STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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Electronic Copy

April 5, 2017

Mr. George Duvendack
LRI Services
17925 Meridian E
Puyallup, WA 98375-9603

Re: No Further Action at the following Site:

- **Site Name:** Purdy Transfer Station
- **Site Address:** 14515 54th Avenue NW, Gig Harbor, WA 98332-9106
- **Facility/Site No.:** 1290
- **Cleanup Site ID:** 3651
- **VCP Project No.:** SW1490

Dear Mr. Duvendack:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Purdy Transfer Station facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Chlorinated Solvents into the Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Tacoma-Pierce County Health Department (TPCHD), *Field Report - Purdy Closed Landfill: File Review and Summary Report*, circa 2000, received by Ecology via email on January 19, 2017.

2. TPCHD, *Site Hazard Assessment [SHA] Completion Letter*, dated August 23, 2001, received by Ecology via email on January 18, 2017.

3. TPCHD, SHA - *Summary Score Sheet Worksheets 1 and 2*, dated August 23, 2001, received by Ecology via email on January 18, 2017.

4. SCS Engineers (SCS), *Third Quarter 2016 Groundwater Monitoring Report*, Purdy Landfill, Pierce County, Washington, dated December 16, 2016.

5. SCS, *Fourth Quarter and 2015 Annual Monitoring Report*, Purdy Landfill, Pierce County, Washington, dated February 24, 2016.

6. SCS, *Post-Closure Care Summary Report*, Closed Purdy Landfill, 14515 54th Avenue NW, Gig Harbor, Washington, dated August 28, 2012.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion has no bearing on any pending or future Ecology comments, decisions, or actions outside the Voluntary Cleanup Program (VCP) and shall not be used as a basis for any such action.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

The Site is situated on the Purdy Transfer Station located at 14515 54th Ave NW in Gig Harbor, Pierce County, Washington (see Figure 1). The facility currently operates as a transfer station. The transfer station is co-located with the closed Purdy Landfill (landfill). The facility is currently owned by Pierce County and had operated as a solid waste disposal facility from 1941 to 1989 when the facility ceased landfill operations and closed under the Minimum Functional Standards for Solid Waste Handling.

The landfill was constructed without a base liner or leachate collection system; the entire landfill was capped with an engineered cover liner and soil cap. Leachate production was monitored by an analytical survey of groundwater beneath the facility under WAC 173-304. Types of waste reported to be disposed of at the landfill was residential waste and sewage sludge; a review of available records does not indicate that hazardous waste was disposed of at the facility. In 1991, the landfill was placed on Ecology's Hazardous Sites List (HSL) with a Washington Rankin Method (WARM) of 5 (lowest risk).

The hydrogeology of interest at the Site was derived from advances and retreats of ice sheets during periods of Pleistocene glaciations. Geologic investigations at the Site have indicated subsurface formations that are interpreted to be sands and/or gravels (recessional outwash) underlain by glacial till of various thickness, and those in turn are underlain by sands, silty sands, and gravels (advance outwash) to a depth of approximately 150 to 200 feet below ground surface (bgs). Two aquifers are identified at the Site; the upper aquifer and the lower aquifer, with a thin layer of till between them. The groundwater moves consistently to the northwest with a gradient ranging from 0.0030 to 0.0097 (Drawing 1). The groundwater in the upper aquifer was described as "occurring in perched zones over the Vashon till"[1]. No further mention of the upper aquifer groundwater has been offered since then.

[1] SCS Engineers, Post-Closure Care Summary Report, Closed Purdy Landfill, 14515 54th Avenue NW, Gig Harbor, Washington, August 28, 2012, page 4.

As part of the operating and post-closure requirements under WAC 173-304, the landfill Site has conducted quarterly groundwater monitoring since 1985. The Site groundwater is currently being evaluated by sampling four down-gradient monitoring wells (MW-4, MW-5, MW-8, and MW-10) and one up-gradient well (MW-7). The last 16 years of groundwater analytical and field data results indicated the Site groundwater has been consistent and exhibits no significant increasing trends. Of the field parameters evaluated for, only pH has identified as having slightly acidic conditions that have occurred in all monitoring wells, indicative of a larger lower pH trend across the area.

In addition to analyzing groundwater for required constituents of concern (COCs) and field parameters under WAC 173-304, and subsequently WAC 173-200 -Table 1 Appendix 1 COCs, the groundwater was also analyzed for volatile organic compounds.

In August 2001, the Tacoma-Pierce County Health Department (TPCHD) conducted a Site Hazardous Assessment of the Site and determined, based on previous vinyl chloride analytical results that the Site ranking should be adjusted to reflect a more moderate risk (WARM 3).

Since March 2001, no COCs have exceeded their respective MTCA Method A Cleanup Level (CUL) except for vinyl chloride in September 2001. The laboratory analytical results indicated vinyl chloride had a concentration of 0.63 micrograms per liter (µg/L) in MW-10, the MTCA CUL for vinyl chloride during this period was 0.2 µg/L. The analytical results were reported down to a laboratory reporting limit (LRL) of 0.5 µg/L when analyzing and reporting this constituent (Table 1). This LRL did not resolve down to the MTCA CUL and the TPCHD determined that the analytical results were not sufficient to verify compliance from the 2001 to present.

2. **Establishment of cleanup standards.**

The point of compliance (POC) for protection of groundwater was established in the soils throughout the Site. Groundwater COC concentrations must be below the applicable MTCA Method A Groundwater CULs at monitoring wells MW-4, MW-5, MW-7, MW-8, and MW-10 (see Drawing 1).

Ecology has determined you have delineated the full extent of the contamination attributable to the chlorinated solvent contamination at the Site. Ecology determined that the applicable MTCA CULs must be met at the following points of compliance (POCs) at this Site:

Soil – Protection of groundwater: "For soil cleanup levels based on the protection of ground water, the point of compliance shall be established in the soils throughout the site."[2] Since this condition is unknown in the Site source area, Ecology has determined the soil and liner cap must remain and be maintained in a manner that will prevent infiltration of storm water into the Site soil (to be covered under terminating post-closure documentation).

Groundwater – The highest beneficial use for the Site groundwater is potable use; however, it is not likely to be used for potable purposes. MTCA states "The standard point of compliance for the groundwater is established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site."[3] Groundwater monitoring analytical results appear to indicate remedial actions have been successful achieving applicable MTCA Method A Groundwater CULs in a reasonable restoration time frame. Ecology has determined standard points of compliance will be used at the Site. Ecology has determined applicable MTCA Method A CULs have been met at MW-4, MW-5, MW-7, MW-8, and MW-10.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

The physical nature, construction, and purpose of the Site as a landfill precluded most conventional methods of cleanup alternatives. Groundwater monitoring indicated that natural attenuation processes were acting upon the Site groundwater.

4. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site.

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[2] WAC 173-340-740(6)(b)
[3] WAC 173-340-720(8)(b)

Pierce County entered the VCP in 2015 to remove the Site from the HSL which would allow the landfill to petition to terminate post-closure monitoring requirements with TPCHD. Ecology reviewed the available groundwater data and requested that supplemental data analysis be conducted. The analyses requested by Ecology was for polyaromatic hydrocarbons and total metals to determine if other undisclosed waste streams may have been disposed of at the Site.

SCS provided an additional three quarters in 2016 of groundwater analytical results for these COCs; the analytical results indicated all were below their respective MTCA Method A CULs. Additionally, Ecology requested that SCS have their laboratory re-analyze the vinyl chloride data to determine if the data could be further qualitatively resolved down to the laboratory method detection limit (MDL) of 0.1 µg/L. SCS provided confirmation analytical sample results were non-detect down to the method MDL for vinyl chloride using Method 8260B (Attachment 1).

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#SW1490).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me by phone at (360) 407-6392 or e-mail at Eugene.Radcliff@ecy.wa.gov .

Sincerely,

Eugene Radcliff, LG, LHG
W2R Regional Hydrogeologist, SWRO
Waste 2 Resources in concert with Toxics Cleanup Program

GER: kb

Enclosures (4): A – Description and Diagrams of the Site
Figure 1 – Location Map
Drawing 1 – Water Level Map
Table 1 – Results Summary
Attachment 1 – Confirmation Email Correspondence

Certified by Mail: [91 7199 9991 7037 0279 7581]

cc: Mr. Keith Johnston, Tacoma-Pierce County Health Department
Mr. Kevin Lakey, SCS Engineers
Nickolas M. Acklam – Ecology
Matthew Alexander, Ecology
Stacy Galleher, Ecology
Site File

Enclosure A

Description and Diagrams of the Site

Site Description

The Purdy Transfer Station and Purdy Landfill (Site) are located at 14515 54th Ave NW in Gig Harbor, Pierce County, Washington. According to the Pierce County Assessor - Treasurer Webpage (PCAT) the Site is comprised of three tax parcels - 0122134000, 0222183000, and 0222183007. The Site is currently used as a solid waste transfer station operated by LRI. The PCAT Webpage notes the legal description for the parcels as follows:

- **Parcel No. 0122134000[4]:** Land Use Code: 4800-UTILITIES 79.80 acres Section 13 Township 22 Range 01 Quarter 41 E 1/2 OF SE EXC PURDY CRESCENT CO RD ALSO EXC THAT POR DED AS R/W PER AFN 2013-01-11-0290 DC00308160 5/22/13 JP

- **Parcel No. 0222183000[5]:** Land Use Code: 4800-UTILITIES 24.02 acres Section 18 Township 22 Range 02 Quarter 33 LOT 4 LESS E 15 AC LESS RD ALSO EXC THAT POR DED AS R/W PER AFN 2013-01-11-0290 DC00308160 5/22/13 JP

- **Parcel No. 0222183007[6]:** Land Use Code: 4800-UTILITIES 2.07 acres Section 18 Township 22 Range 02 Quarter 32 Section 18 Township 22 Range 02 Quarter 33 : BEG 300 FT E OF SW COR OF LOT 3 TH E 300 FT TH N 300 FT TH W 300 FT TH S 300 FT TO BEG FOR GRAVEL PIT

All three tax parcels have a Land Use Code of 4800-UTILITIES.

The combined area of the Site is approximately 102.86 acres, much of which is undeveloped. The closed landfill encompasses approximately 15 acres and the Site is separated from surrounding developed properties by a buffer of wood lands at least 300 feet on all sides. There is a public Right-of-Way that runs between parcels 0122134000 and 0222183000 and bisects the covered landfill. The Site is situated approximately 300 feet above sea level and the nearest residence to the landfill is approximately 600 feet downgradient to the west. Two storm water ponds lie at the northwestern foot of the landfill; Purdy Creek lies approximately 2,300 feet further to the northwest; and Henderson Bay is approximately 4,120 feet to the west of the landfill. Groundwater under the Site is described to be in the lower of three hydro-geologic units that are comprised of an upper aquifer (dry or perched), a middle confining unit, and a lower aquifer (saturated). Groundwater is described to be moving west towards Henderson Bay. The Site and surrounding residential areas are served by the Peacock Hill [Water] System.

The soils below the eastern footprint of the landfill are comprised mainly of Neilton gravelly loamy sand, and the Harstine gravelly ashy sandy loam on western half of the landfill.

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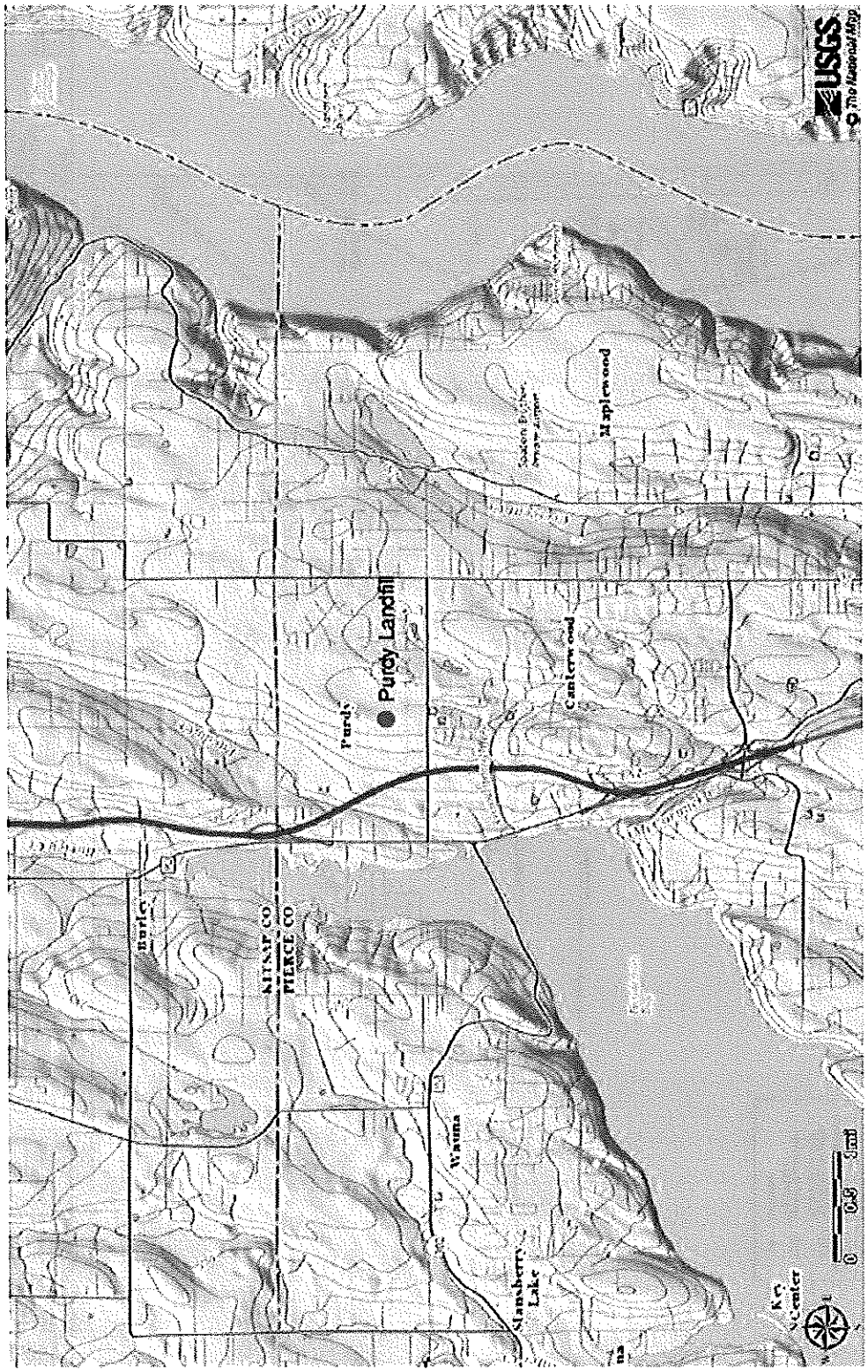
[4] https://epip.co.pierce.wa.us/cfapps/atr/epip/summary.cfm?parcel=0122134000
[5] https://epip.co.pierce.wa.us/cfapps/atr/epip/summary.cfm?parcel=0222183000
[6] https://epip.co.pierce.wa.us/cfapps/atr/epip/summary.cfm?parcel=0222183007

The Neilton sand is derived from glacial outwash material, is described as excessively drained with a saturated hydraulic conductivity (K_{sat}) ranging from 5.95 to 19.98 inches per hour (in/hr), depth to groundwater is usually greater than 80 inches, and is typically formed on slopes of 8 to 25 percent. The Harstine loam is derived from glacial drift material, is described as moderately well drained with a K_{sat} of 0.00 in/hr, depth to groundwater ranges 24 to 37 inches, and typically occurs on slopes of 6 to 15 percent.[7]

[7] https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

Figure 1


Purdy Landfill - Figure 1
NOTES: Data available from U.S. Geological Survey, National Geospatial Program.
Purdy Landfill
KITSAP CO
PIERCE CO
Purdy
Gig Harbor
Maplewood
Canterwood
Wauna
Cranberry Lake
Key Center
0 0.5 1 mi
USGS
The National Map
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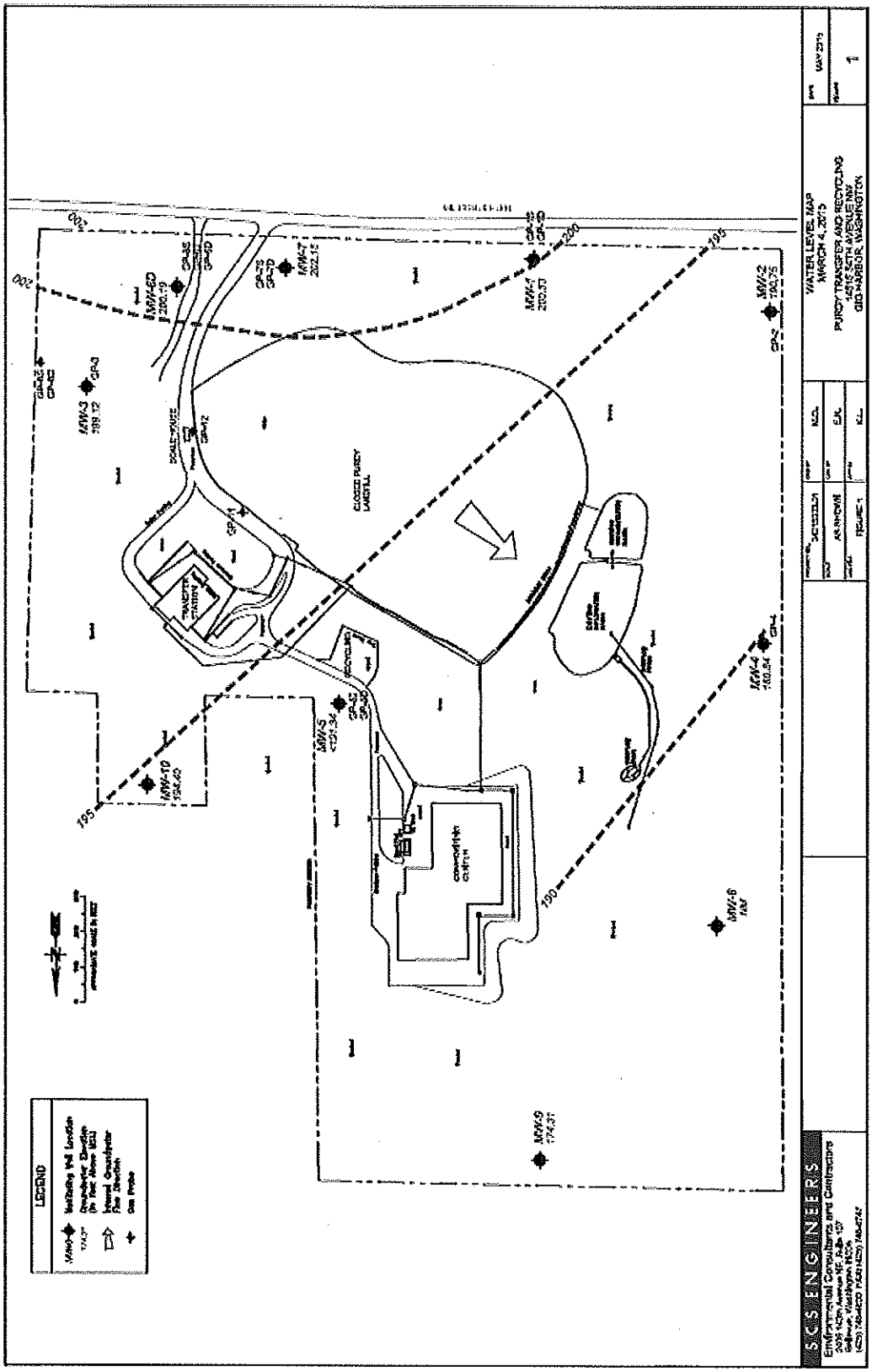
Drawing 1


WATER LEVEL MAP
MARCH 4, 2019
PUROY TRANSFER AND RECYCLING
4015 SEATH AVENUE NW
GIG HARBOR, WASHINGTON
SCS ENGINEERS
LEGEND
CLOSED PUROY LANDFILL
TRANSFER STATION
COMPOSTING
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MW-3
MW-4
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MW-7
MW-8
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MW-4D
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Table 1. Results Summary
Third Quarter 2016 Monitoring Report
Purdy Landfill, Pierce County, Washington

Parameters	MRL	WAC 173-200 Criteria	MW-7 (Background)	MW-4	MW-5	MW-8	MW-10	Field Blank	Trip Blank
Field Measurements									
Well Elevation (ft, MSL)	—	—	313.55	225.55	325.34	223.00	338.23	—	—
Depth to Water (ft)	—	—	108.49	30.41	127.33	30.77	140.38	—	—
Groundwater Elevation (ft, MSL)	—	—	205.06	195.14	198.01	192.23	197.85	—	—
Gallons Purged	—	—	6.9	6.5	1.8	7.9	10.8	—	—
pH (SU)	—	6.5-8.5	6.18	6.09	6.31	6.06	6.17	8.08	—
Specific Conductance (µS/cm)	—	—	175	73	147	79	226	6	—
Temperature (°C)	—	—	12.8	10.5	13.8	11.0	10.7	18.8	—
General Chemistry (mg/L)									
Ammonia as Nitrogen	0.10	—	*	*	*	*	*	*	—
Chemical Oxygen Demand	5.0	—	*	*	*	*	*	*	—
Chloride	0.2-2.0	250	9.5	1.5	3.2	2.3	8.1	*	—
Nitrate as Nitrogen	0.50	10	2.7	*	1.2	0.74	0.55	*	—
Sulfate	0.50	250	8.9	4.0	5.5	3.1	8.6	*	—
Total Organic Carbon	1.0	—	*	*	*	*	*	*	—
Dissolved Metals (mg/L)									
Iron	0.10	0.30	*	*	*	*	*	*	—
Manganese	0.005	0.05	*	*	*	*	0.018	*	—
Zinc	0.01	5.0	0.140	0.066	*	0.087	0.490	*	—
Total Metals (mg/L)									
Arsenic	0.00004	0.00005	0.000139	0.000250	0.000995	0.000237	0.000216	*	—
Cadmium	0.001	0.01	*	*	*	*	*	*	—
Chromium	0.005	0.05	*	*	0.020	*	*	*	—
Lead	0.003	0.05	*	*	0.009	*	*	*	—
Zinc	0.01	5.0	0.290	0.100	0.067	0.170	0.740	*	—
Mercury	0.0002	0.002	*	*	*	*	*	*	—
Polycyclic Aromatic Hydrocarbons (µg/L)									
Benzo[a]anthracene	0.019-0.02	—	*	*	*	*	*	*	—
Benzo[a]pyrene	0.0077-0.008	0.008	*	*	*	*	*	*	—
Benzo[b]fluoranthene	0.019-0.02	—	*	*	*	*	*	*	—
Benzo[k]fluoranthene	0.019-0.02	—	*	*	*	*	*	*	—
Chrysene	0.019-0.02	—	*	*	*	*	*	*	—
Dibenz[a,h]anthracene	0.019-0.02	—	*	*	*	*	*	*	—
Indeno[1,2,3-cd]pyrene	0.019-0.02	—	*	*	*	*	*	*	—
Volatile Organic Compounds (µg/L)									
Methylene Chloride	2.0	—	*	*	*	*	*	*	*

Notes:
WAC 173-200 Groundwater Quality Criteria Exceedances are shown in bold
WAC 173-200 Groundwater Quality Criteria for the metals listed are measured as total metals
Analyses performed by TestAmerica in Denver, Colorado
MRL = method reporting limit
ft, MSL = feet above mean sea level
mg/L = milligrams per liter
µg/L - micrograms per liter
µS/cm = microsiemens per centimeter
°C = degrees Celcius
— = analysis not performed or not applicable
* = analytical result less than the MRL

Attachment 1

Radcliff, Eugene (ECY)

From:	Lakey, Kevin <KLakey@scsengineers.com>
Sent:	Thursday, January 19, 2017 3:59 PM
To:	Radcliff, Eugene (ECY)
Cc:	George Duvendack; 'Jody Snyder' (JodyS@WasteConnections.com); John Rodgers (JohnRo@WasteConnections.com); 'Greg Burrington' (GregBu@WasteConnections.com); Keith Johnston; Rick Johnston (rjohnst@co.pierce.wa.us); Helland, Greg; Venchiarutti, Dan
Subject:	Purdy Landfill Groundwater Results

Hi Eugene,

As we discussed yesterday, the last reported groundwater detection of vinyl chloride at the Purdy Landfill was in September of 2001 at monitoring well MW-10 at a concentration of 0.63 µg/L. Groundwater analytical reports since 2001 have used a method reporting limit (MRL) of 0.50 µg/L. However, the appropriate MTCA Method A groundwater cleanup level for vinyl chloride at the Purdy Landfill is 0.20 µg/L. Therefore, I asked our laboratory manager (Ms. Betsy Sara) at TestAmerica to review the previous four quarters of analytical results for any detections of vinyl chloride above the method detection limit (MDL) of 0.10 µg/L. As you will see below, no detections of vinyl chloride were noted.

During each of the four quarterly monitoring events conducted in 2016, groundwater samples were collected from background well MW-7 and from downgradient wells MW-4, MW-5, MW-8, and MW-10.

Let me know if you have any follow-up questions or need additional information.

Thank you

Kevin

Kevin Lakey, LHG, PE
Vice President
SCS ENGINEERS
425 289-5447 direct
425 681-2189 cell
klakey@scsengineers.com

From: Sara, Betsy [mailto:Betsy.Sara@testamericainc.com]
Sent: Thursday, January 19, 2017 10:10 AM
To: Lakey, Kevin
Subject: RE: Purdy Landfill

Hi Kevin,

The MS VOA Manager confirmed that the samples in the following events were non-detect down to the method detection limit (MDL) of 0.1 ug/L for vinyl chloride Method 8260B:

Lab Report 280-80912-1, issued April 7, 2016

Lab Report 280-84484-1, issued June 30, 2016

Lab Report 280-88759-1, issued October 21, 2016

Lab Report 280-92227-1, issued January 11, 2017

Thanks,
Betsy Sara
betsy.sara@testamericainc.com
303-736-0189

Betsy Sara
Project Manager

TestAmerica Denver
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 303.736.0189
betsy.sara@testamericainc.com
www.testamericainc.com

From: Lakey, Kevin [mailto:KLakey@scsengineers.com]
Sent: Wednesday, January 18, 2017 6:09 PM
To: Sara, Betsy
Subject: Purdy Landfill

Hi Betsy,

Please review the following Purdy Landfill reports for vinyl chloride and give me a call.

Lab Report 280-80912-1, issued April 7, 2016

Lab Report 280-84484-1, issued June 30, 2016

Lab Report 280-80912-1, issued October 21, 2016

Lab Report 280-92227-1, issued January 11, 2017

Thank you

Kevin