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May 7, 2020

Ashley Smith, Capital Project Manager
City of Lacey
420 College St SE
Lacey, WA 98503
acsmith@ci.lacey.wa.us

Re: Further Action at the following Site:

- **Site Name:** Depot District Building
- **Site Address:** 5700 Lacey Blvd SE, Lacey, Thurston County, WA 98503
- **Facility/Site ID:** 12610
- **Cleanup Site ID:** 13135
- **VCP Project ID:** SW1556

Dear Ashley Smith:

On February 12, 2020, the Washington State Department of Ecology (Ecology) received your request for an opinion on the proposed independent cleanup of the Depot District Building (Site). Your submittal, including acceptance of Site data to Ecology's Environmental Information Management (EIM) database, was complete on April 16, 2020. Ecology has decided to proceed with our review prior to acceptance of the Site data into EIM. This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70.105D Revised Code of Washington (RCW).

Issue Presented and Opinion

Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

Ecology appreciates the Site investigation activities you have completed and supports your proposal to excavate remaining petroleum contaminated soils at the Site.[2]

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html
[2] Skillings, *Remedial Investigation Report*, April 9, 2019, Page 27.

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, Washington Administrative Code (WAC) chapter 173-340 (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 currently defined by the nature and extent of contamination associated with the following release:

- Total petroleum hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), and TPH as heavy oil (TPH-O) into the soil, groundwater, and potentially air/vapor.
    - Also associated with the petroleum release appear to be:
        - Benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalenes, polycyclic aromatic hydrocarbons (PAHs, including carcinogenic PAHs [cPAHs]), arsenic and lead into soil and/or groundwater.
        - Barium into the soil and groundwater.
        - Chromium into the soil.

A site description is included as **Enclosure A**. The Depot District warehouse building is located on Thurston County tax parcel 09950013000 (Property). Please note the parcel(s) of real property associated with this Site are also located within the projected boundaries of the Tacoma Smelter Plume facility (FSID #24971643).

At this time, Ecology has no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Tacoma Smelter Plume facility. At this time, we have no information that the parcel(s) associated with this Site are affected by any other sites.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[3] Some site documents may be available on Ecology's Cleanup Site Search web page.[4]

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

[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=13135

Analysis of the Cleanup

Ecology has concluded that **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.

Per Ecology's opinion dated August 19, 2019, certain areas of the Site appear to require no further action.

A vent pipe on the east side of the office portion of the warehouse building indicated the potential for an orphan underground storage tank (UST). GeoEngineers, Inc. (GeoEngineers) oversaw removal of a 500-gallon "light oil" UST in July 1992.[5] No release was detected at the time of the UST removal.

Because of the vent pipe, physical examination of the former UST location was completed on January 22, 2020, including removing soil to access the end of the vent pipe and confirming that the UST had been removed. Soil testing at nine feet below ground surface (bgs) near the former UST location at soil boring 9[6] did not detect any contamination, supporting the 1992 results that a release did not occur associated with the former UST.

Available data suggest that no further action is necessary in the former UST area. However, Ecology does recommend development of a soils management plan for the Property as a whole. This purpose of the plan is to provide a guide for managing contaminated soils, should those be encountered during construction activities.

Remaining Area of Petroleum Contaminated Soils

Initially identified during the 2015 Phase II Environmental Site Assessment (ESA) at the Site, an area of petroleum contaminated soil was identified about 50 feet east of the southeast corner of the warehouse building, under the east parking lot. Well 1, the "source well," is located within the petroleum contaminated soils area. The highest heavy oil concentration in soil, 19,000 milligrams per kilogram (mg/kg), was collected at 8 feet bgs at BR8-7. Figure 3 in Skillings' 2020 *Remedial Investigation Report* depicts the extent of petroleum contaminated soils, as currently known, under the east parking lot (**Enclosure C**).

Cleanup options regarding the remaining area of petroleum contaminated soils are discussed further in section 3, the selection of cleanup action section below.

[5] GeoEngineers' *Phase II Environmental Site Assessment report*, August 25, 1992.
[6] Skillings, *No Further Action Request* for soil borings 8 and 9, April 9, 2019.

Soils Management Plan

Current tentative construction plans indicate that the structures at the Property are likely to be demolished and replaced. Though current data suggests that only one area of contamination remains at the Site, Ecology recommends drafting a soils management plan, in case additional contaminated soils are encountered during construction.

A soils management plan can be a relatively brief document, covering such items as (but not limited to):

- Site introduction and background.
- History of known contamination at the Property and potential sources of contamination. This section could include a brief history of Site investigations as well.
- Release reporting requirements if contaminated soils are encountered.
- Stockpile location on the Property, and how the stockpile will be managed to prevent rain infiltration and stormwater runoff. For instance, placing plastic sheeting beneath and over the contaminated stockpile. Additionally, if a permit is required, aspects of the construction general stormwater permit issued for any construction should be included in the plan.
- Analytical requirements and methods for soil sampled for the stockpile (composite samples) and excavation extents (discrete samples).
- Depending on whether the contamination found is petroleum based or not, how WAC 173-340-900, Table 830-1 sampling requirements would be met.
- The Site is mapped within the less than 20 mg/kg arsenic in soil zone for the Tacoma Smelter Plume (TSP). However, despite the low likelihood of encountering TSP soils, which exceed the MTCA Method A cleanup levels for arsenic and lead, consider what contingencies are necessary should soils high in lead and arsenic be encountered.[7] Additionally, consider contingencies in case contamination is present in association with the old rail line.
- Transportation methods and bill of lading requirements.
- Off-Site disposal location and specific requirements of the permitted disposal facility.
    - Note: The re-use criteria for any petroleum contaminated soils is provided in Section 12 and Table 12.1 of Ecology Publication No. 10-09-57, *Guidance for Remediation of Petroleum Contaminated Sites*, revised June 2016. Any contaminated soils, which do not meet the re-use criteria, must be disposed of at a permitted facility, which is typically a permitted landfill.
- Reporting of final cleanup and construction results to Ecology. This includes estimates of cubic yardage and tonnage disposed of at the permitted facility, supported by disposal facility receipt documentation and scale tickets.

[7] For guidance on managing potential Tacoma Smelter Plume contamination, please see https://fortress.wa.gov/ecy/publications/documents/1909101.pdf

Chromium in Soil

Current chromium concentrations in soil exceed the MTCA Method A screening level for hexavalent chromium, but are less than the MTCA Method A screening level for trivalent (total) chromium. Hexavalent chromium, based on soil testing in March 2019 at four locations, was not detected in Site soils. Trivalent (total) chromium and the 2,000 mg/kg MTCA Method A cleanup level appears to be appropriate to screen results. Additionally, Ecology concurs with the analysis presented that the chromium in soil concentrations are less than the 90th percentile values for background concentrations for the Puget Sound.[8]

Additional testing of chromium in soil does not appear to necessary at this time, unless required based on unexpected field conditions, to satisfy sampling requirements under the soils management plan, required sampling to meet Table 830-1[9] sampling at highly contaminated location(s), or to provide additional data at the request of a permitted facility (landfill) for any potential contaminated soils disposal.

Groundwater Pathway/Monitoring Well Results

Four monitoring wells (1 through 4) have been installed at the Site. Well 1 is closest to the source area, and is considered to be the "source well." Four consecutive quarters of groundwater data were collected in 2019. Groundwater could not be sampled from all monitoring wells for all events, suggesting groundwater at approximately 33-35 feet below top of casing (TOC) is likely perched and discontinuous.

Only the concentration of total lead exceeded the MTCA Method A cleanup level at well 4 during the March 2019 sampling event and in well 3 during the third quarter 2019 sampling event. Where groundwater samples could be collected, no other Site hazardous substances exceeded the applicable MTCA cleanup (screening) level.

Concentrations of gasoline and diesel range organics in groundwater were less than their respective MTCA Method A cleanup levels, and heavy oil has not been detected in groundwater. As the Site is within the six-month travel time frame for at least three nearby domestic supply wells, we want to ensure that drinking water supplies are protected.

For reference, copies of the well logs for the supply water wells within ½ mile of the Site are included as **Enclosure D**. For these potential supply wells, the top of the intake screen ranges from 77 feet below TOC to 430 feet below TOC (the City of Lacey supply well), so contamination of any these wells from the current disposition of petroleum contaminated soils at the Site is low.

[8] Ecology Publication #94-115, Natural Background Soil Metals Concentrations in Washington State, October 1994.
[9] WAC 173-340-900

Comments about Site Groundwater Monitoring:

1) Thank you for your extensive groundwater testing. These results are critical to demonstrate that water supplies near the Site are protected. Only lead in groundwater has been detected in the shallow water-bearing zone, and no Site hazardous substances have been detected in deeper groundwater bearing zones.

    - **Temporarily, you could reduce quarterly groundwater monitoring to total and dissolved metals for barium and lead. This could be done until the original wells are decommissioned or construction begins.** For reference, Ecology includes supply well logs within ½ mile of the Site as Enclosure D.

2) For all data tables, Ecology requests using the laboratory reporting limit for a concentration that was not detected (e.g., <0.1), rather than "nd."

3) Based on the newly available groundwater data, Ecology recommends that all future groundwater sampling should include total and dissolved metals (including arsenic, barium, and lead) at all sampling points (whether temporary or permanent monitoring wells).

4) Groundwater has only been present in well 4 in March 2019, and dry the other three quarters.

    - Well 4 would likely be destroyed by any construction plans (being the closest to the warehouse building). Therefore, Ecology suggests decommissioning well 4 in accordance with WAC 173-160. A licensed driller[10] must be used to decommission any monitoring well.

5) Confirm the groundwater flow direction and gradient for each sampling event in 2019. Calculate these items, and provide figures showing the results and groundwater elevation contours.

6) If excavation is chosen as the action/proposed cleanup action for the petroleum contaminated soil in the source area, well 1, the source monitoring well, should be decommissioned. Decommissioning would occur in the same manner as at well 4.

7) If it appears that construction plans may damage or destroy any of the remaining monitoring wells at the Site, then decommissioning these wells is appropriate.

8) Based on groundwater data collected, a longer screen interval for any future monitoring well appears appropriate. Based on the apparent discontinuous nature of Site groundwater, Ecology may accept longer screen lengths (e.g., up to 20 foot screens) for any future monitoring well at the Site to keep them from going dry, based on field conditions at time of installation.

[10] Chapter 18.104 RCW and WAC 173-160-381.

However, boreholes cannot connect different aquifers per WAC 173-160. If connecting aquifers is a possibility, then two separate monitoring wells, screened in each aquifer, should be completed.

9) To the extent practicable, demonstrate that concentrations of Site hazardous substances are less than applicable cleanup levels at the appropriate proposed point of compliance. Once completed, sufficient post-remedial groundwater data will need to be collected to confirm that no residual lead contamination (or other Site hazardous substances in groundwater, if applicable) remains. Depending on the cleanup action selected, it may not be necessary to re-install all four groundwater monitoring wells.

Air/Vapor Pathway

This pathway is potentially complete. In previous Ecology opinions, a Tier I evaluation has been recommended, as described in section 3.1 of Ecology Publication No. 09-09-047, *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*.[11] Evaluation of the air/vapor pathway is required per WAC 173-340-740, given the diesel extended range organics (which is diesel and heavy oil range organics) concentration in soil at least at the B8-7 location is over 10,000 mg/kg.

Please confirm whether the warehouse building is currently vacant. Groundwater data shows that a vapor intrusion risk from available data is unlikely, though additional evaluation may be needed. If contamination is present or remains in soil after cleanup within 100 feet of any current or future building, please consider the following:

Options for Addressing the Air/Vapor Pathway Process Going Forward:

1) If an excavation to remove contaminated soils is completed and if concentrations of Site hazardous substances are less than the applicable cleanup levels in soil and groundwater, then the vapor pathway is more likely than not incomplete. Please see section 5.2 in Ecology Publication No. 17-09-043, *Petroleum Vapor Intrusion (PVI): Updated Screening Levels, and Assessing PVI Threats and Future Buildings*, revised January 2018.[12]

2) Collect sufficient soil vapor and indoor air samples to demonstrate that no risk is present. Analytical results could be screened against the MTCA Method B vapor intrusion and indoor air screening levels at: https://www.ezview.wa.gov/Portals/_1987/Documents/Documents/CLARC_VI_MethodB.pdf

    a. These data could be collected before or after any interim action at the Site.

[11] Revised February 2016. Available at: https://fortress.wa.gov/ecy/publications/SummaryPages/0909047.html
[12] https://fortress.wa.gov/ecy/publications/documents/1709043.pdf

3) Rule out a vapor intrusion risk by distance from the residual contamination to an existing building or a new structure. Typically this a 100 foot exclusion zone of buildings from any contamination exceeding the MTCA cleanup levels, but the exclusion zone can be as little as 30 feet, should certain criteria be met.

    a. See Ecology Publication No. 16-09-046, Implementation Memorandum No. 14: *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion*, March 31, 2016.

    b. Currently, it is Ecology's opinion that an exclusion from the contamination to the existing warehouse building to rule out any vapor intrusion risk requires more evaluation.

    c. Future renovation or building construction plans and/or removal of contaminated soils might alter the distance from any remaining contaminated soils and the Site structure (potentially structures if future building[s]).

    d. After cleanup, any residual remaining concentrations of Site hazardous substances in soil may be far enough away from any building at the Property to no longer pose a risk. Soil sampling data collected from any excavation or other cleanup remedy implemented would be needed to determine whether a 30-foot or 100-foot exclusion zone is appropriate.

Ecological Pathway

Ecology concurred with the proposed simplified TEE exemption from further terrestrial ecological evaluation (TEE) in our opinion dated August 19, 2019.

Data Submittal

As required as part of a complete request for opinion,[13] Site data collected to date appear to have been uploaded to EIM. The most recent Site data were accepted by Ecology on April 16, 2020.

Reporting and Licensed Professional Seal

Ecology appreciates the detailed report that is Skillings' *Remedial Investigation Report.*[14] However, it does not appear that the report was submitted under seal of a Washington State licensed professional. In accordance with chapters 18.43 and 18.220 RCW, please provide the sealed signature page for the *Remedial Investigation Report* and ensure that applicable future reports are submitted under appropriate seal. Ecology previously commented on the sealing of reports in section three, page 12 of our August 19, 2019, opinion.

[13] https://www.ecy.wa.gov/vcp
[14] February 13, 2020.

2. Establishment of Cleanup Standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site likely meet the substantive requirements of MTCA. Though cleanup levels have been used as screening levels to date, the most stringent MTCA Method A and MTCA Method B cleanup levels will likely be the Site cleanup levels.

Cleanup Standards: Under MTCA, cleanup standards consist of three primary components; (a) points of compliance,[15] (b) cleanup levels,[16] and (c) applicable state and federal laws.[17] Ecology presents a table of cleanup levels of detected Site hazardous substances to screen analytical data to date.

The final cleanup levels may be adjusted depending on if new data determine this is necessary. Additionally, air/soil vapor cleanup levels may be necessary, depending on the interim action results and final construction details. Final cleanup levels will need to be proposed to Ecology, and we will have to concur with them,[18] before issuing any no further action determination.

Hazardous Substance	MTCA Cleanup Level	Soil Cleanup Level[19] (mg/kg)	Groundwater Cleanup Level (µg/L)
TPH as gasoline	A/A	30	800
TPH as diesel and heavy oil	A/A	2,000	500
Benzene	A/A	0.03	5
Toluene	A/A	7	1,000
Ethylbenzene	A/A	6	700
Total Xylenes	A/A	9	1,000
Naphthalenes	A/A	5	160
Arsenic	A	20	5
Barium	B/B	160	2,000
Chromium	A	2,000	50
Lead	A	250	15
cPAHs (Benzo[a]pyrene)	A	0.1	0.1

a. **Points of Compliance.** Points of compliance are the specific locations at the Site where cleanup levels must be attained. Standard points of compliance are likely appropriate for your Site. If a conditional point of compliance is appropriate for your Site, it must be supported per the requirements under WAC 173-340-720(8) and WAC 173-340-740(6).

[15] WAC 173-340-200 “Point of Compliance.”
[16] WAC 173-340-200 “Cleanup level.”
[17] WAC 173-340-200 “Applicable state and federal laws,” WAC 173-340-700(3)(c).
[18] WAC 173-340-515(3).
[19] More stringent of protection of groundwater or direct contact.

For clarity, Ecology provides the following table of standard points of compliance:

Media	Points of Compliance
Soil-Direct Contact	Based on human exposure via direct contact, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[20]
Soil- Protection of Groundwater	Based on the protection of groundwater, the standard point of compliance is throughout the Site.[21]
Soil-Protection of Plants, Animals, and Soil Biota	Based on ecological protection, the standard point of compliance is throughout the Site from ground surface to fifteen feet below the ground surface.[22] • *Not required at your Site. Ecological pathway evaluation exempt based on simplified TEE results.*
Groundwater	Based on the protection of groundwater quality, the standard point of compliance is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.[23]
Groundwater-Surface Water Protection	Based on the protection of surface water, the standard point of compliance is all locations where hazardous substances are released to surface water.[24] • *Not present at your Site. This is an incomplete pathway and requires no additional evaluation.*
Air Quality	Based on the protection of air quality, the point of compliance is indoor and ambient air throughout the Site.[25]
Sediment	Based on the protection of sediment quality, compliance with the requirements of WAC 173-204.[26] • *Not present at your Site. This is an incomplete pathway and requires no additional evaluation.*

b. **<u>Cleanup Levels.</u>** Cleanup levels are the concentrations of a hazardous substance in soil, water, air, or sediment that are determined to be protective of human health and the environment. Detections of cadmium and mercury during the third quarter 2019 sampling event were more likely than not the result of sample turbidity and low water levels in the monitoring wells that were sampled, as these analytes were not detected in either of the two previous sampling events. At this Site, MTCA Method A and Method B unrestricted cleanup screening levels have been used to screen analytical results at the Site.

The most stringent MTCA Method A and B cleanup levels will likely be appropriate as final cleanup for those hazardous substances detected at the Site. Where Site hazardous substances have been detected in groundwater, soil cleanup levels protective of the leaching to groundwater pathway, and not the direct contact pathway, are more likely to be appropriate. MTCA Method A cleanup levels are protective of the soil leaching to groundwater and the direct contact pathways.

[20] WAC 173-340-740 (6)(d).
[21] WAC 173-340-747.
[22] WAC 173-340-7490(4)(b).
[23] WAC 173-340-720(8)(b).
[24] WAC 173-340-730(6).
[25] WAC 173-340-750(6).
[26] WAC 173-340-760.

Cleanup levels for soil under MTCA Method B protective of the direct contact pathway should be considered for all Site hazardous substances, but will typically only be applicable for those substances that have not been detected in groundwater. For the MTCA Method B cleanup levels please see Ecology's Cleanup Levels and Risk Calculation (CLARC) tables.[27]

c. Applicable Laws and Regulations. For the remedial investigation, please identify all applicable local, state, and federal laws for the cleanup action.[28] This requirement may impact cleanup standards applicable to the Site. An example might be Safe Drinking Water Act[29] requirement for a maximum contaminant level (MCL) which is less than the calculated MTCA Method B cleanup value. For example, barium in groundwater has a MCL, which is less than the MTCA Method B non-cancer cleanup value in Ecology's CLARC tables.

3. Selection of Cleanup Action.

Ecology Comments on Potential Cleanup Actions:

1) **Option 1:** Excavation with off-Site disposal has been discussed as one way to address the petroleum contaminated soils under the east parking lot. [30] Based on experience at similar petroleum cleanup sites, excavation with off-Site disposal is likely the best option to clean up the Site and achieve a no further action determination.

   a. This cleanup action could be completed as an interim action[31] in lieu of completing a feasibility study[32] (FS) and disproportionate cost analysis (DCA). To meet construction timelines, completion of any environmentally related excavation should probably be completed as an interim action.

   b. Excavation and off-Site disposal had been historically scoped for the project by the previous Property owner.

   c. Ecology has previously discussed excavation to remove contamination down to 15 feet bgs, which is the direct contact point of compliance for soil. As Site hazardous substances have been detected in groundwater (including lead, which twice exceeded the MTCA Method A cleanup level), Ecology supports a more conservative cleanup protective of the leaching pathway from soil to groundwater.

      Contamination present in soil at deeper than 15 feet bgs should be removed to the maximum extent practicable. Based on the sampling results at BR7-16 (at 16 feet bgs), the maximum depth of excavation would likely be about 17 feet bgs, however, field conditions would determine the total anticipated depth.

[27] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables
[28] WAC 173-340-710(2).
[29] 40 CFR 141.
[30] Skillings, *Remedial Investigation Report*, April 9, 2019, Page 27.
[31] WAC 173-340-430.
[32] WAC 173-340-350.

d. Ecology recommends use of a photoionization detector (PID) in the field to screen any soil sampling locations, and recording all values obtained.

e. Excavation sampling would need to include sidewalls, bottom, and at any location with remaining contamination which is inaccessible and cannot be removed because of conflicts with utilities, structures, or other impediments. Taking pictures of all sampling locations and the excavation in general is recommended.

f. By working with the laboratory in advance, 24-hour turn around soil sampling results should be possible to quickly provide data to guide any excavation, and reduce time that the excavation is open before backfilling.

g. If some contamination remains after excavation, a polishing amendment (chemical, biological, or perhaps both) could be placed in the base of the excavation to help degrade contaminants over time. Questions about individual amendments and their use and benefits should be directed to the vendor who supplies the proposed amendment.

h. Re-use of any apparently uncontaminated soils removed during the excavation should follow section 12 and Table 12.1 in Ecology Publication No. 10-09-57, *Guidance for Remediation of Petroleum Contaminated Sites*, revised June 2016. Please note that re-use of soils from an environmental perspective does not necessarily mean that the soils are sufficient or stable enough for re-use from a geotechnical perspective. Please review any geotechnical or other construction-specific requirements with experts within the City of Lacey, your consultant, and/or contractor(s) as appropriate.

i. Details regarding the scoping of any excavation and off-Site soil disposal should be worked out with your consultant and contractor(s). Some specifications and requirements may be specific to the City of Lacey's construction procedures.

j. Though this list is not meant to be exhaustive, and is technical assistance only, generally, some items to consider for any excavation are:

- Utility locating and markouts.
- Health and Safety requirements.[33]
- Project area access control, security, and fencing.
- Protecting any monitoring wells that have not been nor will be decommissioned.
- Geotechnical evaluation for soil stability and shoring.
- Traffic control.
- Meeting backfill and compaction specifications (which may include nuclear gauge testing results).

[33] WAC 173-340-

- Asphalt removal and re-paving.
- Excavation dewatering and water disposal.
- On-Site stockpile management and sampling.
- Transportation of contaminated soils.
- Bills of lading and landfill selection and profile.
- Final reporting.

k. Ecology recommends, at the excavation sample location with the greatest concentration of heavy oil in soil, sampling for:

- Table 830-1,[34] all analytes in the waste oil/unknown oil column, phenols,[35] volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), n-hexane, and naphthalenes.

l. If an excavation is completed and contaminated soils remain in an inaccessible location, such as under a retaining wall or extend into a utility corridor or under Lacey Boulevard, these soils will have to be delineated and further characterized per WAC 173-340-350(7). Once any residual contamination is characterized and delineated, it may still be possible to close the Site using institutional controls,[36] an environmental covenant, and applicable long-term monitoring plans.

m. Though it is possible that an excavation would not require as much soil to be removed if a conservative scope is used, it is also possible that more contamination than expected will be found. Any excavation plan should consider contingencies where more contaminated soils than expected are found.

2) **Option 2:** Complete an FS/DCA and select another cleanup option which may or may not include excavation as a component of that cleanup. Ecology generally recommended[37] against in-situ chemical injection treatment at the Site, based on concerns to mobilize additional contamination in soil down to the groundwater table. Given the close proximity of domestic supply wells, Ecology still maintains this opinion. Bioremediation options for cleanup of the petroleum contaminated soil, based on the data to date, may be acceptable.

3) **Option 3:** Propose another cleanup alternative, supported by sufficient Site data and regulation that will meet Site cleanup levels at standard points of compliance. Ecology would have to concur with the proposed alternative.[38]

4) As this is an independent cleanup at an unranked Site, a 30-day public notice and comment period for any no further action issued is not required.

[34] WAC 173-340-900
[35] Phenols and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are different compounds.
[36] WAC 173-340-440.
[37] See pp. 13-14 in Ecology opinion letter dated August 19, 2019.
[38] Per concurrence with WAC 173-340-515(3).

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.

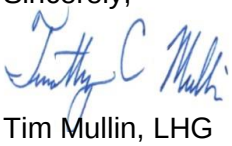
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.
See RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program web site.[39] If you have any questions about this opinion, please contact me at (360) 407-6265 or tim.mullin@ecy.wa.gov.

Sincerely,



Tim Mullin, LHG
Toxics Cleanup Program
Southwest Regional Office

TCM: tam

Enclosure: A – Site Description
B – Documents List
C – Skillings Figure 3
D – Summary of Water Well Logs

cc by email: Patrick Skillings, Skillings, Inc., pskillings@skillings.com
Frank Stevick, Skillings, Inc., fstevick@skillings.com
Nicholas Acklam, Ecology, nicholas.acklam@ecy.wa.gov
Ecology Site File

[39] https://www.ecy.wa.gov/vcp

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Enclosure A

Site Description

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Site Description

The Depot District Building is located at 5700 Lacey Blvd SE, Lacey, Thurston County, Washington. The Property lot is approximately 1.01 acres in size, and assigned Thurston County tax parcel number 09950013000. The abbreviated legal description from the Thurston County Assessor's website is: Section 21 Township 18 Range 1W Donation Land Claim WOOD, ISAAC #39 DLC BLA-6230 TR B Document 013/121 (S PAC H/W & N LACEY BLVD) and the zoning is commercial business district.

The Property is currently occupied by a vacant warehouse with an attached office area. The warehouse was previously the operational office and finishing area for the former Lacey Plywood Company, and was more recently used as a carpet sales and distribution center. The former Lacey Plywood Company Site, located on the adjacent parcel (Thurston County tax parcel number 37520000200) is a separate cleanup Site (CSID: 4094). The former Lacey Plywood Company entered into VCP as SW0086, and received a status of No Further Action on December 9, 2002.

The Property elevation is approximately 175 feet above mean sea level and the Property topography is flat. Groundwater flow direction remains to be calculated, but regionally flows to approximately the east-northeast. Site lithology to the maximum depth explored of 90 feet bgs is sands, silts, and gravels, consistent with glacial outwash/till. Site depth to groundwater appears to occur in up to three separate water bearing units, at approximately 35 feet, 56 feet, and 90 feet bgs. Based on soils data collected to date, one area of petroleum contaminated soils remains at the Site, beneath the east parking lot.

The Property is believed to be currently serviced by public water and sewer. Woodland Creek is the nearest surface water, located approximately ½ mile northeast of the Site. The source of the release is unknown.

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Enclosure B

Documents List

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Documents List

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

1. Skillings, Inc. (Skillings), *Remedial Investigation Report*, February 13, 2020.

2. Skillings-Connolly, *Preliminary Monitoring Well Results and Terrestrial Ecological Evaluation*, Memo 3, April 19, 2019.

3. Skillings-Connolly, *No further Action Request for soil borings 8 and 9*, April 9, 2019.

4. Skillings-Connolly, *No further Action Request for Soil Borings 10, 11, 12, 13, and 14*, April 8, 2019.

5. Skillings-Connolly, *Work Plan for Additional Sub-surface Investigation Version 2.0,* November 2, 2018.

6. Skillings-Connolly, *Work Plan for Additional Sub-surface Investigation,* August 16, 2017.

7. Email correspondence between City of Lacey and Ecology, May 3, 2017.

8. Ecology, Re: Notes from meeting between City of Lacey, Skillings-Connolly, and Ecology on April 25, 2017.

9. Skillings-Connolly, *Re: 5700 Lacey Boulevard SE – Soil Analysis and Ground Water Analysis*, February 22, 2015.

10. Stemen Environmental, *Quartly* [sic] *Groundwater Monitoring Report*, September 18, 2002. Includes data for September 3, 2002, groundwater monitoring event.[40]

11. Stemen Environmental, *Quartly* [sic] *Groundwater Monitoring Report*, September 18, 2002. Includes data for June 18, 2002, groundwater monitoring event.

12. Letter from ACL EnviroManagement, LLC to Bradley B. Jones, Attorney at Law, Re: Conversation with Mr. Dave Pearsall, December 1, 1997.

13. Letter from ACL EnviroManagement, LLC to Bradley B. Jones, Attorney at Law, Re: Department of Ecology File Review, August 28, 1997.

14. Letter from Charles F. Pitz of Ecology to Michael Peterson, PCD Management & Consulting, Re: Former Lacey Plywood Site, June 23, 1997.

15. Letter from Michael Peterson, PCD Management & Consulting to Michael J. Spencer, Department of Ecology, No subject, May 27, 1997.

16. Letter from Jean Carr, City of Lacey to Charles Pitz of Ecology, Re: Former Lacey Plywood, April 17, 1997.

[40] The reports listed covering the September 2002 and June 2002 groundwater monitoring events for SW0086 are separate monitoring events but the reports are dated with the same publication date, September 18, 2002.

17. Letter from Charles Pitz of Ecology to Stephen Dean, Prudential Cornerstone, Inc. Realtors, April 16, 1997.

18. City of Lacey internal communication, Re: Lacey Plywood Site Remediation Project, March 26, 1997.

19. Geotech Consultants (Geotech)*, Environmental Cleanup One Acre Site*, December 31, 1992.

20. Geotech, *Phase 2 Subsurface Exploration One-Acre Site*, December 15, 1992.

21. Geotech, *Phase I Environmental Audit One-Acre Site*, October 26, 1992.

22. GeoEngineers, Inc., *Phase IIA Environmental Site Assessment*, August 25, 1992.

23. Parametrix, Inc., *Phase One Environmental Site Assessment Report*, October 1990.

Enclosure C

Skillings Figure 3

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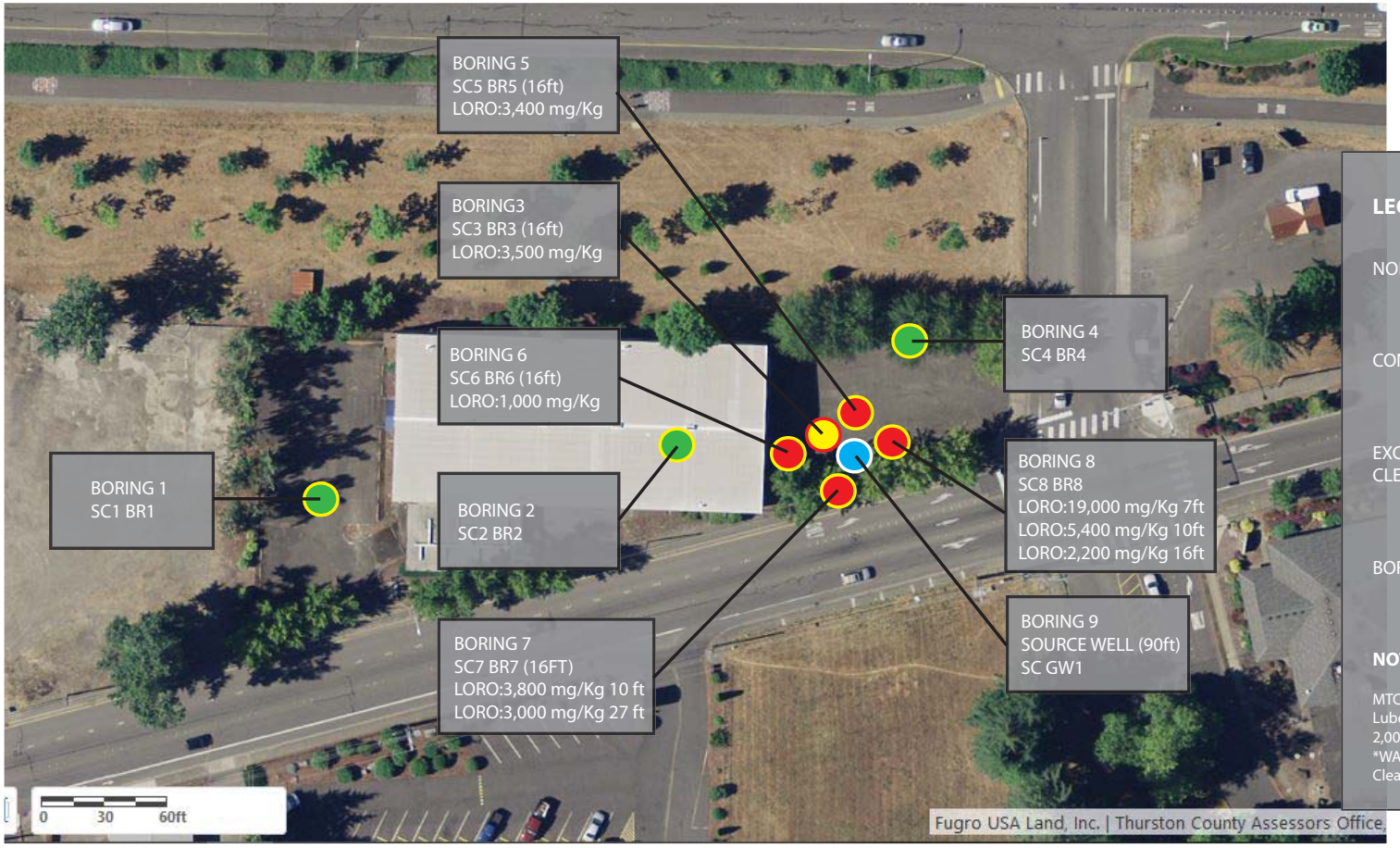
Depot District Building



NOTES:

SCX AND BRX: LAB SAMPLE IDENTIFICATION CODES
FT: INDICATES FEET (FT) BELOW GROUND SURFACE
SC GW1: SOURCE WELL (SC) AND GROUNDWATER WELL (GW) NUMBER 1.
NO SOIL OR WATER CONTAMINATION WAS DETECTED IN BORING 9 OR GW1.

SKILLINGS

5700 LACEY BLVD SE, LACEY WA 98503
PARCEL #09950013000
LAT47.036402 N / LONG -122.809304 W

FIGURE 3
RESULTS OF 2015 SKILLINGS REMEDIAL INVESTIGATION

JOB NUMBER 18262
SHEET
OF
SHEETS

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Enclosure D

Summary of Water Well Logs

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File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

W [10 / 1 / 5] E

Application No. G2-24357
Permit No. ....

(1) OWNER: Name City of Lacey Address

(2) LOCATION OF WELL: County Thurston NW¼ NE¼ Sec. 21 T. 18 N., R. 1 W.M.
Bearing and distance from section or subdivision corner 1500' WEST AND 700' SOUTH FROM NE COR. SEC. 21

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one).... Lots
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☒ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12 inches.
Drilled 488 ft. Depth of completed well 479' ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 12" Diam. from 0 ft. to 430' ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☒ ____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Model No.
Diam. 8 Slot size 80 from 430.4½ to 481.5½
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Tuscino Sand
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 50' ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

PUMP: Manufacturer's Name Jacuzzi
Type: Turbine H.P. 200

(7) WATER LEVELS: Land-surface elevation above mean sea level.... ft
52.5 feet 4' 6" ft. below top of well Date 8-14-76
Artesian pressure ____ lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(8) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Kinsey
1 gal./min. with ____ ft. drawdown after ____ hrs.
" 500 " To 134'5" " 4 "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
	None				

Date of test
Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Artesian flow ____ g.p.m. Date
Temperature of water ____ Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG: SEC. 21

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Kinsey Well Piles City Lacey #410	0	300
Brown Fine Silty Sand	300	325
Gray Fine To Medium Silty Sand	325	355
Gray Fine Silt	355	365
Gray Medium Sand	365	367
Gray Medium Dirty Sand	367	374
Gray Med. Fine Silty Sand wood	374	380
Gray Med Fine Sand Small Gravel	380	382
Gray Medium Sand	382	398
Gray Fine Med Sand Small Gravel	398	405
Gray Fine Med Silty Sand Wood	405	419
Gray Fine Med Sand Small Gravel	419	423
Gray Small Med. Gravel and Sand	423	437
Gray Coarse Med Sand Some Gravel	437	461
Gray Med, Small Gravel Large Sand	461	465
Gray Med Sand Gravel	465	467
Gray Fine Med Sand	467	469
Gray Medium Sand and Gravel	469	473
Gray Med Gravel Sand Very Good	473	476
Gray Fine Med Sand Gravel	476	481
Gray Fine Med Sand Little Gravel	481	483
Gray Fine Med Silty Sand	483	488

RECEIVED
OCT 28 1976
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started ____ 19____ Completed ____ 19____

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Kinsey Hardware
(Person, firm, or corporation) (Type or print)

Address 512 East 4th Ave Olym

[Signed] Rod Kinsey
(Well Driller)

License No. C-65 Date 8-14-, 1976

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

OK mp 1/0477

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

N / W / E

Application No. .....
Permit No. .....

(1) OWNER: Name Dave Lindley Address 6106 16th Ave. Lacey, WA.

(2) LOCATION OF WELL: County Thurston — NE ¼ NE ¼ Sec. 21 T. 18 N., R. 1 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #1
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☒ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8" inches.
Drilled 339 ft. Depth of completed well 339' 7⅞" ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8" Diam. from 185' 7¼" to 324' 4⅜"
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☒ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless Model No.
Diam. 8 Slot size 50-60 from 324' 4⅜" to 339' 7⅞"
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 15 approx ft. below top of well Date
Artesian pressure ... lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Kincy
Yield: 300 gal./min. with 40 ft. drawdown after 4 hrs.
" " " to " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
	None				

Date of test
Bailer test ... gal./min. with ... ft. drawdown after ... hrs.
Artesian flow ... g.p.m. Date
Temperature of water ... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Loose gravel	185'7¼	204
Med. gray sand - 5% gravel	204	208
Fine dirty gray sand	208	222
Med. clean gray sand - loose	222	230
Med sand 1% small gravel	230	244
Medium gray sand	244	263
Fine gray sand - woody	263	288
Medium gray sand	288	295
Coarse Sand	295	313
Coarse Sand - 5% "Loose"	313	327
Coarse Sand - 50% gravel	327	339
Medium Sand	339	

RECEIVED
JUL 15 1977
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started ..., 19... Completed ..., 19...

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Kincy Hardware, Inc (Person, firm, or corporation) (Type or print)
Address 512 E 4th. Ave. Olympia
[Signed] Keith Kincy (Well Driller)
License No. C 65 Date June 13, 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name MR JACK SPROUT Address PACIFIC AVE SE OLYMPIA

(2) LOCATION OF WELL: County THURSTON — ¼ NW ¼ Sec [redacted] T. 18 N., R. 1W W.M.
Bearing and distance from section or subdivision corner 22

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 99 ft. Depth of completed well 99 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from .... ft. to .... ft.
Threaded ☐ ..." Diam. from .... ft. to .... ft.
Welded ☒ 6" Diam. from 0 ft. to 95 ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations .... in. by .... in.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.

Screens: Yes ☒ No ☐
Manufacturer's Name JOHNSON
Type .... Model No. ....
Diam. 6 Slot size 15 from 95 ft. to 99 ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name F & W
Type: SUB H.P. 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 10 ft. below top of well Date 4/85
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? TIMS
Yield: gal./min. with .... ft. drawdown after .... hrs.
" 38 gpm to " 68' "
" " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test .... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sandy loam - clay	0	4
Sandy clay	4	12
Sand - w/ clay	12	18
Soupy Sand - Brown	18	28
Sand + clay	28	34
Sand - w/ clay	34	39
Soupy Sand	39	51
Silty Heaving Sand (FINE)	51	85
WB Sand - clean 95-99	85	99

RECEIVED APR 15 1985 DEPARTMENT OF ECOLOGY

Work started 3, 19 85 Completed 3, 19 85

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME TIMS WELL DRILLING (Person, firm, or corporation) (Type or print)
Address 6906 33RD AVE SE LACEY
[Signed] [signature] (Well Driller)
License No. 0832 Date 4/15, 1985

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Well Tagging Form

PWS ID #: 03007T **Source #:** S01

Unique Well Tag No: AEJ 187

RECORD VERIFICATION (check ✓ one)

- [x] Well Report available *(please attach this form to the well report and submit it to the Ecology Regional Office near you)*
- [ ] Verification inconclusive
- [ ] Well Report not available

PUBLIC WATER SYSTEM INFORMATION

Water System Name Sprouts Water System c/o Jack Sprout

Street Address 6415 Pacific Ave SE.

City Lacey State WA 98503

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address: _____

City _____ County _____

T 18 N R 01 W WM Sec 22 NE 1/4 of the NW

FOR AGENCY USE ONLY

Latitude _____ ° _____ ' _____ "

Longitude _____ ° _____ ' _____ "

- [ ] GPS
- [ ] Topographic Map
- [ ] Survey
- [ ] Computer generated

Elevation at land surface _____ feet/meters *(circle one)*

- [ ] Digital Altimeter
- [ ] Topographic Map
- [ ] Other _____

Additional information, if available.

- [ ] Location marked on topographic map *(please attach)*
- [x] Location marked on air photo *(please attach)*

FOR AGENCY USE ONLY

WELL CHARACTERISTICS

Physical Description of well (size of casing type of well housing etc)

6" casing just out side of pumphouse

Location of Well Identification Tag

Banded on well casing

Was supplemental tag needed for ease of identifying well? ☐ Yes ☒ No

If yes where was tag placed?

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Scale 1 24 000 (1 =2 000')

Indicate the location of the well within the Section by drawing a dot at that poi

SECTION 22C

COMMENTS

FOR ECOLOGY WATER RESOURCES PROGRAM ONLY

Water Right # Date Issued

Circle One Application Permit Certificate Claim Exempt

Well #3

WATER WELL REPORT

STATE OF WASHINGTON

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

Start Card No. 068103

Water Right Permit No. _____

(1) OWNER: Name St Martin's Abbey Address Lacey, Wash 98503

(2) LOCATION OF WELL: County Thurston SE ¼ SW ¼ Sec 16 T 18 N., R 01 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 2500' ft E & 600' N of S.W. corner 16

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) Well #3

Abandoned ☐ New well ☑ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☑ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12 inches. Drilled _____ feet. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam. from 0 ft. to 210 ft.
Welded ☑ Liner installed ☐ Threaded ☐
_____ " Diam. from _____ ft. to _____ ft.
_____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☑
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☑ No ☐
Manufacturer's Name Tacoma Stainless Steel
Type Stainless steel Model No. _____
Diam. 6" p.s. Slot size 80 from 175 ft. to 190' ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☑ No ☐ Size of gravel Peagravel 8x90
Gravel placed from 193 ft. to 169 ft.

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal bentonite grout
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level approx 120 ft.
Static level 53 ft. below top of well Date 5/13/91
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☑ No ☐ If yes, by whom? Hokkaido Drilling & Dew Corp.
Yield: 70 gal./min. with 105 ft. drawdown after 4 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
Full recovery after 1 hr.					

Date of test 5/14/91
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Tight brown cemented sand & gravel.	0	22'
Silty sand & gravel, trace of clay	22'	38'
Brown silty sand	38	78
Clean fine to course sand	78'	89'
fine to medium sand w/ trace of gravel	89'	100'
Brown silty sand	100'	174
waterbearing sand & gravel w/ layers of brown silty clay	174'	188'
gravelly fine to med. sand	188	191'
Fine to medium silty sand	191'	200'
Brown silt	200'	202'
Brown silty gravelly sand	202'	210'

Work started _____, 19. Completed _____, 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Hokkaido Drilling & Dew Corp. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 100 Graham Wa

(Signed) Bill Dodge (WELL DRILLER) License No. 1146

Contractor's Registration No. HOKKADD778D3 Date 3/13/92, 19 92

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Decla. #1047
Cert. #961-D

Date 1930, 19

Record by Maxwell W. Oakes

Source G. W. Decla. Claim

Location: State of WASHINGTON

County Thurston

Area

Map

SE ¼ SE ¼ sec. 16 T. 18 N., R. 1 E. W.

DIAGRAM OF SECTION

Drilling Co.

Address

Method of Drilling drilled Date 19

Owner Thurston County Water Dist. no. 1

Address Lacey, Wash.

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	no record		
Pump	Test:		
	Dim: 135' x 6"		
	SWL: 20'		
	Dd: 30'.		
	Yield: 90 g.p.m. (Claim)		
	Casing: 6" dia. from 0' to 134'.		
	Pump: Turbine		
	Motor: 5 hp		
	SWL R 38 3/12/56		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up

Sheet of sheets

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. **W062075**
Unique Well I.D. # **ABY186**
Water Right Permit No.

(1) OWNER: Name **EVERGREEN DEVELOPMENT** Address **3730 SOUTH CENTRAL STREET OLYMPIA, WA 98501-**

(2) LOCATION OF WELL: County **THURSTON** - **SW** 1/4 **NW** 1/4 Sec **22** T **18N** N., R **1W** WM

(2a) STREET ADDRESS OF WELL (or nearest address) **DIAMOND & CARPENTER ROAD, OLYMPIA**

(3) PROPOSED USE: **DOMESTIC**

(4) TYPE OF WORK: Owner's Number of well (If more than one)
NEW WELL Method: **ROTARY**

(5) DIMENSIONS: Diameter of well **6** inches
Drilled **239** ft. Depth of completed well **239** ft.

(6) CONSTRUCTION DETAILS:
Casing installed: **6** Dia. from **+1** ft. to **235.5** ft.
WELDED CASING Dia. from ft. to ft.
Dia. from ft. to ft.

Perforations: **NO**
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: **YES**
Manufacturer's Name **WESCO**
Type **SLOTTED** Model No.
Diam. **5** slot size **.050** from **5.2** ft. to **3.7** ft.
Diam. slot size from ft. to ft.

Gravel packed: **NO** Size of gravel
Gravel placed from ft. to ft.

Surface seal: **YES** To what depth? **20** ft.
Material used in seal **BENTONITE**
Did any strata contain unusable water? **NO**
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level **54** ft. below top of well Date **06/02/95**
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? **NO** If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test **20+** gal/min. w/ stem set at **230** ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? **NO**

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
PACKED BROWN SAND SOME GRAVEL	0	19
PACKED BROWN SAND	19	66
PACKED FINE GRAY SAND MOIST	66	87
SANDY GRAY CLAY	87	89
FINE GRAY SAND WET	89	118
FINE BROWN SAND WET	118	149
FINE BROWN SAND BRN CLAY BINDER	149	175
HEAVING BROWN SAND	175	225
HEAVING COURSE SAND SOME GRAVEL	225	231
BLACK GRAVEL COURSE SAND WATER	231	239
COURSE SAND BLACK GRAVEL CLAY BINDER	239	

JUN 12 09:12

Work started **06/01/95** Completed **06/02/95**

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME **ARCADIA DRILLING INC.**
(Person, firm, or corporation) (Type or print)

ADDRESS **SE 170 WALKER PARK RD**

[SIGNED] _____ License No. **2053**

Contractor's
Registration No. **ARCADDIO98K1** Date **06/05/95**

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT

WELL LOG

No. Appl'y. 3269
Cert. 2358

Date June 19, 19 55

Record by Mr. A. G. Homann

Source Driller's Record

Location: State of WASHINGTON

County Thurston

Area

Map

SE ¼ NE ¼ sec. 21 T. 18 N., R. 1 W.

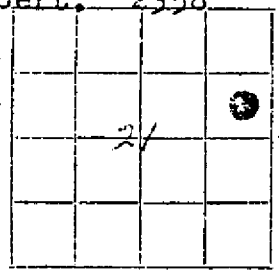

Diagram of Section

Drilling Co. G. M. Patterson

Address Rt. 10 Box 337 ; Olympia, Wn.

Method of Drilling Drilled Date , 19

Owner A. G. Homann

Address P.O. Box 37; Lacey, Wn.

Land surface, datum ft. above / below

Correlation	Material	Thickness (feet)	Depth (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Sand & clay	20	20
	Gravel, Sand & Clay	2	22
	Sand & Clay	98	120
	Sand, Gravel & Clay	6	126
	Clay, Sand & Gravel	10	136
	Gravel, Clay & Sand	19	155
	Clay, Sand & Gravel	15	170
	Sand, clay & Gravel	15	185
	Clay, Sand & Gravel	10	195
	Pump Test:		
	Dia: 195' x 10"		
	SWL: --		
	DD: --		
	Yield: 200 g.p.m. (permit)		

Turn up

Sheet of sheets

WELL LOG.—Continued No...../.....

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward	———	
	Casing: 10" Standard black pipe from	0 to	182½'
	Perforations: 15' #60 Johnson Everdur Screen	WW 182½	to 195'

S. F. No. 7[illegible]—12-54—3M. [illegible]

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

Well #2 (Abandoned)

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 014173

Water Right Permit No. _____

(1) **OWNER:** Name St. Martins Abbey Address Lacey Wa 98503

(2) **LOCATION OF WELL:** County Thurston SW ¼ SE ¼ Sec 16 T. 8 N., R 01 W.M.

(2a) **STREET ADDDRESS OF WELL** (or nearest address) 2500 ft E & 600' N of S.W. corner 16

(3) **PROPOSED USE:** ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☑ Test Well ☐ Municipal ☐ Other

(4) **TYPE OF WORK:** Owner's number of well (if more than one) _____

Abandoned ☑ New well ☐ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☑ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 8 inches. Drilled 240 feet. Depth of completed well _____ ft.

(6) **CONSTRUCTION DETAILS:**

Casing Installed: 8" * Diam. from 0 ft. to 240 ft.
Welded ☑ Liner installed ☐ Threaded ☐
_____ * Diam. from _____ ft. to _____ ft.
_____ * Diam. from _____ ft. to _____ ft.

Perforations: Yes ☑ No ☐
Type of perforator used Mills Knife
SIZE of perforations 2 in. by ½ in.
6/ft. perforations from 175' ft. to 183' ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☐
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☐ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal cement/bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name _____
Type: _____ H.P. _____

(8) **WATER LEVELS:** Land-surface elevation above mean sea level _____ ft.
Static level 80 ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Brown gravel & sand	0'	18'
Grey brown cemented sand & gravel.	18'	43'
Sandy silt & clay	43'	55'
layered silty sand, silt, some gravel	55'	81'
Graded, coarse sand layered fine sand & silt.	81'	93'
layered fine sand, silt, occasional gravel, wood 150'-153'	93'	173'
sand, silt, gravel	173'	184'
silty sand, layered w/silt occasional gravel.	184'	240'
Abandonment		
March 4, 1991 Russ Paier talked to [redacted] Kirk Sinclair, Mr. Sinclair said are could abandon w/enviroplug if placed slowly & hydrated periodically. Mr. Sinclair said the well was w/in the 100' control radius of well #1, therefore protected under the same covenant.		
On 4/9/91 HDD placed bentonite chips from 240' to ground surface. Chips were placed w/weighted tag line to prevent bridging & hydrated every 2' above static water level 8" casing was cut off 2'6" below ground.		

Work started 4/9/90, 19. Completed 4/9, 1991

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Hokkaido Drilling & Dev. Corp. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 100 Kraham Wa 98538

(Signed) [signature] (WELL DRILLER) License No. 1146

Contractor's Registration No. HOKKADD178CB Date 3/12/, 1992

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

Hokkaido Drilling & Developing Corp.

24511 - 104th Avenue Court East • P.O. Box 100 • Graham, Washington 98338 • Phone (206) 847-3579

March 13, 1992

Dept. of Ecology
S.W. Regional Office
P.O. Box 47775
Olympia, Wash. 98504-7775

attn: Vicky Windust

re: St. Martin's Abbey - well report for Production Well #3 and abandonment report for test well #2.

Dear Ms. Windust:
Please find the attached documents pertaining to the wells we drilled for St. Martin's Abbey.

I have included the water well reports for well #3 and the well/abandonment report for test well #2 for formal submittal.

The entire packet includes the above mentioned forms plus copies of the Well #1 report previously filed, copies of all three start cards, Robinson and Nobles #2 well log and Pacific Groundwater Groups #3 well logs for your information.

If you have any questions or need any additional information please call at anytime. Thank-you.

Sincerely,

Billy A. Dodge

NOTICE INTENT TO BEGIN WELL CONSTRUCTION 021927

Owner: St. Martin's Abbey Well Address: Lacey, WA 98504

Proposed use: Consumption

Location of well by legal description:
County THURSTON, S.W¼, S.E ¼, Section 16 T 18 N R 01 W

Approx. Start Date: 7-31-90 Approximate End Date 8-14-90

Driller: Billy A. Dodge License No. 1146

Company name: Hokkaido Drilling & Developing Phone No. 847-3579

Contractor Registration Number: HOKKADD178D3

Send to the regional office, listed below, where the well is to be constructed:

Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504-6811

Central Regional Office
Department of Ecology
3601 West Washington
Yakima, Washington 98903-1164

Northwest Regional Office
Department of Ecology
4550 - 150th Avenue N.E.
Redmond, Washington 98052-5301

Eastern Regional Office
Department of Ecology
N. 4601 Monroe, Suite 100
Spokane, Washington 99205-1295

Well #2

NOTICE OF INTENT TO BEGIN WELL CONSTRUCTION 014173

Owner: St. Martin's Abbey Well Address: Lacey, WA 98504

Proposed use: Consumption

Location of well by legal description:
County Thurston, SW ¼, SE ¼, Section 16 T 18 N R 01 W

Approx. Start Date: 10-3-90 Approximate End Date: 10-24-90

Driller: Bob Carper License No. 1239

Company name: Hokkaido Drilling & Develop Phone No. 206-847-3579

Contractor Registration Number: HOKKADD 178 D3

Send to the regional office, listed below, where the well is to be constructed:

10-2-90

Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504-6811

Central Regional Office
Department of Ecology
3601 West Washington
Yakima, Washington 98903-1164

Northwest Regional Office
Department of Ecology
4550 - 150th Avenue N.E.
Redmond, Washington 98052-5301

Eastern Regional Office
Department of Ecology
N. 4601 Monroe, Suite 100
Spokane, Washington 99205-1295

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well #3

NOTICE OF INTENT TO BEGIN WELL CONSTRUCTION 068103

Owner: St. Martin Abbey Well Address: 700 College St. Lacey, Wa. 98503

Proposed use: Well #3 is replacing well #2 (dray field)

Location of well by legal description:
County Thurston, SE ¼, SW ¼, Section 16 T 18N R 01W

Approx. Start Date: 4-9-91 Approximate End Date: 6-91

Driller: Billy A. Dodge License No. 1146

Company name: Hokkaido Drilling & Developing Phone No. 206-847-3579

Contractor Registration Number: HOKKADD178D3

Send to the regional office, listed below, where the well is to be constructed:

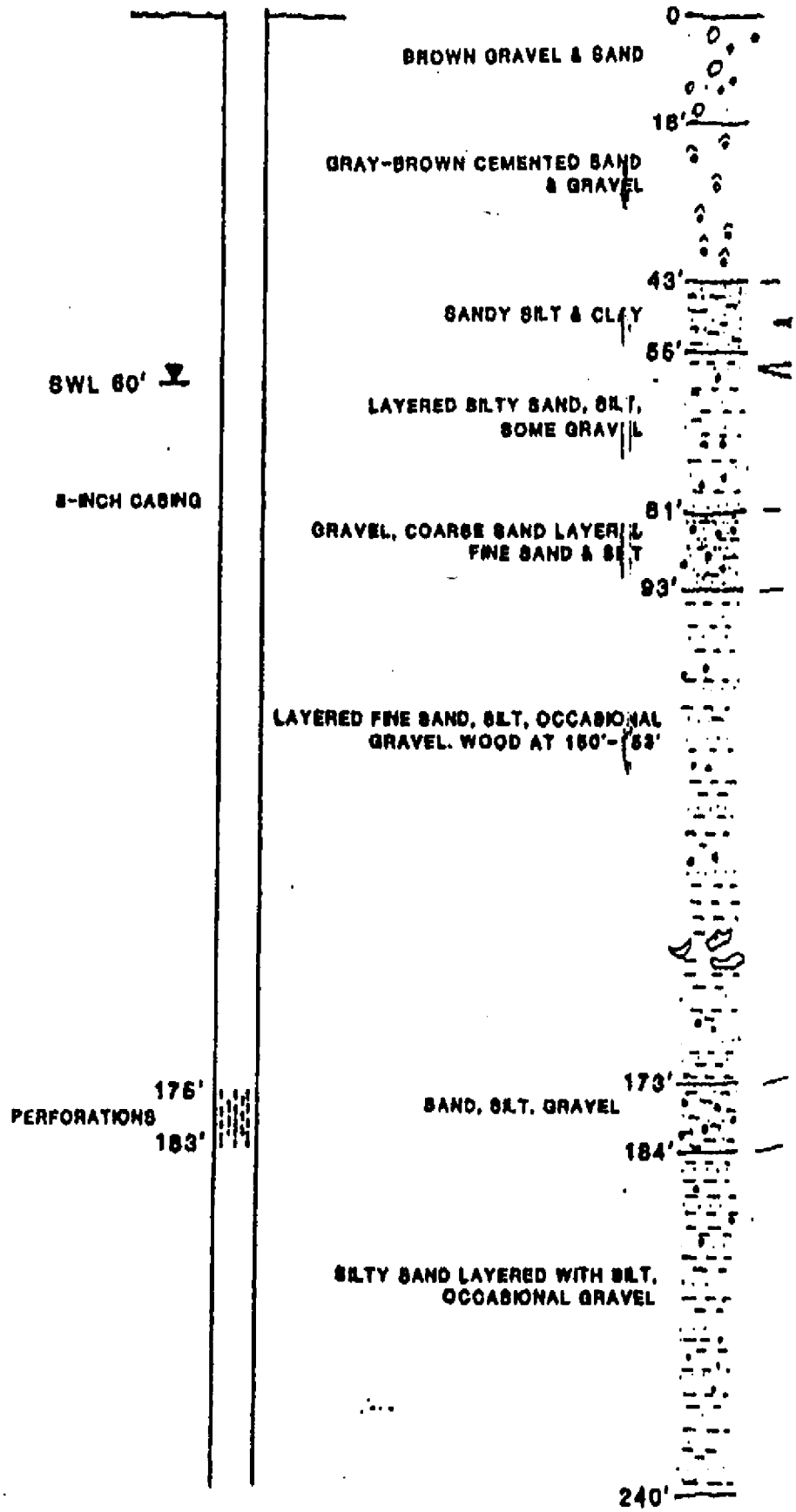
Southwest Regional Office
Department of Ecology
7272 Cleanwater Lane
Olympia, Washington 98504-6811

Central Regional Office
Department of Ecology
3601 West Washington
Yakima, Washington 98903-1164

Northwest Regional Office
Department of Ecology
4350 - 150th Avenue N.E.
Redmond, Washington 98052-5301

Eastern Regional Office
Department of Ecology
N. 4601 Monroe, Suite 100
Spokane, Washington 99205-1295

WELL 2



WASHINGTON STATE DEPARTMENT OF ECOLOGY

UNIQUE WELL I.D. NUMBER A B S 2 7 6
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 7/13/95 By J Kuest

ADDITIONAL WELL IDENTIFIERS Lake Lois water System

Department of Health System ID Number 08251K Source Number SO 1

USGS Site Identification _____

RECORD VERIFICATION

☒ Well Report available *(please attach)*
☐ Well Report not available
☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name George Lemellen

Street address c/o Margaret Gibson - SE131 Blackmelder Rd.

City Shelton State Wa. 98584

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 6338 6th Ave SE

City Lacey County Thurston

T. 18 N. R. 1W W.M. Sec. 15 SW ¼ of the SW ¼

Latitude 47 ° 02 ' 586 "
Longitude 122 ° 47 ' 822 "

☒ GPS (raw data)
☐ GPS (corrected)
☐ Topographic Map
☐ Survey
☐ Computer generated
☐ Other _____

Elevation at land surface _____ feet/meters *(circle one)*

☐ Digital Altimeter
☐ Topographic Map
☐ Other _____

Additional information, if available:

☐ Location marked on topographic map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # G2-24303C Priority Date Sept. 23, 1976

Circle one: Application Permit (Certificate) Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): 6" drilled well a few feet south of pumphouse

Location of Well Identification Tag: on pipe coming out of the well

Was Supplemental Tag needed for ease of identifying well?

☒ NO ☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION 15

COMMENTS: _____

Please attach this form to the Well Report and submit it to the Department of Ecology Water Resources Program Headquarters, Well Identification Program, P.O. Box 47600, Olympia, WA 98504-7600

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. . .

Permit No . . . . .

(1) **OWNER:** Name . . . T.M. SPENCER . . . Address . . . .

(2) **LOCATION OF WELL:** County THUR. . . . well 1/4 corner's SW 1/4 SW 1/4 Sec. 15 . . . T. 18 N., R. 1W W.M.

Bearing and distance from section or subdivision corner LOTS 1,2,3 & 4 550.359

(3) **PROPOSED USE:** Domestic ☐ Industrial ☐ Municipal ☒
9 Needles Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) . . . .
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of well . . . 6 . . . inches.
Drilled 87' ft. Depth of completed well . . . 87 . . . ft.

(6) **CONSTRUCTION DETAILS:**

Casing installed: 6 " Diam. from 0 ft. to 77 ft.
Threaded ☐ " Diam. from . . . ft. to . . . ft.
Welded ☒ " Diam. from . . . ft. to . . . ft.

Perforations: Yes ☐ No ☒
Type of perforator used . . . .
SIZE of perforations . . . in. by . . . in.
. . . perforations from . . . ft. to . . . ft.
. . . perforations from . . . ft. to . . . ft.
. . . perforations from . . . ft. to . . . ft.

Screens: Yes ☒ No ☐
Manufacturer's Name. JOHNSON
Type STAINLESS STEEL Model No.
Diam. 6 Slot size .015 from 82 ft. to 87 ft.
Diam 6 Slot size .010 from 77 ft. to 82 ft.

Gravel-packed: Yes ☐ No ☒ Size of gravel: . . . .
Gravel placed from . . . ft. to . . . ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft
Material used in seal. BENTONITE Clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? . . . Depth of strata . . .
Method of sealing strata off. CASING

(7) **PUMP:** Manufacturer's Name. Ben Kelly
Type: Submersible H.P. 3

(8) **WATER LEVELS:** Land-surface elevation above mean sea level . . . ft.
Static level 61 ft. below top of well Date. Nov. 1 76
Artesian pressure . . . lbs. per square inch Date. . . .
Artesian water is controlled by . . . (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Driller
Yield: 30 gal./min. with 12 ft. drawdown after 4 hrs
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test . . .
Bailer test 3.0 gal./min. with 1.2 ft. drawdown after 1 hrs.
Artesian flow . . . g.p.m. Date Nov. 3, 1976
Temperature of water . . . Was a chemical analysis made? Yes ☒ No ☐

(10) **WELL LOG:**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
GRAVEL SANDY	0	14
GRAVEL COMPACT	14	22
GRAVEL COMPACT	22	34
GRAVEL & SAND	34	51
GRAVEL SAND & SEAMS	51	64
SAND CLAY & WATER	64	72
SAND GRAVEL & WATER	72	78
SAND & WATER	78	79
SAND & WATER -	79	87

RECEIVED
OCT -7 1981
THURSTON COUNTY
ENVIRONMENTAL HEALTH
RR.

Work started Nov 1 19 76 Completed Nov 3 19 76

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Harold E Mykel
(Person, firm, or corporation) (Type or print)

Address 4305 Indy Blvd Olympia WA 98503

[Signed] Harold E Mykel
(Well Driller)

License No. 0326 Date Sept 21, 1981

(USE ADDITIONAL SHEETS IF NECESSARY)