

Date: November 23, 2020

To: FILE ECSI #6036

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From: Nancy Sawka, WR Cleanup Project Manager

Subject: Northstar, Staff Memorandum in support of a Partial No Further Action
Determination for Cell 37C and Southwestern Strip of Cell 26D

This document presents the basis for the Oregon Department of Environmental Quality's recommended Partial No Further Action (PNFA) determination for the Northstar Site in Salem. The PNFA applies to Cell 37C and a small strip of land on the southwest corner of Cell 26D as shown on Figure 1. These areas were part of the Phase IV remediation efforts.

DEQ issued a PNFA for Phase I (Eastern Property) on June 7, 2018, for Phase II (Western Property) on August 6, 2019, and for Phase II/III (Central Property) on February 20, 2020. These areas are shown in Figure 1. As discussed in this report, contaminated soils above applicable risk levels have been removed from Cell 37C and the southwest corner strip of Cell 26D. This PNFA does not apply to the area of Cell 26D that is east of the southwest corner strip (see Figure 1) and is being deeded to the City of Salem. The City plans to use this piece of land along with part of Cell 27C for a stormwater treatment facility. An NFA for this area of Cell 26D is pending an evaluation of the potential risk to future workers at the stormwater facility. Other areas of Cell 26D were part of the Phase II-Western Property PNFA issued in August 2019.

The proposed PNFA determination meets the requirements of Oregon Administrative Rules Chapter 340 Division 122, Sections 010 to 0140 and ORS 465.200 through 465.455.

The proposal is based on information documented in the administrative record for this site. A copy of the administrative record index is presented at the end of this report. Copies of reports referenced in this memo and other site documents are on DEQ's Environmental Cleanup Site Information (ECSI) database at <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.

1. BACKGROUND

The Northstar site is located at 4985 Kale St. NE in Salem, Oregon on Marion County Map 062W32C and includes former Tax Lots 200, 701, 800, 900, and 1000 (Figure 1). The property is approximately 150 acres and was used for agriculture purposes starting in the 1890's. In 2002, the City of Salem annexed the property and rezoned it for residential use. Granada Land Company purchased the property in 2005 and then sold it to I&E Construction in July 2017. I&E is re-developing the site into residential homes and apartments. The Eastern Property, which was given a PNFA in June 2018 and included former tax lots 701 and 1000, was subdivided into several single-family home parcels and tax lots. The construction of homes has been completed on the Eastern Property. The Western Property, which was issued a PNFA in August 2019 and included all of former tax lot 800 and the western third of tax lot 900, has been parceled and prepped for the development of homes and apartments. The development of single family homes has begun on the Central Property which was issued a PNFA in February 2020 and included most of former tax lot 200 and most of the eastern two thirds of former tax lot 900.

Additional details on the site background and history is available in the Record of Decision (ROD) for the site (November 2017 DEQ) located on DEQ's ECSI database.

2. BENEFICIAL LAND AND WATER USES

The site is zoned for residential use and is currently being developed into residential homes and apartments. The City of Salem is providing water service to the site. Except for two existing irrigation wells, there are no current or future beneficial uses of groundwater on the property. The two irrigation wells will be taken out of use and removed during the redevelopment process.

There are no beneficial surface water uses at the site. The only surface water body is an intermittent drainage ditch on the Eastern Property. The ditch is dry part of the year and does not appear to provide a significant ecological habitat on the site.

3. RECORD OF DECISION

Granada Land Company, completed environmental investigations on the property between August 2015 and June 2016. These investigations found the pesticide, dieldrin, in the shallow soils from approximately 0 to 30 inches below ground surface (bgs). The concentrations of dieldrin over approximately 71 acres of the site exceeded DEQ's generic risk-based concentration (RBC) of 0.034 mg/kg (milligram per kilogram) for residential ingestion, inhalation and dermal contact. No other pesticides tested were detected above their respective RBC.

Granada's environmental consultant, Anderson Geological, completed a feasibility study and feasibility study amendment with recommendations for site cleanup in August 2016 and June 2017, respectively. Granada planned to cleanup the dieldrin-contaminated soil on the site to meet residential standards for future property development. DEQ issued a public notice and chance to comment on the recommended cleanup in July 2017 and a Record of Decision with a

final remedy for the cleanup of dieldrin-contaminated soil was issued in November 2017. The final remedy includes:

- Excavation and removal of soil exceeding the residential cleanup goal of 0.034 mg/kg for dieldrin.
- The transport and reuse of the dieldrin-contaminated soil above this level to a farm located at 6848 Windsor Island Road, Keizer, Oregon (farm site). The soil will be used to infill two abandoned quarries (northern quarry and southern quarry) on the property and then will be covered with 3 feet of cleaner fill.
- The reuse of the soil at the farm site was approved through a Solid Waste Permit Exemption (DEQ September 2017). The exemption requires that appropriate floodplain and wetland permits be obtained from Marion County, the Department of State Lands (DSL) and/or the Army Corps of Engineers (ACOE) before the southern quarry is infilled. These restrictions were not required on the northern quarry.
- A deed notice recorded on the farm site to document the location and restrict residential use in the reuse area unless the dieldrin levels are reduced or remediated to acceptable standards.
- The preparation of a spill prevention, response and safety plan before transporting any contaminated soil offsite.

Any significant changes to the selected alternative requires re-evaluation, review and prior approval by DEQ.

Details on the site background, investigation and selected cleanup are in the ROD on DEQ's ECSI website.

4. SOIL CLEANUP AND PARTIAL NFA - EASTERN PROPERTY

Details of the cleanup and Partial NFA for the Eastern Property can be found in the soil removal report (AGI 2017) and in DEQ's May 15, 2018 Staff Memorandum. Both documents are on DEQ's ECSI website. The cleanup included all of former tax lots 701 and 1000 and the southern part of tax lot 200 on the Eastern Property. I&E Construction completed cleanup of the Eastern Property between August and September 2017. Soil excavation depths ranged between 6 to 40 inches bgs and included the removal of soil that contained dieldrin above the residential RBC of 0.034 mg/kg. Approximately 24,376 cubic yards of soil were excavated and temporarily stockpiled on the western part of the site for future transport to the farm property. Confirmation soils samples collected from the final excavations were all below the cleanup goals established for the site (0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples). DEQ issued a PNFA for the Eastern Property in June 2018.

5. SOIL CLEANUP AND PARTIAL NFA – WESTERN PROPERTY

Details of the cleanup and Partial NFA for the Western Property can be found in the soil removal report (AGI 2017) and in DEQ's June 11, 2019 Staff Memorandum located on DEQ's ECSI website. The cleanup and Partial NFA included all of tax lot 800 and the western third of tax lot 900. I&E Construction completed cleanup of the Western Property between August and October 2018. Soil removal depths ranged between 12 and 36 inches bgs. Approximately 25,000 cubic yards of excavated soil met the urban residential cleanup goal of 0.085 mg/kg and, as approved by DEQ, this soil was used for structural fill in the multi-family area where apartments would be constructed. The remaining excavated soils, approximately 47,000 cubic yards, were added to the contaminated soil stockpile onsite pending offsite transport and placement at the farm site. Confirmation soils samples collected from the final excavations were all below the cleanup goals established for the site - 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples for the single-family development area and 0.085 mg/kg for discrete samples and 0.02125 mg/kg for the multi-family development area. DEQ issued a PNFA for the Western Property in August 2019.

6. SOIL CLEANUP AND PARTIAL NFA – CENTRAL PROPERTY

Details of the cleanup and Partial NFA for the Central Property can be found in the soil removal report (AGI 2019) and in DEQ's December 30, 2020 Staff Memorandum located on DEQ's ECSI website. The cleanup and PNFA included most of tax lot 200 and most of the western two thirds of tax lot 900. I&E Construction completed cleanup of the Central Property in October 2019. Soil removal depths ranged between 12 and 36 inches bgs. Approximately 51,585 cubic yards of dieldrin-contaminated soil was excavated from the Central Property and temporarily stockpiled onsite in Cell 37C until the soil could be transported to the farm site. Additional infilling of the quarry on the farm site was pending approval of a wetlands fill permit from the DSL. Confirmation soil samples collected from the final excavations of the Central Property were all below the residential cleanup goals established for the single-family development area of 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples. DEQ issued a PNFA for the Central Property in February 2020.

7. SOIL CLEANUP AND PARTIAL NFA – CELL 37C AND 26D

Oregon DSL issued a wetlands fill permit in November 2019 allowing additional infilling of the southern quarry at the Windsor Island farm site. I&E conducted removal and transport of the remaining soil stockpiled on Cell 37C between March 17 and June 1, 2020. Approximately 51,585 cubic yards of soil was loaded and transported to the farm site and used to infill the southern quarry. The native soil in Cell 37C beneath the former stockpile was subsequently excavated to about 18 inches bgs to remove dieldrin-contaminated soil. Approximately 3,850 cubic yards of soil was excavated from this area, directly loaded into trucks and transported to the farm site where it was placed in the southern quarry. Confirmation soil samples collected from the final excavation of Cell 37C were below the residential cleanup goals established for the single-family development area of 0.034 mg/kg for discrete samples and 0.0085 mg/kg for

composite samples. Tables 1 below shows the final excavation depths and confirmation sampling results for Cell 37C.

Part of the contaminated soil from the southwest corner strip of Cell 26D, a 12 foot wide strip on the western boundary, was removed during the Phase II remediation work in 2018 along with soil from the other parts of Cell 26D. The soil in this area was excavated to 30 inches bgs and composite samples from the excavation bottom confirmed that remaining soil was below 0.0085 mg/kg. This area was inadvertently excluded from the PNFA for the Phase II work, so is being included in this PNFA. Contaminated soil from the rest of southwestern strip of Cell 26D strip was removed in September 2020. The excavation depth extended to approximately 36 inches bgs. Confirmation soil samples collected from the final excavation were below the residential cleanup goals established for the single-family development area of 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples. Table 1 shows the final excavation depths and confirmation sampling results for the southwestern strip area of Cell 26D.

Table 1: Confirmation Soil Sample Results

Cell Quadrant	Sample Number/Location	Sample Date	Composite Result – mg/kg	Discrete Result-mg/kg	Soil Removal Depth (inches bgs)	Applicable RBC in mg/kg
26D	26D-West Strip Composite (1)	7/3/2019	0.0482	---	0-18	0.0085
	26D-West Strip Composite (2)	7/11/2019	0.00588	---	18-30	0.0085
26D	26D-S/SW Composite (1)	9/21/2020	---	0.309	0-18	0.034
	26D-S/SW Composite (2)	9/29/2020	---	<0.00127	18-36	0.034
37C	37C-East Composite	6/23/2020	<0.00225	---	0-18	0.0085
37C	37C-West Composite	6/23/2020	0.00447	---	0-18	0.0085

Stockpiled and contaminated soil removal areas are shown in Figure 2. I&E completed the excavation and removal work under the approved dust control plan. Dry soil was continuously watered with sprinklers and water trucks to suppress dust generation during loading and unloading procedures. I&E constructed temporary haul roads to control truck traffic, dust and limit cross contamination across the site. Air and dust monitoring by a Certified Industrial Hygienist (CIH) during the contaminated soil cleanup on the Eastern and Western properties demonstrated that there was no risk to the public or onsite workers from the dust generated during site cleanup work. Based on recommendations from the CIH, additional dust and air monitoring was not necessary during cleanup of Cell 37C and 26D.

Details of the soil removal and confirmation sampling results are located in the soil removal report on DEQ’s ECSI website (November 2020, AGI).

8. POST CLEANUP RISK EVALUATION

Conceptual site model.

The COC for the site is limited to dieldrin in shallow soil. Dieldrin contamination in the soil is related to the past use of pesticides during agriculture operations on the property. The property is being re-developed into a residential community with single-family homes and multi-family apartments. There are no current drinking water wells on the site and the City of Salem is providing water to the new development. The two agriculture wells on the property will be decommissioned during site development. Given the current and future land and water uses, the main human receptors and pathways include:

- Ingestion, inhalation and dermal contact with shallow soil by future residents.
- Ingestion, inhalation and dermal contact with shallow soil by occupational workers.
- Ingestion, inhalation and dermal contact of soil by construction and excavation workers.

To evaluate human exposure to residual chemical contamination requires an assessment of the type and extent of that exposure. This is based on current and reasonably likely future site use. DEQ publishes risk-based concentrations (RBCs) for contaminants commonly encountered, for different types of exposure scenarios. These RBCs are conservative estimates of protective levels of contaminants in soil, groundwater and air. Table 2 shows potential exposure pathways and receptors for this site. Based on this, applicable RBCs are identified and used for risk screening.

Table 2. Identification of applicable RBCs for Pertinent Pathways and Receptors

Pathway	Receptor	Is Pathway Complete?	Is RBC Exceeded?	Basis for selection/exclusion
SOIL				
Ingestion, dermal contact, and inhalation	Residential	Yes	No	See Note 1.
	Urban residential	Yes	No	
	Occupational	No	No	
	Construction worker	Yes	No	
	Excavation worker	Yes	No	
Volatilization to outdoor air	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Vapor intrusion into buildings	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Leaching to groundwater	Residential	No	Yes	See Note 3.
	Urban residential	No	Yes	
	Occupational	No	Yes	
GROUNDWATER				
Ingestion and inhalation from tap water	Residential	No	Not Sampled	See Note 3 and 4.
	Urban residential	No	Not Sampled	
	Occupational	No	Not sampled	
	Residential	No	NA	See Note 2.

Pathway	Receptor	Is Pathway Complete?	Is RBC Exceeded?	Basis for selection/exclusion
Volatilization to outdoor air	Urban residential	No	NA	
	Occupational	No	NA	
Vapor intrusion into buildings	Residential	No	NA	See Note 2.
	Urban residential	No	NA	
	Occupational	No	NA	
Groundwater in excavation	Construction and excavation worker	No	No	See Note 3.

Notes:

- NA: Not applicable. There is no RBC for this pathway for dieldrin since it is non-volatile.
1. Site is being developed for residential and urban residential use.
 2. Dieldrin is non-volatile.
 3. Contamination is limited to shallow soil. Groundwater is not used for drinking on the site. This pathway is therefore not considered, in accordance with Section B.3.2.4 of DEQ's RBDM guidance.
 4. City water will be provided to the site. Groundwater is not currently used for drinking water at the site and is not likely to be used for this purpose in the future.

Contaminant concentrations.

Table 1 above shows the results for remaining contaminant concentrations in the soils along the southwestern strip of Cell 26D and in Cell 37C. Remaining contamination in soil of these areas is below the cleanup goal of 0.034 mg/kg for discrete samples and 0.0085 mg/kg for composite samples. The highest concentration of dieldrin remaining in soil of the Cell 26D southwest strip is 0.00588 mg/kg and the highest concentration remaining in Cell 37C is 0.00447 mg/kg.

Human health risk.

As illustrated in the tables, no dieldrin remains in the soil at concentrations above the residential risk cleanup goal in the southwestern strip of Cell 26D or in Cell 37C.

Ecological risk.

There does not appear to be any 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. The ditch on the Eastern Property is dry most of the year.

9. PUBLIC NOTICE

A public notice on the PNFA will be posted in the local newspaper and on DEQ's public website for the project. A Fact Sheet with an update on the project and the PNFA will be sent to the City of Salem, City of Keizer and other interested parties.

10. RECOMMENDATION

I&E has requested a PNFA for the southwestern strip of Cell 26D and for Cell 37C, so they can begin construction of homes in these areas. Based on the sample results and the human health and ecological risk evaluation, remaining contamination on these parts of the property does not pose an unacceptable risk to current or future uses of the property. A Partial No Further Action determination is recommended for the southwestern strip of Cell 26D and for Cell 37C.

The Partial No Further Action determination should be recorded in DEQ's ECSI database (ECSI # 6063).

11. 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.

DEQ 2017. *Record of Decision Final Remedial Action for Northstar Development*, November 2017

AGI 2017. *Removal of Dieldrin Contaminated Soils, North Star Development – Phase I*, December 13, 2017

AGI 2019. *Removal of Dieldrin Contaminated Soils, North Star Development, Phase II Remediation Area*, May 1, 2019.

AGI 2019. *Removal of Dieldrin-Contaminated Soils, North Star Development Phase III Remediation*, December 9, 2019.

AGI 2020. *Removal of Dieldrin-Contaminated Soils, North Star Development - Phase IV Remediation*, November 9, 2020.

12. ATTACHMENTS

Figures:

1. Historical Aerial Photograph with Tax Lots
2. Locations of Northstar Remediation – Phases I-IV

Exhibits

- A. Written Legal Description of Southwestern Strip of Cell 26D and Cell 37C
- B. Survey Maps