80	n/a
Excavation Worker			33	2,600	1,800	1,800	30	n/a	n/a	n/a	2,200	n/a
Generic Risk-Based Levels (Urban Residential)												
Soil Ingestion, Dermal Contact, Inhalation			0.085	6.6	4.5	4.6	0.08	2.4**	63**	130**	38	2,500**
Volatilization To Outdoor Air			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV	n/a
Vapor Intrusion into Building			NV	NV	>Csat	NV	>Csat	n/a	n/a	n/a	NV	n/a
Leaching to Groundwater			0.037	3.7	7.4	4.6	0.1	0.0002**	0.13**	0.015**	>Csat	2.1**
Construction Worker			1.2	94	66	66	1.1	n/a	n/a	n/a	80	n/a
Excavation Worker			33	2,600	1,800	1,800	30	n/a	n/a	n/a	2,200	n/a

Generic Risk-Based Levels are based on Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ, Sept., 2003 (revised November 1, 2015), except where noted otherwise.

** From EPA Regional Screening Levels (May 2016)

>Csat: The soil RBC exceeds the saturation limit of the soil

>Max: The constituent RBC for this pathway is greater than 100,000 mg/kg.

NV: This chemical is considered "non-volatile" for purposes of the exposure calculations

n/a: Generic risk-based levels are not available for these pathways.

All values in milligrams per kilogram (mg/kg)

- Sample not tested

(1) DEQ Guidance for Ecological Risk Assessment - Level II Screening Level Values - Table 2 (April 1997)

