



September 18, 2024

Ann & Douglas Polzean  
Herriges Oil Inc  
440 Braatz Dr  
Kewaskum WI 53040  
*Via Electronic Mail Only to [ann@herrigesoil.com](mailto:ann@herrigesoil.com)*

**KEEP THIS LEGAL DOCUMENT WITH YOUR PROPERTY RECORDS**

**SUBJECT:** Case Closure with Continuing Obligations  
Herriges Oil Bulk Plt South, 230 Prospect Street, Kewaskum, WI 53040  
BRRTS #: 02-67-111819, FID #: 267158760

Dear Mr. & Mrs. Polzean:

The Wisconsin Department of Natural Resources (DNR) is pleased to inform you that the Herriges Oil Bulk Plt South case identified above met the requirements of Wisconsin Administrative (Wis. Admin.) Code chs. NR 700 to 799 for case closure with continuing obligations (COs). COs are legal requirements to address potential exposure to remaining contamination. No further investigation or remediation is required at this time for the reported hazardous substance discharge and/or environmental pollution.

However, you, future property owners and occupants of the property must comply with the COs as explained in this letter, which may include maintaining certain features and notifying the DNR and obtaining approval before taking specific actions. You must provide this letter and all enclosures to anyone who purchases, rents or leases this property from you. Some COs also apply to other properties or rights of way (ROWs) affected by the contamination as identified in the Continuing Obligation Summary section of this letter.

This case closure decision is issued under Wis. Admin. Code chs. NR 700 to 799 and is based on information received by the DNR to date. The DNR reviewed the closure request for compliance with state laws and standards and determined the case closure request met the notification requirements of Wis. Admin. Code ch. NR 725, the response action goals of Wis. Admin. Code § NR 726.05(4), and the case closure criteria of Wis. Admin. Code §§ NR 726.05, 726.09 and 726.11, and Wis. Admin. Code ch. NR 140.

The Herriges Oil Bulk Plt South site was investigated for a discharge of hazardous substances and environmental pollution from aboveground petroleum bulk storage tanks, loading rack and site operations located across the footprint of the site. Case closure is granted for the petroleum volatile organic compounds (PVOs) and polycyclic aromatic hydrocarbons (PAHs) that were associated with the hazardous substance discharge and environmental pollution as documented in the case file. The site investigation and remedial action addressed soil, groundwater, and vapor. The remedial action consisted of removal of the bulk AST storage tank infrastructure and monitored natural attenuation. Contamination remains in soil and groundwater across the site, on the property to the east and in the ROW.

The case closure decision and COs required are based on the current use of the source property for commercial purposes, and the affected properties (listed in the table below) for commercial purposes. The source property is comprised of two parcels and is currently zoned industrial, and the affected property at 305 Prospect St. is currently zoned institutional. Based on the land use and zoning, the site, including both the source property and affected properties, meets the non-industrial land use classification under Wis. Admin. Code § NR 720.05(5) for application of residual contaminant levels in soil.

### SUMMARY OF CONTINUING OBLIGATIONS

COs are applied at the following locations:

ADDRESS (CITY, WI)	COS APPLIED	DATE OF MAINTENANCE PLAN(S)
230 Prospect St., Kewaskum, WI (Source Property)	- Residual Soil Contamination - Cover for Soil - Residual Groundwater Contamination - VI – Future Concern	July 7, 2023
305 Prospect St., Kewaskum, WI Village of Kewaskum ROW	- Residual Soil Contamination - Residual Soil Contamination - Residual Groundwater Contamination	

### CLOSURE CONDITIONS

Closure conditions are legally required conditions which include both COs and other requirements for case closure (Wis. Stat. § 292.12(2)). Under Wis. Stat. § 292.12(5), you, any subsequent property owners and occupants of the property must comply with the closure conditions as explained in this letter. The property owner must notify occupants for any condition specified in this letter under Wis. Admin. Code §§ NR 726.15(1)(b) and NR 727.05(2). If an occupant is responsible for maintenance of any closure condition specified in this letter, you and any subsequent property owner must include the condition in the lease agreement under Wis. Admin. Code § NR 727.05(3) and provide the maintenance plan to any occupant that is responsible.

DNR staff may conduct periodic pre-arranged inspections to ensure that the conditions included in this letter and the maintenance plan dated July 7, 2023, are met (Wis. Stat. § 292.11 (8)). If these requirements are not followed, the DNR may take enforcement action under Wis. Stat. ch. 292 to ensure compliance with the closure conditions.

### SOIL

#### *Continuing Obligations to Address Soil Contamination*

Residual Soil Contamination (Wis. Admin. Code chs. NR 718, NR 500 to 599, and § NR 726.15(2)(b), and Wis. Stat. ch. 289)

Soil contamination remains across the entire site, in the alley ROW abutting the site to the north, and partially on the property to the east, as indicated on the enclosed map (Figure B.2.b., Residual Soil Contamination, dated July

7, 2023, and submitted January 5, 2024). If soil in the areas shown on the map is excavated in the future, the property owner or right of way holder at the time of excavation must sample and analyze the excavated soil. If sampling confirms that contamination is present, the property owner or right of way holder at the time of excavation will need to determine if the material is considered solid waste and ensure that any storage, treatment, or disposal complies with applicable standards and rules. Contaminated soil may be managed under Wis. Admin. Code ch. NR 718 with prior DNR approval.

In addition, all current and future property owners, occupants and right of way holders need to be aware that excavation of the contaminated soil may pose an inhalation and direct contact hazard; special precautions may be needed to prevent a threat to human health.

Cover for Soil (Wis. Stat. § 292.12(2)(a), Wis. Admin. Code §§ NR 724.13(1) and (2), NR 726.15(2)(d) and/or NR 727.07(1))

The concrete, asphalt, gravel, and slab-on-grade building as shown on the enclosed map (Figure D.2, Location Map, dated July 7, 2023) shall be maintained in compliance with the enclosed maintenance plan, dated July 7, 2023. The purpose of the cover is to minimize the infiltration of water through contaminated soil and prevent direct contact with residual soil contamination that might otherwise pose a threat to human health.

The cover approved for this closure was designed to be protective for commercial or industrial land uses. Before using the property for residential purposes and before taking an action, the property owner must notify the DNR to determine if additional response actions are warranted. A cover intended for industrial land uses or certain types of commercial land uses may not be protective if the property changes to a residential use. This may include, but is not limited to, single or multiple family residences, a school, day care, senior center, hospital, or similar settings. In addition, a cover designed for multi-family residential housing use may not be appropriate for use at a single-family residence.

To modify or replace a cover, the property owner must submit a request to the DNR under Wis. Admin. Code ch. NR 727. The DNR approval must be obtained before implementation. The replacement or modified cover must be a structure or similar permeability or be protective of the revised use of the property until contaminant levels no longer exceed Wis. Admin. Code ch. NR 720 groundwater pathway residual contaminant levels and direct contact residual contaminant levels (RCLs).

## **GROUNDWATER**

### *Continuing Obligations to Address Groundwater Contamination and/or Monitoring Wells*

Residual Groundwater Contamination (Wis. Admin. Code ch. NR 140 and § NR 812.09(4)(w))

Groundwater contamination which equals or exceeds the enforcement standards for PVOs, naphthalene and PAHs is present across the site and into the Prospect Street ROW, as shown on the enclosed map (Figure B.3.b, Groundwater Isoconcentration Map, dated March 25, 2020, and submitted August 10, 2023). To meet case closure criteria for sites with groundwater contamination, the DNR considered the monitoring natural attenuation (MNA) parameters collected during site investigation and associated trends as part of the technical justification that contaminant trends in groundwater appear to be stable and/or receding. To construct a new well or reconstruct an existing well, the property owner must obtain prior DNR approval. Additional casing may be necessary to prevent contamination of the well.

## VAPOR

### *Continuing Obligations to Address Vapor Contamination*

Vapor intrusion (VI) is the movement of vapors coming from volatile chemicals in the soil or groundwater or within preferential pathways into buildings where people may breathe air contaminated by the vapors.

VI – Future Concern: (Wis. Stat. § 292.12(2), Wis. Admin. Code § NR 726.15(2)(L) or (m), as applicable. Petroleum VOCs and PAHs, including naphthalene, remain in soil and groundwater across the site, as shown on the enclosed map, (Figure B.2.b, Residual Soil Contamination Map, dated July 7, 2023, and submitted January 5, 2024 and Figure B.3.b, Groundwater Isoconcentration Map, dated March 25, and submitted August 10, 2023), at concentrations that may be of concern for vapor intrusion in the future, if a building is constructed, renovated or expanded in an area where no building currently exists or if an existing building is remodeled. At the time of closure, a 2,800 sq. ft. pole building used for storage is present on the property.

Vapor control technologies are required for new construction or for modification of occupied buildings on the property unless the property owner assesses the vapor pathway and the DNR agrees that vapor control technologies are not needed. The property owner shall maintain the current building use and layout.

## OTHER CLOSURE REQUIREMENTS

Maintenance Plan and Inspection Log (Wis. Admin. Code § NR 726.11(2), NR 726.15(1)(d), NR 727.05(1)(b)3., Wis Admin. Code § NR 716.14(2) for monitoring wells)

The property owner is required to comply with the enclosed maintenance plan dated July 7, 2023, for the cap, to conduct inspections annually, and to use the inspection log (DNR Form 4400-305) to document the required inspections. The maintenance plan and inspection log are to be kept up-to-date and on-site. The property owner shall submit the inspection log to the DNR only upon request, using the RR Program Submittal Portal. See the DNR Notification and Approval Requirements section below for more information on how to access the Submittal Portal.

The limitations on activities identified in the enclosed maintenance plan. The following activities are prohibited on any portion of this property where the cover, current building use and layout is/are required, without prior DNR approval:

- removal of the existing barrier,
- replacement with another barrier,
- excavating or grading of the land surface,
- fill on capped or paved areas,
- plowing for agricultural cultivation,
- construction or placement of a building or other structure,
- changing the use or occupancy of the property to a residential exposure setting, which may include certain uses, such as single or multiple family residences, a school, day care, senior center, hospital, or similar residential exposure settling.

Pre-Approval Required for Well Construction (Wis. Admin. Code § NR 812.09(4)(w))

DNR approval is required before well construction or reconstruction for all sites identified as having residual contamination and/or COs. This requirement applies to private drinking water wells and high-capacity wells. To obtain approval, the property owner is required to complete and submit Form 3300-254, Continuing



Obligations/Residual Contamination Well Approval Application, to the DNR Drinking Water and Groundwater program's regional water supply specialist. A well driller can help complete this form. The form can be obtained online at [dnr.wi.gov](http://dnr.wi.gov), search "3300-254." Additional casing may be necessary to help prevent contamination of the well.

General Wastewater Permits for Construction-related Dewatering Activities (Wis. Admin. Code ch. NR 200)  
The DNR's Water Quality Program regulates point source discharges of contaminated water, including discharges to surface waters, storm sewers, pits, or to the ground surface. This includes discharges from construction-related dewatering activities, including utility work and building construction.

If the property owner or any other person plans to conduct such activities, that person must contact the Water Quality Program and, if necessary, apply for the required discharge permit. If residual soil or groundwater contamination is likely to affect water collected in a pit/trench that requires dewatering, a general permit for discharge of *Contaminated Groundwater from Remedial Action Operations* may be needed. If water collecting in a pit/trench that requires dewatering is expected to be free of pollutants other than suspended solids, oil and grease, a general permit for pit/trench *Dewatering Operations* may be needed. Additional information can be obtained by visiting the DNR website at "[dnr.wi.gov](http://dnr.wi.gov)," search "wastewater general permits."

## **DNR NOTIFICATION AND APPROVAL REQUIREMENTS**

Certain activities are limited at closed sites to maintain protectiveness to human health and the environment. The property owner is required to notify the DNR at least 45 days before and obtain approval from the DNR prior to taking the following actions (Wis. Admin. Code §§ NR 727.07, NR 726.15(2), Wis. Stat. § 292.12(6)).

- Before removing a cover or any portion of a cover
- Before constructing a building and/or modifying use of or the construction of an existing building or changing property use. Certain activities are limited at closed sites to reduce the risk of exposure to residual contamination via vapor intrusion. For properties with a continuing obligation for addressing the future risk of vapor intrusion when buildings exist at the time of closure approval, changes to the current building use and layout are prohibited without prior DNR approval. This includes any change in building construction, reconstruction, or partial demolition. The DNR may require additional actions may be required at that time to re-assess for vapor intrusion and mitigate, as appropriate.

The DNR may require additional investigation and/or cleanup actions, if necessary, to be protective of human health and the environment. The case may be reopened under Wis. Admin. Code § NR 727.13 if additional information indicates that contamination on or from the site poses a threat, or for a lack of compliance with a CO or closure requirement. Compliance with the maintenance plan is considered when evaluating the reopening criteria.

## **SUBMITTALS AND CONTACT INFORMATION**

Site, case-related information and DNR contacts can be found online in the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web (BOTW); go to [dnr.wi.gov](http://dnr.wi.gov) and search "BOTW." Use the BRRTS # found at the top of this letter. The site can also be found on the map view, Remediation and Redevelopment Sites Map (RRSM) by searching "RRSM."

Send written notifications and inspection logs to the DNR using the RR Program Submittal Portal at [dnr.wi.gov](http://dnr.wi.gov), search "RR submittal portal" (<https://dnr.wi.gov/topic/Brownfields/Submittal.html>). Questions on using this portal

can be directed to the Project Manager below or to the environmental program associate (EPA) for the regional DNR office. Visit [dnr.wi.gov](https://dnr.wi.gov), search "RR contacts" and select the EPA tab (<https://dnr.wi.gov/topic/Brownfields/Contact.html>).

### CLOSING

The DNR appreciates your efforts to restore the environment at this site. If you have any questions regarding this letter, please contact the DNR Project Manager, Lee Delcore at 262-202-3838, or at [lee.delcore@wisconsin.gov](mailto:lee.delcore@wisconsin.gov).

Sincerely,



Michele R. Norman  
Team Supervisor  
Remediation & Redevelopment Program

Attachments:

Figure B.2.b, Residual Soil Contamination Map, dated July 7, 2023, and submitted January 5, 2024  
Figure B.3.b, Groundwater Isoconcentration Map, dated March 25, 2020, and submitted August 10, 2023  
Figure D.2, Location Map, dated July 7, 2023  
Attachment D, Maintenance Plan, dated July 7, 2023  
Inspection Log (DNR Form 4400-305)

cc.

Ron Anderson – METCO – [rona@metcofs.com](mailto:rona@metcofs.com)  
Holy Trinity Congregational Church/School, P.O Box 461, Kewaskum, WI 53040  
Village of Kewaskum, Tammy Butz, 204 1<sup>st</sup> Street, Kewaskum, WI 53040

Additional Resources:

The DNR fact sheets can be obtained by visiting the DNR website at "[dnr.wi.gov](https://dnr.wi.gov)" and searching DNR publication number.

*Guidance for Electronic Submittals for the Remediation and Redevelopment Program (RR-690)*

*Continuing Obligations for Environmental Protection (RR-819)*

*Environmental Contamination and your Real Estate (RR-973)*

*Post-Closure modifications: Changes to Property Conditions after a State-Approved Cleanup (RR-987)*

*Using Natural Attenuation to Clean Up Contaminated Groundwater: What Landowners Should Know (RR-671)*



September 18, 2024

Holy Trinity Congregational Church/School  
Mr. Jacob Strand  
P.O. Box 461  
Kewaskum, WI 53040

**KEEP THIS LEGAL DOCUMENT WITH YOUR PROPERTY RECORDS**

**SUBJECT:** Continuing Obligations and Property Owner Requirements for 305 Prospect Street, Kewaskum  
Parcel Identification Number: V40383  
Final Case Closure for Herriges Oil Bulk Plt South, 230 Prospect Street, Kewaskum, WI 53040  
BRRTS #: 02-67-111819, FID #: 267158760

Dear Mr. Strand:

The purpose of this letter is to notify you that you are responsible for certain continuing obligations (COs) applied to your property at 305 Prospect Street, parcel ID number V40383 (Property) due to contamination remaining on the Property. The continuing obligations are part of the cleanup and case closure approved by the Wisconsin Department of Natural Resources (DNR) for the Herriges Oil Bulk Plt South site (Site), located at 230 Prospect St., Kewaskum, WI 53040. The Site is referenced by the location of the source of contamination, i.e., the property where the original hazardous substance discharge or environmental pollution occurred, prior to contamination migrating to the Property. The COs that apply to the Property are included in this letter and are stated as conditions in the closure approval letter and are consistent with Wisconsin Statute (Wis. Stat.) § 292.12 and Wisconsin Administrative Code (Wis. Admin. Code) chs. NR 700-799. COs are intended to limit exposure to remaining environmental contamination at the Property. These COs will also apply to future owners of the Property, until the conditions no longer exist.

It is common for properties to have COs as part of case closure approvals when contamination remains in the environment for a specific reason. Information on the COs associated with this Site, including the case closure approval letter, is available in the DNR's Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web (BOTW) at [dnr.wi.gov](http://dnr.wi.gov), search "BOTW." Enter 02-67-111819 in the Activity Number field and then click Search. Scroll down and click on the CO Packet link for information about the completion of the environmental work. The Site may also be seen on the map viewer, RR Sites Map. RR Sites Map can be found online at [dnr.wi.gov](http://dnr.wi.gov), search "RRSM."

The DNR reviewed and approved the case closure request regarding the petroleum contamination in soil and groundwater at this Site, based on information submitted by the environmental consulting company, METCO. Case closure is granted for the petroleum volatile organic compounds (PVOCs) and polycyclic aromatic hydrocarbons (PAHs) that were associated with the hazardous substance discharge and environmental pollution as documented in the case file. As required by state law, you received notification about the requested case closure from the person conducting the cleanup on June 6, 2020. No further investigation or cleanup is required at this time. However, the case closure decision is conditioned upon long-term compliance with the COs at the Property.

COs associated with the Site are described in the attached case closure letter to Ann and Douglas Polzean, dated September 18, 2024. However, only the following COs apply to the Property.

Residual Soil Contamination (Wis. Admin. Code chs. NR 718, NR 500 to 599, and § NR 726.15(2)(b), and Wis. Stat. ch. 289)

Soil contamination remains on the western portion of the Property, as indicated on the enclosed map (Figure B.2.b Residual Soil Contamination Map, dated July 7, 2023, and submitted January 5, 2024). If soil in the area shown on the map is excavated in the future, the property owner or right of way holder at the time of excavation must sample and analyze the excavated soil. If sampling confirms that contamination is present, the property owner or right of way holder at the time of excavation will need to determine if the material is considered solid waste and ensure that any storage, treatment, or disposal complies with applicable standards and rules. Contaminated soil may be managed under Wis. Admin. Code ch. NR 718 with prior DNR approval.

Soil samples collected within the direct contact zone at the Property did not have PAH concentrations that exceed the  $1 \times 10^{-5}$  cumulative cancer risk or the hazard index of 1 for non-cancer compounds. Therefore, a cover is not required to be maintained over the Property to prevent direct contact with contaminated soil. All current and future property owners and occupants need to be aware that excavation of the contaminated soil may pose an inhalation and direct contact hazard; special precautions may be needed to prevent a threat to human health.

Pre-Approval Required for Well Construction (Wis. Admin. Code § NR 812.09(4)(w))

DNR approval is required before well construction or reconstruction for all sites identified as having residual contamination and/or continuing obligations. This requirement applies to private drinking water wells and high-capacity wells. To obtain approval, the property owner is required to complete and submit Form 3300-254, "Continuing Obligations/Residual Contamination Well Approval Application," to the DNR Drinking Water and Groundwater program's regional water supply specialist. A well driller can help complete this form. The form can be obtained online at [dnr.wi.gov](http://dnr.wi.gov), search "3300-254." Additional casing may be necessary to help prevent contamination of the well.

Property Owner Responsibilities (Wis. Stat. § 292.12 & § 709.02, Wis. Admin. Code § NR 727.05)

The Property owner (you and any subsequent Property owner) is responsible for compliance with the continuing obligations in this letter, pursuant to Wis. Stat. § 292.12. You are required to notify anyone who purchases the Property from you of the responsibility to comply with the continuing obligations in this letter, in accordance with Wis. Admin. Code § NR 727.05(2). For residential property transactions, you are required to make disclosures under Wis. Stat. § 709.02.

If you lease or rent the Property to an occupant who will be responsible for maintaining a continuing obligation, you must include that responsibility in a lease agreement, in accordance with Wis. Admin. Code § NR 727.05(3).

Please be aware that failure to comply with the COs may result in enforcement action by the DNR. The DNR intends to conduct periodic inspections to ensure that the conditions included in this letter, including compliance with referenced maintenance plans, are met.

Please send written notifications and documents to the DNR using the RR Program Submittal Portal at [dnr.wi.gov](http://dnr.wi.gov), search "RR submittal portal" (<https://dnr.wi.gov/topic/Brownfields/Submittal.html>). Questions on using this portal can be directed to the contact below or to the environmental program associate (EPA) for the regional DNR office. Visit [dnr.wi.gov](http://dnr.wi.gov), search "RR contacts" and select the EPA tab (<https://dnr.wi.gov/topic/Brownfields/Contact.html>). More information on submitting electronic documents can be found in the DNR publication "Guidance for Electronic Submittal for the Remediation and Redevelopment Program" (RR-690), which can be found at [dnr.wi.gov](http://dnr.wi.gov), search "RR-690."

The DNR fact sheet, RR-819, "Continuing Obligations for Environmental Protection" explains a property owner's responsibility for continuing obligations on their property. This fact sheet should have been sent to you when you received a notification letter before the case closure request was submitted to the DNR. You may obtain a copy at [dnr.wi.gov](http://dnr.wi.gov) by searching "RR-819."

Under Wis. Stat. § 292.13 owners of properties affected by contamination from another property are generally exempt from investigating or cleaning up a hazardous substance discharge that migrated onto a property from another property. However, the exemption under Wis. Stat. § 292.13 does not exempt the property owner from the responsibility to maintain a continuing obligation placed on the property in accordance with Wis. Stat. § 292.12. To maintain this exemption, that statute requires the current property owner and any subsequent property owners to meet the conditions in the statute, including:

- Granting reasonable access to the DNR, responsible party, or their contractors.
- Avoiding interference with response actions taken; and
- Avoiding actions that make the contamination worse (e.g., demolishing a structure and causing or worsening the discharges to the environment).

The DNR appreciates your cooperation to restore the environment at this site. If you have any questions regarding this closure decision or anything stated in this letter, please contact the DNR Project Manager, Lee Delcore at 262-202-3838 or [lee.delcore@wisconsin.gov](mailto:lee.delcore@wisconsin.gov).

Sincerely,



Michele R. Norman  
Team Supervisor  
Remediation & Redevelopment Program

Attachment(s):

Figure B.2.b, Residual Soil Contamination, dated July 7, 2023, and submitted January 5, 2024

cc:

Ann & Douglas Polzean, Herriges Oil, Inc. – [ann@herrigesoil.com](mailto:ann@herrigesoil.com)

Ron Anderson – METCO – [rona@metcofs.com](mailto:rona@metcofs.com)



September 18, 2024

Village of Kewaskum  
Tammy Butz  
204 1<sup>st</sup> Street  
Kewaskum, WI 53040

SUBJECT: Notice of Closure Approval with Continuing Obligations for Rights-of-Way Holders at Village of Kewaskum ROW  
Case Closure for Herriges Oil Bulk Plt South, 230 Prospect Street, Kewaskum, WI 53040  
BRRTS #: 02-67-111819, FID #: 267158760

Dear Ms. Butz:

The Wisconsin Department of Natural Resources (DNR) recently approved the completion of the response actions conducted at the site identified above (the Site). This letter describes how that approval applies to the right-of-way (ROW) for the Village of Kewaskum. As the ROW holder, you are responsible for complying with continuing obligations for any work you conduct in the ROW.

State law - Wisconsin Statute (Wis. Stat.) ch 292 - directs parties responsible for the discharge of a hazardous substance or environmental pollution to take necessary actions to restore the environment to the extent practicable and minimize harmful effects from the discharge to the air, lands or waters of this state. The law allows some contamination to remain in the environment if it does not pose a threat to public health, safety, welfare or the environment.

On June 6, 2020, you received information from Douglas Polzean with Herriges Oil Co. about the petroleum and polycyclic aromatic hydrocarbons (PAH) contamination from the Site remaining in the soil and groundwater beneath the Prospect Street ROW, and about the continuing obligations necessary to limit exposure to remaining contamination.

### **APPLICABLE CONTINUING OBLIGATIONS**

The continuing obligations that apply to this ROW are described below and are consistent with Wis. Stat. § 292.12 and Wisconsin Administrative Code (Wis. Admin. Code) chs. NR 700 to 799.

Residual Soil Contamination (Wis. Admin. Code chs. NR 718, NR 500 to 599, and § NR 726.15(2)(b), and Wis. Stat. ch. 289)

Soil contamination remains across the entire Site, in the alley ROW abutting the Site to the north and partially on the property to the east, as indicated on the enclosed map (Figure B.2.b, Residual Soil Map, dated July 7, 2023, and submitted January 5, 2024). If soil in the area shown on the map is excavated in the future, the property owner or right of way holder at the time of excavation must sample and analyze the excavated soil. If sampling confirms that contamination is present, the property owner or right of way holder at the time of excavation will need to determine if the material is considered solid waste and ensure that any storage, treatment, or disposal complies with applicable standards and rules. Contaminated soil may be managed under Wis. Admin. Code ch.

NR 718 with prior DNR approval. In addition, all current and future property owners, occupants and right of way holders need to be aware that excavation of the contaminated soil may pose an inhalation and direct contact hazard; special precautions may be needed to prevent a threat to human health.

Residual Groundwater Contamination (Wis. Admin. Code ch. NR 140 and § NR 812.09(4)(w))  
Groundwater contamination which equals or exceeds the enforcement standards for petroleum volatile organic compounds (PVOs), naphthalene, and PAHs is present across the Site and into the Prospect Street ROW, as shown on the enclosed map (Figure B.3.b, Groundwater Isoconcentration Map, dated March 25, 2020, and submitted August 10, 2023). To construct a new well or reconstruct an existing well, the property owner must obtain prior DNR approval. Additional casing may be necessary to prevent contamination of the well.

### ADDITIONAL INFORMATION

Site, case-related information and DNR contacts can be found online in the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web (BOTW); go to [dnr.wi.gov](http://dnr.wi.gov) and search "BOTW." Use the BRRTS ID # found at the top of this letter. The site can also be found on the view, Remediation and Redevelopment Sites Map (RRSM) by searching "RRSM."

Send written notifications to the DNR using the RR Program Submittal Portal at [dnr.wi.gov](http://dnr.wi.gov), search "RR submittal portal." Questions on using this portal can be directed to the Project Manager below or to the environmental program associate (EPA) for the regional DNR office. Visit [dnr.wi.gov](http://dnr.wi.gov), search "RR contacts" and select the EPA tab.

If you have any questions regarding the Site or this letter, please contact the DNR Project Manager, Lee Delcore, at 262-202-3838 or [lee.delcore@wisconsin.gov](mailto:lee.delcore@wisconsin.gov).

Sincerely,



Michele R. Norman  
Team Supervisor  
Remediation & Redevelopment Program

Attachments:

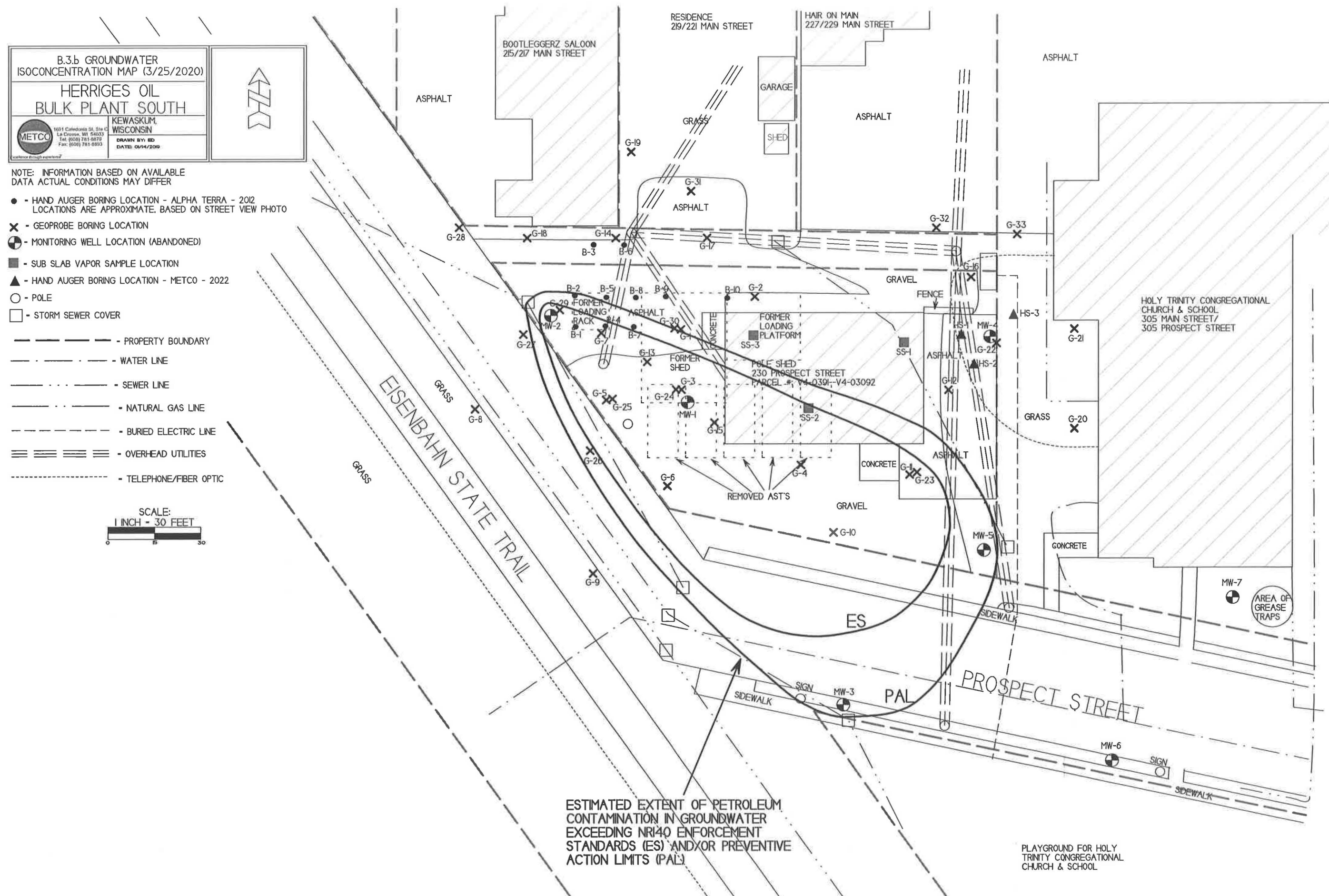
Figure B.2.b, Residual Soil Contamination, dated July 7, 2023, and submitted January 5, 2024  
Figure B.3.b, Groundwater Isoconcentration Map (3/25/2020), submitted August 10, 2023  
Case Closure with Continuing Obligations, WDNR, dated September 18, 2024

cc:

Ann & Douglas Polzean, Herriges Oil Inc. – [ann@herrigesoil.com](mailto:ann@herrigesoil.com)  
Ron Anderson – METCO – [rona@metcofs.com](mailto:rona@metcofs.com)







## D.1 Description of Maintenance Action(s)

### CAP MAINTENANCE PLAN

7/7/2023

Property Located at:  
230 Prospect Street  
Kewaskum, Wisconsin 53040

WDNR BRRTS# 02-67-111819

Parcel ID # V4-0391

### Introduction

This document is the Maintenance Plan for the concrete, asphalt, gravel, and building cap at the above-referenced property in accordance with the requirements of s. NR 724.13 (2), Wisconsin Administrative Code. The maintenance activities relate to the existing cap which addresses or occupies the area over the contaminated groundwater plume or soil.

More site-specific information about this property/site may be found in:

- The case file in the DNR Southeast regional office
- BRRTS on the Web (DNR's internet based data base of contaminated sites):  
<https://dnr.wi.gov/botw/SetUpBasicSearchForm.do?rtn=rb>
- GIS Registry PDF file for further information on the nature and extent of contamination
- The DNR project manager for Washington County.

### Description of Contamination

Unsaturated soil contaminated by Lead, Benzene, Ethylbenzene, Naphthalene, Toluene, Trimethylbenzenes, Xylene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-cd)pyrene, and Pyrene exist in the area of the former ASTs and loading rack. Groundwater contaminated by Benzene, Benzo(a)pyrene, Benzo(b)fluoranthene, and Chrysene exists in the area of the former ASTs and loading rack and migrating to the southeast. The extent of the soil and groundwater contamination is shown on Figure D.2.

### Description of the Cap to be Maintained

The cap consists of 4-6 inches of concrete and/or 2-3 inches of asphalt, gravel, and a slab on grade building (concrete slab, 4-6 inches thick) which covers the area of the former ASTs and loading rack, as shown on the attached map (Attachment D.2.).

### Cover/Building/Slab/Barrier Purpose

The cap over the contaminated soil and groundwater plume serves as a barrier to prevent direct human contact with residual soil contamination that might otherwise pose a threat to human health and as a partial infiltration barrier to minimize future soil-to-groundwater contamination migration that would violate the groundwater standards in ch. NR 140, Wisconsin Administrative Code. Based on the current and future use of the property, the barrier should function as intended unless disturbed.

### Annual Inspection

The cap overlying the contaminated soil and as depicted in Attachment D.2 will be inspected once a year, normally in the spring after all snow and ice is gone, for deterioration, cracks and other potential problems that can cause exposure to underlying soils. The inspections will be performed by the property owner or their designated representative. The inspections will be performed to evaluate damage due to settling, exposure to the weather, wear from traffic, increasing age and other factors. Any area where soils have become or are likely to become exposed and where infiltration from the surface will not be effectively minimized will be documented.

A log of the inspections and any repairs will be maintained by the property owner and is included as D.4, Form 4400-305, Continuing Obligations Inspection and Maintenance Log. The log will include recommendations for necessary repair of any areas where underlying soils are exposed and where infiltration from the surface will not be effectively minimized. Once repairs are completed, they will be documented in the inspection log. A copy of the maintenance plan and inspection log will be kept at the site; or, if there is no acceptable place (for example, no building is present) to keep it at the site, at the address of the property owner and available for submittal or inspection by Wisconsin Department of Natural Resources (DNR) representatives upon their request.

### Maintenance Activities

If problems are noted during the annual inspections or at any other time during the year, repairs will be scheduled as soon as practical. Repairs can include patching and filling or larger resurfacing or construction operations. In the event that necessary maintenance activities expose the underlying soil, the owner must inform maintenance workers of the direct contact exposure hazard and provide them with appropriate personal protection equipment (PPE). The owner must also sample any soil that is excavated from the site prior to disposal to ascertain if contamination remains. The soil must be treated, stored and disposed of by the owner in accordance with applicable local, state and federal law.

In the event the cap overlying the contaminated soil and groundwater plume are removed or replaced, the replacement barrier must be equally impervious. Any replacement barrier will be subject to the same maintenance and inspection guidelines as outlined in this Maintenance Plan unless indicated otherwise by the DNR or its successor.

The property owner, in order to maintain the integrity of the cap, will maintain a copy of this Maintenance Plan on site and make it available to all interested parties (i.e. on-site employees, contractors, future property owners, etc.) for viewing.

Prohibition of Activities and Notification of DNR Prior to Actions Affecting a Cover or Cap

The following activities are prohibited on any portion of the property where the cap is required as shown on the attached map, unless prior written approval has been obtained from the Wisconsin Department of Natural Resources: 1) removal of the existing barrier; 2) replacement with another barrier; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; 6) construction or placement of a building or other structure; 7) changing the use or occupancy of the property to a residential exposure setting, which may include certain uses, such as single or multiple family residences, a school, day care, senior center, hospital, or similar residential exposure settings.

If removal, replacement or other changes to a cover, or a building which is acting as a cover, are considered, the property owner will contact DNR at least 45 days before taking such an action, to determine whether further action may be necessary to protect human health, safety, or welfare or the environment, in accordance with s. NR 727.07, Wis. Adm. Code.

Amendment or Withdrawal of Maintenance Plan

This Maintenance Plan can be amended or withdrawn by the property owner and its successors with the written approval of WDNR.

Contact Information

July 2023

**Current Site Contact:**

Douglas Polzean  
440 Braatz Drive  
Kewaskum, WI 53040  
(414) 303-3172

Signature: 



(DNR may request signature of affected property owners, on a case-by-case basis)



**Consultant:**



METCO  
Ron Anderson  
1601 Caledonia Street, Suite C  
La Crosse, WI 54603  
(608) 781-8879

**WDNR:**

Lee Delcore  
1155 Pilgrim Road  
Plymouth WI, 53073

<h1>D.2 LOCATION MAP</h1>		
<h2>HERRIGES OIL BULK PLANT SOUTH</h2>		
	1601 Caladonia St. Ste C La Crosse, WI 54601 Tel: (608) 781-8879 Fax: (608) 781-8853	<h3>KEWASKUM, WISCONSIN</h3>
<small>Excludes all other pipelines</small>		DRAWN BY: ED DATE: 04/4/2009  UPDATED BY: RW DATE: 07/07/2023

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<small>Excludes all other pipelines</small>		DRAWN BY: ED DATE: 04/4/2009  UPDATED BY: RW DATE: 07/07/2023

NOTE: INFORMATION BASED ON AVAILABLE DATA ACTUAL CONDITIONS MAY DIFFER

- - HAND AUGER BORING LOCATION - ALPHA TERRA - 2012  
LOCATIONS ARE APPROXIMATE, BASED ON STREET VIEW PHOTO
- ✕ - GEOPROBE BORING LOCATION
- ⊗ - MONITORING WELL LOCATION (ABANDONED)
- - SUB SLAB VAPOR SAMPLE LOCATION
- ▲ - HAND AUGER BORING LOCATION - METCO - 2022
- - POLE
- - STORM SEWER COVER

CAP TO BE MAINTAINED

AREA OF UNSATURATED SOIL  
CONTAMINATION EXCEEDING  
GROUNDWATER RCLs (PVOCs).

RESIDENCE  
219/221 MAIN STREET

HAIR ON MAIN  
227/229 MAIN STREET

ASPHALT

ASPHALT  
AREA OF UNSATURATED SOIL  
CONTAMINATION EXCEEDING  
NR720 DIRECT CONTACT  
VALUES (PAH ONLY).  
PLEASE NOTE SEVERAL PAH NR720  
GROUNDWATER RCLS ALSO EXIST  
WITHIN THIS AREA.

AREAS OF UNSATURATED SOIL  
CONTAMINATION EXCEEDING  
GROUNDWATER RCLs FOR LEAD ONLY

HOLY TRINITY CONGREGATIONAL  
CHURCH & SCHOOL  
305 MAIN STREET/  
305 PROSPECT STREET

AREA OF UNSATURATED  
SOIL CONTAMINATION EXCEEDING  
DIRECT CONTACT VALUES (PVOCs).

AREA OF  
GREASE  
TRAPS

PLAYGROUND FOR HOLY  
TRINITY CONGREGATIONAL  
CHURCH & SCHOOL



# D. 3. Photographs

02-67-111819  
BRRTS No.

Herriges Oil Bulk Plant South  
Activity (Site) Name

## Continuing Obligations Inspection and Maintenance Log

Form 4400-305 (2/14)

Page 2 of 2

{Click to Add/Edit Image}

Date added: 06/02/2020



Title: Photo #1: Looking east at the subject property.

{Click to Add/Edit Image}

Date added: 07/07/2023



Title: Photo #2: Looking west at the subject property.

{Click to Add/Edit Image}

Date added: 07/07/2023



Title: Photo #3: Looking northwest at the subject property.

# D.4. Inspection Log

State of Wisconsin  
Department of Natural Resources  
dnr.wi.gov

## Continuing Obligations Inspection and Maintenance Log

Form 4400-305 (2/14)

Page 1 of 2

**Directions:** In accordance with s. NR 727.05 (1) (b) 3., Wis. Adm. Code, use of this form for documenting the inspections and maintenance of certain continuing obligations is required. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.]. When using this form, identify the condition that is being inspected. See the closure approval letter for this site for requirements regarding the submittal of this form to the Department of Natural Resources. A copy of this inspection log is required to be maintained either on the property, or at a location specified in the closure approval letter. Do NOT delete previous inspection results. This form was developed to provide a continuous history of site inspection results. The Department of Natural Resources project manager is identified in the closure letter. The project manager may also be identified from the database, BRRTS on the Web, at <http://dnr.wi.gov/botw/SetUpBasicSearchForm.do>, by searching for the site using the BRRTS ID number, and then looking in the "Who" section.

Activity (Site) Name <b>Herriges Oil Bulk Plant South</b>	BRRTS No. <b>02-67-111819</b>
--	----------------------------------

Inspections are required to be conducted (see closure approval letter):

- ☒ annually  
☐ semi-annually  
☐ other – specify \_\_\_\_\_

When submittal of this form is required, submit the form electronically to the DNR project manager. An electronic version of this filled out form, or a scanned version may be sent to the following email address (see closure approval letter):

Inspection Date	Inspector Name	Item	Describe the condition of the item that is being inspected	Recommendations for repair or maintenance	Previous recommendations implemented?	Photographs taken and attached?
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N
		<input type="checkbox"/> monitoring well <input type="checkbox"/> cover/barrier <input type="checkbox"/> vapor mitigation system <input type="checkbox"/> other:			<input type="radio"/> Y <input type="radio"/> N	<input type="radio"/> Y <input type="radio"/> N

## **Data Tables**

*Tables that follow are for reference only and were not included in the Department's closure documentation sent to affected parties*



A.2 Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

																	NR720 Direct Contact Hazard Risk (PVOC and PAH)		
Sample ID	Depth (feet)	Saturation U/S	Date	PID	Lead (ppm)	DRO (ppm)	GRO (ppm)	Benzene (ppm)	Ethyl-benzene (ppm)	MTBE (ppm)	Naph-thalene (ppm)	Toluene (ppm)	1,2,4-Trime-thylbenzene (ppm)	1,3,5-Trime-thylbenzene (ppm)	Xylene (Total) (ppm)	Other VOC's (ppb)	Exceedance Count	Hazard Index	Cumulative Cancer Risk
B-1	8-12	U	06/01/12	47.0	NS	NS	NS	<0.2	<0.2	<0.2	3.87	0.271J	1.4	1	1.281J	NS			
B-2	8-12	U	06/01/12	8.6	NS	NS	NS	NOT SAMPLED											
B-3	8-12	U	06/01/12	1.5	NS	NS	NS	NOT SAMPLED											
B-4	8-12	U	06/01/12	683.0	NS	NS	NS	<2	12.6	<2	50.7	4.03	(358)*	169	225	NS			
B-5	8-12	U	06/01/12	44.0	NS	NS	NS	NOT SAMPLED											
B-6	8-12	U	06/01/12	40.0	NS	NS	NS	NOT SAMPLED											
B-7	8-12	U	06/01/12	3.0	NS	NS	NS	NOT SAMPLED											
B-8	8-12	U	06/01/12	1.6	NS	NS	NS	NOT SAMPLED											
B-9	8-12	U	06/01/12	2.5	NS	NS	NS	NOT SAMPLED											
B-10	8-12	U	06/01/12	20.2	NS	NS	NS	NOT SAMPLED											
G-1-1	3.5	U	03/25/19	0.10	210.0	NS	NS	0.075	<0.025	<0.025	0.124	0.084	0.056	0.044	0.143	NS	5	0.7357	4.2E-05
G-1-2	8.0	S	03/25/19	0.10	NS	NS	NS									NS			
G-1-3	12.0	S	03/25/19	0.20	NOT SAMPLED														
G-2-1	3.5	U	03/25/19	0.30	49.2	NS	NS	<0.025	<0.025	<0.025	0.082	<0.025	<0.025	0.0284	0.0294-0.0794	NS			
G-2-2	6.0	S	03/25/19	1.00	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
G-2-3	12.0	S	03/25/19	0.80	NOT SAMPLED														
G-2-4	14.0	S	03/25/19	0.70	NOT SAMPLED														
G-2-5	16.0	S	03/25/19	0.60	NOT SAMPLED														
G-3-1	3.5	U	03/25/19	275.20	12.8	NS	NS	<1.25	<1.25	<1.25	(58)	1.4	10.7	6.1	6.65	NS	7	0.6271	3.9E-05
G-3-2	5.0	S	03/25/19	1157.00	NS	2350	4400	0.51	0.33	<0.05	2.78	<0.032	0.035	<0.032	<0.116	SEE VOC SHEET TCLP LEAD <0.1 TCLP BENZENE <0.05			
G-3-3	10.0	S	03/25/19	1.50	NOT SAMPLED														
G-3-4	12.0	S	03/25/19	1.30	NOT SAMPLED														
G-3-5	14.0	S	03/25/19	1.20	NOT SAMPLED														
G-4-1	3.5	U	03/25/19	2.20	4.1	NS	NS	<0.025	<0.025	<0.025	0.10	<0.025	0.045	<0.025	<0.075	NS			
Groundwater RCL					27	-	-	0.0051	1.57	0.027	0.6582	1.1072	1.3787		3.96	-			
Non-Industrial Direct Contact RCL					400	-	-	1.6	8.02	63.8	5.52	818	219	182	260	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					(800)	-	-	(7.07)	(35.4)	(282)	(24.1)	(818)	(219)	(182)	(260)	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	1820*	480*	8870*	-	818*	219*	182*	260*	-			

**Bold** = Groundwater RCL Exceedance  
**Bold & Underline** = Non Industrial Direct Contact RCL Exceedance  
**(Bold & Parentheses)** = Industrial Direct Contact RCL Exceedance  
**Bold & Asteric \*** = C-sat Exceedance  
NS = Not Sampled  
(ppm) = parts per million  
DRO = Diesel Range Organics  
GRO = Gasoline Range Organics  
PID = Photoionization Detector  
PVOC's = Petroleum Volatile Organic Compounds  
VOC's = Volatile Organic Compounds  
**Note: Non-Industrial RCLs apply to this site.**

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

NM = Not Measured  
ND = No Detects

A.2 Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

																	NR720 Direct Contact Hazard Risk (PVOC and PAH)		
Sample ID	Depth (feet)	Saturation U/S	Date	PID	Lead (ppm)	DRO (ppm)	GRO (ppm)	Benzene (ppm)	Ethyl- benzene (ppm)	MTBE (ppm)	Naph- thalene (ppm)	Toluene (ppm)	1,2,4-Trime- thylbenzene (ppm)	1,3,5-Trime- thylbenzene (ppm)	Xylene (Total) (ppm)	Other VOC's (ppb)	Exceedance Count	Hazard Index	Cumulative Cancer Risk
G-4-2	5.0	U	03/25/19	22.20	NS	NS	NS	<1.25	<1.25	<1.25	<b>45</b>	<1.25	<b>5.1</b>	<b>4.0</b>	<b>4.73</b>	NS			
G-4-3	10.0	S	03/25/19	1.90	NOT SAMPLED														
G-4-4	12.0	S	03/25/19	1.00	NOT SAMPLED														
G-4-5	14.0	S	03/25/19	0.90	NOT SAMPLED														
G-5-1	3.0	U	03/25/19	844.00	<b>316.0</b>	NS	NS	<b>2.17</b>	<b>3.2</b>	<0.25	<b>(26.8)</b>	<b>6.1</b>	<b>8.9</b>	<b>9.6</b>	<b>13.8</b>	NS	<b>8</b>	1.3849	<b>7.7E-05</b>
G-5-2	6.0	S	03/25/19	898.00	NS	NS	NS	<b>0.32</b>	0.92	<0.025	<b>4.5</b>	<b>1.5</b>	<b>0.80</b>	<b>2.07</b>	<b>4.05</b>	NS			
G-5-3	10.0	S	03/25/19	61.00	NOT SAMPLED														
G-5-4	12.0	S	03/25/19	4.00	NOT SAMPLED														
G-5-5	14.0	S	03/25/19	1.00	NOT SAMPLED														
G-6-1	3.5	U	03/25/19	4.10	11.9	NS	NS	<b>0.082</b>	0.149	<0.025	0.51	0.28	<b>0.39</b>	<b>1.0</b>	0.761	NS	<b>1</b>	0.0549	<b>9.5E-06</b>
G-6-2	6.0	S	03/25/19	50.40	NS	NS	NS	<0.025	0.111	<0.025	<b>1.71</b>	<0.025	0.262	0.126	0.385	NS			
G-6-3	10.0	S	03/25/19	2.10	NOT SAMPLED														
G-6-4	12.0	S	03/25/19	3.50	NOT SAMPLED														
G-6-5	16.0	S	03/25/19	3.60	NOT SAMPLED														
G-7-1	3.5	U	03/25/19	13.70	6.3	NS	NS	<b>0.075</b>	<0.025	<0.025	0.141	0.061	<0.025	0.0295	<0.075	NS			
G-7-2	6.0	S	03/25/19	2.40	NS	NS	NS	<0.025	0.077	<0.025	0.42	0.035	0.061	0.0296	0.083	NS			
G-7-3	10.0	S	03/25/19	2.30	NOT SAMPLED														
G-7-4	12.0	S	03/25/19	1.30	NOT SAMPLED														
G-7-5	14.0	S	03/25/19	0.90	NS	NS	NS	<0.025	<0.025	<0.025	0.0277	<0.025	<0.025	<0.025	<0.075	NS			
G-8-1	3.5	U	03/25/19	4.30	25.9	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
G-8-2	8.0	S	03/25/19	2.70	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
G-8-3	10.0	S	03/25/19	8.60	NOT SAMPLED														
G-8-4	12.0	S	03/25/19	0.50	NOT SAMPLED														
G-8-5	14.0	S	03/25/19	1.60	NS	NS	NS	<0.025	<0.025	<0.025	0.045	<0.025	<0.025	<0.025	<0.075	NS			
G-9-1	3.5	U	03/25/19	9.70	24.8	NS	NS	<0.025	0.048	<0.025	0.39	0.070	0.14	0.080	0.192	NS			
G-9-2	8.0	S	03/25/19	8.20	NS	NS	NS	<0.025	0.0281	<0.025	0.251	0.041	0.090	0.055	0.139	NS			
G-9-3	10.0	S	03/25/19	1.10	NOT SAMPLED														
Groundwater RCL					<b>27</b>	-	-	<b>0.0051</b>	<b>1.57</b>	<b>0.027</b>	<b>0.6582</b>	<b>1.1072</b>	<b>1.3787</b>		<b>3.96</b>	-			
Non-Industrial Direct Contact RCL					<b>400</b>	-	-	<b>1.6</b>	<b>8.02</b>	<b>63.8</b>	<b>5.52</b>	<b>818</b>	<b>219</b>	<b>182</b>	<b>260</b>	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					<b>(800)</b>	-	-	<b>(7.07)</b>	<b>(35.4)</b>	<b>(282)</b>	<b>(24.1)</b>	<b>(818)</b>	<b>(219)</b>	<b>(182)</b>	<b>(260)</b>	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	<b>1820*</b>	<b>480*</b>	<b>8870*</b>	-	<b>818*</b>	<b>219*</b>	<b>182*</b>	<b>260*</b>	-			

**Bold = Groundwater RCL Exceedance**  
**Bold & Underline = Non Industrial Direct Contact RCL Exceedance**  
**(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance**  
**Bold & Asteric \* = C-sat Exceedance**

NS = Not Sampled                      NM = Not Measured  
(ppm) = parts per million              ND = No Detects

DRO = Diesel Range Organics  
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PVOC's = Petroleum Volatile Organic Compounds  
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**Note: Non-Industrial RCLs apply to this site.**

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
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G-9-4	12.0	S	03/25/19	2.60	NOT SAMPLED														
G-9-5	14.0	S	03/25/19	1.40	NS	NS	NS	<0.025	<0.025	<0.025	0.053	<0.025	<0.025	<0.025	<0.075	NS			
G-10-1	3.5	U	03/25/19	1.80	<b>86.1</b>	NS	NS	<0.025	<0.025	<0.025	0.128	0.072	0.041	0.045	0.049-0.099	NS	<u>1</u>	0.2407	<b>4.9E-06</b>
G-10-2	5.0	U	03/25/19	1.90	NS	NS	NS	<b>0.030</b>	0.035	0.044	0.114	0.143	0.067	0.066	0.181	NS			
G-10-3	10.0	S	03/25/19	2.80	NOT SAMPLED														
G-10-4	12.0	S	03/25/19	1.40	NOT SAMPLED														
G-10-5	14.0	S	03/25/19	2.20	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
G-11-1	3.5	U	03/25/19	2.20	<b>47.0</b>	NS	NS	<0.25	<0.25	<0.25	<b>11.9</b>	<0.25	<0.25	<0.25	<0.75	NS	<u>7</u>	3.5089	<b>6.9E-04</b>
G-11-2	5.0	U	03/25/19	53.80	NS	NS	NS	<1.25	<1.25	<1.25	<b>58</b>	<1.25	<b>2.37</b>	<b>1.87</b>	<3.75	NS			
G-11-3	10.0	S	03/25/19	5.30	T SAMPLED														
G-11-4	12.0	S	03/25/19	0.80	T SAMPLED														
G-11-5	14.0	S	03/25/19	0.80	NS	NS	NS	<0.025	<0.025	<0.025	0.077	<0.025	<0.025	<0.025	<0.075	NS			
G-12-1	3.5	U	03/25/19	27.50	<b>274.0</b>	NS	NS	<0.25	0.42	<0.25	<b>12.3</b>	0.308	<b>4.2</b>	<b>3.8</b>	2.48	NS	<u>2</u>	0.7894	<b>3.9E-06</b>
G-12-2	5.0	U	03/25/19	21.90	NS	NS	NS	<1.25	<1.25	<1.25	<b>60</b>	<1.25	<b>5.1</b>	<b>5.5</b>	1.56-4.06	NS			
G-12-3	10.0	S	03/25/19	3.00	T SAMPLED														
G-12-4	12.0	S	03/25/19	2.20	T SAMPLED														
G-12-5	14.0	S	03/25/19	2.00	NS	NS	NS	<0.025	<0.025	<0.025	0.051	<0.025	<0.025	<0.025	<0.075	NS			
G-13-1	3.5	U	03/26/19	34.40	4.68	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
G-13-2	5.0	S	03/26/19	74.20	NS	NS	NS	<b>0.34</b>	0.289	<0.25	<b>4.6</b>	0.62	<b>1.05</b>	<b>0.90</b>	1.68	NS			
G-13-3	10.0	S	03/26/19	0.60	NOT SAMPLED														
G-13-4	12.0	S	03/26/19	0.80	NOT SAMPLED														
G-13-5	14.0	S	03/26/19	0.70	NS	NS	NS	<0.025	<0.025	<0.025	0.041	<0.025	<0.025	<0.025	<0.075	NS			
G-14-1	3.5	U	03/26/19	1.00	<b>351.0</b>	NS	NS	<0.025	0.0311	<0.025	0.284	0.080	0.112	0.055	0.224	NS	<u>2</u>	0.9333	<b>1.1E-05</b>
G-14-2	8.0	S	03/26/19	1.10	NS	NS	NS	<0.025	0.032	<0.025	0.161	0.040	0.063	0.032	0.186	NS			
G-14-3	10.0	S	03/26/19	0.70	NOT SAMPLED														
G-14-4	12.0	S	03/26/19	0.60	NOT SAMPLED														
G-14-5	14.0	S	03/26/19	0.70	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
Groundwater RCL					<b>27</b>	-	-	<b>0.0051</b>	<b>1.57</b>	<b>0.027</b>	<b>0.6582</b>	<b>1.1072</b>	<b>1.3787</b>		<b>3.96</b>	-			
Non-Industrial Direct Contact RCL					<b>400</b>	-	-	<b>1.6</b>	<b>8.02</b>	<b>63.8</b>	<b>5.52</b>	<b>818</b>	<b>219</b>	<b>182</b>	<b>260</b>	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					<b>(800)</b>	-	-	<b>(7.07)</b>	<b>(35.4)</b>	<b>(282)</b>	<b>(24.1)</b>	<b>(818)</b>	<b>(219)</b>	<b>(182)</b>	<b>(260)</b>	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	<b>1820*</b>	<b>480*</b>	<b>8870*</b>	-	<b>818*</b>	<b>219*</b>	<b>182*</b>	<b>260*</b>	-			

**Bold = Groundwater RCL Exceedance**  
**Bold & Underline = Non Industrial Direct Contact RCL Exceedance**  
**(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance**  
**Bold & Asteric \* = C-sat Exceedance**  
NS = Not Sampled  
(ppm) = parts per million  
DRO = Diesel Range Organics  
GRO = Gasoline Range Organics  
PID = Photoionization Detector  
PVOC's = Petroleum Volatile Organic Compounds  
VOC's = Volatile Organic Compounds  
**Note: Non-Industrial RCLs apply to this site.**

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)



A.2 Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

																	NR720 Direct Contact Hazard Risk (PVOC and PAH)		
Sample ID	Depth (feet)	Saturation U/S	Date	PID	Lead (ppm)	DRO (ppm)	GRO (ppm)	Benzene (ppm)	Ethyl-benzene (ppm)	MTBE (ppm)	Naph-thalene (ppm)	Toluene (ppm)	1,2,4-Trime-thylbenzene (ppm)	1,3,5-Trime-thylbenzene (ppm)	Xylene (Total) (ppm)	Other VOC's (ppb)	Exeedance Count	Hazard Index	Cumulative Cancer Risk
G-15-1	3.5	U	03/26/19	91.10	<b>146.0</b>	NS	NS	<0.025	<0.025	<0.025	0.40	<0.025	0.048	0.035	0.091	NS			
G-15-2	5.0	S	03/26/19	342.90	NS	NS	NS	<b>0.29</b>	<0.25	<0.25	<b>9.2</b>	0.37	<b>1.19</b>	<b>1.28</b>	1.17	NS			
G-15-3	10.0	S	03/26/19	3.60	NOT SAMPLED														
G-15-4	12.0	S	03/26/19	2.00	NOT SAMPLED														
G-15-5	14.0	S	03/26/19	1.20	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-1-1	3.5	U	03/26/19	381.00	NOT SAMPLED														
MW-1-2	8.0	S	03/26/19	852.00	NOT SAMPLED														
MW-1-3	10.0	S	03/26/19	12.50	NOT SAMPLED														
MW-1-4	12.0	S	03/26/19	6.10	NOT SAMPLED														
MW-1-5	14.0	S	03/26/19	4.00	NS	NS	NS	<0.025	<0.025	<0.025	0.0267	<0.025	<0.025	<0.025	<0.075	NS			
MW-2-1	3.5	U	03/26/19	1.90	<b>261.0</b>	NS	NS	<b>0.0268</b>	<0.025	<0.025	0.262	0.034	0.077	0.042	0.054-0.071	NS	<b>5</b>	1.2972	<b>1.3E-04</b>
MW-2-2	5.0	S	03/26/19	1.40	NS	NS	NS	<0.025	<0.025	<0.025	0.201	0.034	0.064	0.037	0.104	NS			
MW-2-3	10.0	S	03/26/19	1.60	NOT SAMPLED														
MW-2-4	12.0	S	03/26/19	1.70	NOT SAMPLED														
MW-2-5	14.0	S		1.20	NS	NS	NS	<0.025	<0.025	<0.025	0.0273	<0.025	<0.025	<0.025	<0.075	NS			
MW-3-1	3.5	U	03/26/19	2.60	3.69	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-3-2	5.0	U	03/26/19	2.60	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-3-3	10.0	S	03/26/19	2.10	NOT SAMPLED														
MW-3-4	12.0	S	03/26/19	2.10	NOT SAMPLED														
MW-3-5	14.0	S	03/26/19	2.00	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-4-1	0-4	U	03/26/19	2.80	<b>51.0</b>	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0261-0.0761	NS	<b>3</b>	0.0877	<b>1.8E-05</b>
MW-4-2	4-8	S	03/26/19	2.70	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-4-3	8.0	S	03/26/19	2.00	NOT SAMPLED														
MW-4-4	12.0	S	03/26/19	2.40	NOT SAMPLED														
MW-4-5	14.0	S	03/26/19	1.70	NS	NS	NS	<0.025	<0.025	<0.025	0.044	<0.025	<0.025	<0.025	<0.075	NS			
MW-5-1	3.5	U	03/26/19	2.60	5.79	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-5-2	8.0	S	03/26/19	2.50	NS	NS	NS	<0.025	<0.025	<0.025	0.071	<0.025	<0.025	<0.025	<0.075	NS			
MW-5-3	10.0	S	03/26/19	1.90	NOT SAMPLED														
Groundwater RCL					<b>27</b>	-	-	<b>0.0051</b>	<b>1.57</b>	<b>0.027</b>	<b>0.6582</b>	<b>1.1072</b>	<b>1.3787</b>		<b>3.96</b>	-			
Non-Industrial Direct Contact RCL					<b>400</b>	-	-	<b>1.6</b>	<b>8.02</b>	<b>63.8</b>	<b>5.52</b>	<b>818</b>	<b>219</b>	<b>182</b>	<b>260</b>	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					<b>(800)</b>	-	-	<b>(7.07)</b>	<b>(35.4)</b>	<b>(282)</b>	<b>(24.1)</b>	<b>(818)</b>	<b>(219)</b>	<b>(182)</b>	<b>(260)</b>	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	<b>1820*</b>	<b>480*</b>	<b>8870*</b>	-	<b>818*</b>	<b>219*</b>	<b>182*</b>	<b>260*</b>	-			

**Bold = Groundwater RCL Exceedance**  
**Bold & Underline = Non Industrial Direct Contact RCL Exceedance**  
**(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance**  
**Bold & Asteric \* = C-sat Exceedance**  
NS = Not Sampled  
(ppm) = parts per million  
DRO = Diesel Range Organics  
GRO = Gasoline Range Organics  
PID = Photoionization Detector  
PVOC's = Petroleum Volatile Organic Compounds  
VOC's = Volatile Organic Compounds  
**Note: Non-Industrial RCLs apply to this site.**

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

A.2 Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

																	NR720 Direct Contact Hazard Risk (PVOC and PAH)		
Sample ID	Depth (feet)	Saturation U/S	Date	PID	Lead (ppm)	DRO (ppm)	GRO (ppm)	Benzene (ppm)	Ethyl-benzene (ppm)	MTBE (ppm)	Naph-thalene (ppm)	Toluene (ppm)	1,2,4-Trime-thylbenzene (ppm)	1,3,5-Trime-thylbenzene (ppm)	Xylene (Total) (ppm)	Other VOC's (ppb)	Exeedance Count	Hazard Index	Cumulative Cancer Risk
MW-5-4	12.0	S	03/26/19	1.80	NOT SAMPLED														
MW-5-5	14.0	S	03/26/19	1.60	NS	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.075	NS			
MW-6-1	3.5	U	12/09/19	0.80	NOT SAMPLED														
MW-6-2	8.0	S	12/09/19	0.60	NOT SAMPLED														
MW-6-3	12.0	S	12/09/19	0.50	NOT SAMPLED														
MW-6-4					NO RECOVERY														
MW-7-1	3.5	U	12/09/19	0.70	NOT SAMPLED														
MW-7-2	8.0	S	12/09/19	0.60	NOT SAMPLED														
MW-7-3	12.0	S	12/09/19	0.30	NOT SAMPLED														
MW-7-4	14.0	S	12/09/19	0.40	NOT SAMPLED														
G-16-1	3.5	U	12/09/19	2.80	NOT SAMPLED												1	0.0355	7.7E-06
G-17-1	3.5	U	12/09/19	1.20	NOT SAMPLED												1	0.0073	1.6E-06
G-18-1	3.5	U	12/09/19	1.20	NOT SAMPLED												1	0.0069	1.4E-06
G-19-1	3.5	U	12/09/19	1.10	NOT SAMPLED														
G-20-1	3.5	U	12/09/19	0.20	NOT SAMPLED												1	0.0176	3.8E-06
G-21-1	3.5	U	12/09/19	0.40	NOT SAMPLED												1	0.0156	3.4E-06
G-22-1	1.5	U	03/08/21	0.50	NOT SAMPLED												1	0.0389	8.1E-06
G-23-1	1.5	U	03/08/21	0.87	NOT SAMPLED												6	2.772	5.7E-04
G-24-1	1.5	U	03/08/21	65.0	NS	NS	NS	0.061	0.159	<0.025	0.68	0.111	8.1	2.93	0.92	NS			
G-25-1	1.5	U	03/08/21	7.80	NS	NS	NS	0.046	0.069	<0.025	0.097	0.244	0.279	0.136	0.682	NS			
G-26-1	3.0	U	03/08/21	0.73	NOT SAMPLED														
G-27-1	3.0	U	03/08/21	0.63	NOT SAMPLED														
G-28-1	3.0	U	03/08/21	1.30	NOT SAMPLED														
G-29-1	1.5	U	03/08/21	0.78	NOT SAMPLED												1	0.0503	1.1E-05
G-30-1	1.5	U	03/08/21	1.70	NOT SAMPLED														
G-31-1	3.0	U	03/08/21	1.30	NOT SAMPLED														
G-32-1	3.0	U	03/08/21	1.30	NOT SAMPLED														
G-33-1	3.0	U	03/08/21	1.00	NOT SAMPLED														
Groundwater RCL					27	-	-	0.0051	1.57	0.027	0.6582	1.1072	1.3787		3.96	-			
Non-Industrial Direct Contact RCL					400	-	-	1.6	8.02	63.8	5.52	818	219	182	260	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					(800)	-	-	(7.07)	(35.4)	(282)	(24.1)	(818)	(219)	(182)	(260)	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	1820*	480*	8870*	-	818*	219*	182*	260*	-			

Bold = Groundwater RCL Exceedance  
Bold & Underline = Non Industrial Direct Contact RCL Exceedance  
(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance  
Bold & Asteric \* = C-sat Exceedance  
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DRO = Diesel Range Organics  
GRO = Gasoline Range Organics  
PID = Photoionization Detector  
PVOC's = Petroleum Volatile Organic Compounds  
VOC's = Volatile Organic Compounds  
Note: Non-Industrial RCLs apply to this site.

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

A.2 Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

Sampling Conducted on March 25, 2019

VOC's		Bold = Groundwater RCL	<u>Underline &amp; Bold = Non- Industrial Direct Contact RCL</u>	(Parenthesis & Bold) = Industrial Direct Contact RCL	Asteric * & Bold =Soil Saturation (C- sat) RCL
Sample ID#	G-3-2				
Sample Depth/ft.	5				
Benzene/ppm	0.51	0.0051	1.6	(7.07)	1820*
Bromobenzene/ppm	< 0.025	==	342	(679)	==
Bromodichloromethane/ppm	< 0.074	0.0003	0.418	(1.83)	==
Bromoform/ppm	< 0.029	0.0023	25.4	(113)	==
tert-Butylbenzene/ppm	0.044 "J"	==	183	(183)	183*
sec-Butylbenzene/ppm	0.55	==	145	(145)	145*
n-Butylbenzene/ppm	1.25	==	108	(108)	108*
Carbon Tetrachloride/ppm	< 0.016	0.0039	0.916	(4.03)	==
Chlorobenzene/ppm	< 0.013	==	370	(761)	761*
Chloroethane/ppm	< 0.091	0.2266	==	==	==
Chloroform/ppm	< 0.035	0.0033	0.454	(1.98)	==
Chloromethane/ppm	< 0.076	0.0155	159	(669)	==
2-Chlorotoluene/ppm	< 0.015	==	==	==	==
4-Chlorotoluene/ppm	< 0.018	==	==	==	==
1,2-Dibromo-3-chloropropane/ppm	< 0.058	0.0002	0.008	(0.092)	==
Dibromochloromethane/ppm	< 0.025	0.032	8.28	(38.9)	==
1,4-Dichlorobenzene/ppm	< 0.037	0.144	3.74	(16.4)	==
1,3-Dichlorobenzene/ppm	< 0.037	1.1528	297	(297)	297*
1,2-Dichlorobenzene/ppm	< 0.028	1.168	376	(376)	376*
Dichlorodifluoromethane/ppm	< 0.048	3.0863	126	(530)	==
1,2-Dichloroethane/ppm	< 0.038	0.0028	0.652	(2.87)	540*
1,1-Dichloroethane/ppm	< 0.034	0.4834	5.06	(22.2)	==
1,1-Dichloroethene/ppm	< 0.022	0.005	320	(1190)	1190*
cis-1,2-Dichloroethene/ppm	< 0.032	0.0412	156	(2340)	==
trans-1,2-Dichloroethene/ppm	< 0.028	0.0626	1560	(1850)	==
1,2-Dichloropropane/ppm	< 0.035	0.0033	3.4	(15)	==
1,3-Dichloropropane/ppm	< 0.025	==	1490	(1490)	1490*
trans-1,3-Dichloropropene/ppm	< 0.022	==	1510	(1510)	==
cis-1,3-Dichloropropene/ppm	< 0.039	0.003	1210	(1210)	==
Di-isopropyl ether/ppm	< 0.01	==	2260	(2260)	2260*
EDB (1,2-Dibromoethane)/ppm	< 0.023	0.0000282	0.05	(0.221)	==
Ethylbenzene/ppm	0.33	1.57	8.02	(35.4)	480*
Hexachlorobutadiene/ppm	< 0.085	==	1.63	(7.19)	==
Isopropylbenzene/ppm	0.84	==	==	==	==
p-Isopropyltoluene/ppm	0.191	==	162	(162)	162*
Methylene chloride/ppm	< 0.15	0.0026	61.8	(1150)	==
Methyl tert-butyl ether (MTBE)/ppm	< 0.05	0.027	63.8	(282)	8870*
Naphthalene/ppm	2.78	0.6582	5.52	(24.1)	==
n-Propylbenzene/ppm	2.16	==	==	==	==
1,1,2,2-Tetrachloroethane/ppm	< 0.028	0.0002	0.81	(3.6)	==
1,1,1,2-Tetrachloroethane/ppm	< 0.028	0.0534	2.78	(12.3)	==
Tetrachloroethene (PCE)/ppm	< 0.032	0.0045	33	(145)	==
Toluene/ppm	< 0.032	1.1072	818	(818)	818*
1,2,4-Trichlorobenzene/ppm	< 0.064	0.408	24	(113)	==
1,2,3-Trichlorobenzene/ppm	< 0.066	==	62.6	(934)	==
1,1,1-Trichloroethane/ppm	< 0.03	0.1402	==	==	==
1,1,2-Trichloroethane/ppm	< 0.033	0.0032	1.59	(7.01)	==
Trichloroethene (TCE)/ppm	< 0.041	0.0036	1.3	(8.41)	==
Trichlorofluoromethane/ppm	< 0.041	2.2387	1230	(1230)	1230*
1,2,4-Trimethylbenzene/ppm	0.035 "J"	1.3787	219	(219)	219*
1,3,5-Trimethylbenzene/ppm	< 0.032	==	182	(182)	182*
Vinyl Chloride/ppm	< 0.019	0.0001	0.07	(2.08)	==
m&p-Xylene/ppm	< 0.072	3.96	260	(260)	260*
o-Xylene/ppm	< 0.044	==	==	==	==

NS = Not Sampled, NM = Not Measured

(ppm) = parts per million

= = No Exceedences

"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Note: Non-Industrial RCLs apply to this site.



**A.2 Soil Analytical Results Table  
(PAH)**  
**Herriges Oil BP S BRRTS #02-67-111819**

NR722 Direct Contact Hazard Risk (cPAH)																								
Sample	Depth (feet)	Saturation U/S	Date	Acenaph-thene (ppm)	Acenaph-thylene (ppm)	Anthracene (ppm)	Benzo(a) anthracene (ppm)	Benzo(a) pyrene (ppm)	Benzo(b) fluoranthene (ppm)	Benzo(g,h,i) perylene (ppm)	Benzo(k) fluoranthene (ppm)	Chrysene (ppm)	Dibenzo(a,h) anthracene (ppm)	Fluoranthene (ppm)	Fluorene (ppm)	Indeno(1,2,3-cd) pyrene (ppm)	1-Methyl-naphthalene (ppm)	2-Methyl-naphthalene (ppm)	Naph-thalene (ppm)	Phenan-threne (ppm)	Pyrene (ppm)	Exceedance Count	Hazard Index	Cumulative Cancer Risk
G-1-1	3.5	U	03/25/19	0.16	0.54	0.91	2.46	(3.60)	5.00	3.50	1.59	3.70	0.239	6.00	0.301	2.61	0.166	0.198	0.172	2.60	5.40	5	0.2022	4.20E-05
G-2-1	3.5	U	03/25/19	<0.0163	0.01	<0.0043	<0.016	<0.0124	<0.0109	0.0111	<0.0091	<0.006	<0.0101	0.0057	<0.0086	<0.0082	<0.0086	<0.0147	<0.0153	<0.0071	<0.0067			
G-3-1	3.5	U	03/25/19	0.44	0.65	0.73	1.71	(2.22)	3.30	2.37	1.03	2.43	0.13	3.60	1.28	1.57	19.6	24	12.6	2.56	3.50	7	0.1247	2.6E-05
G-4-1	3.5	U	03/25/19	<0.0163	0.0124	0.0049	<0.016	<0.0124	0.0154	0.0106	<0.0091	0.0102	<0.0101	0.0173	<0.0086	<0.0082	0.164	0.038	0.059	0.0164	0.0143			
G-5-1	3.0	U	03/25/19	1.87	1.94	1.69	2.83	(5.00)	7.40	6.40	1.98	4.00	1.33	6.70	3.06	4.60	33.0	13.2	8.20	4.30	7.40	7	0.2809	6.8E-05
G-6-1	3.5	U	03/25/19	0.0203	0.06	0.262	0.68	0.79	1.10	0.66	0.35	0.84	0.042	1.62	0.044	0.53	0.071	0.097	0.079	0.73	1.32	1	0.0444	9.3E-06
G-7-1	3.5	U	03/25/19	<0.0163	<0.0086	<0.0043	0.0195	0.0134	0.0209	0.0122	<0.0091	0.0172	<0.0101	0.0214	<0.0086	<0.0082	0.0278	0.0232	<0.0153	0.0242	0.0182			
G-8-1	3.5	U	03/25/19	<0.0163	<0.0086	<0.0043	<0.016	<0.0124	<0.0109	<0.0084	<0.0091	<0.006	<0.0101	<0.0054	<0.0086	<0.0082	<0.0086	<0.0147	<0.0153	<0.0071	<0.0067			
G-9-1	3.5	U	03/25/19	<0.0163	0.036	0.037	0.0283	0.0167	0.039	0.0229	0.01	0.0294	<0.0101	0.036	0.0089	0.0166	0.274	0.293	0.102	0.148	0.037			
G-10-1	3.5	U	03/25/19	0.037	0.07	0.122	0.39	0.41	0.61	0.306	0.192	0.45	0.0255	0.70	0.038	0.235	0.094	0.109	0.076	0.53	0.67	1	0.023	4.9E-06
G-11-1	3.5	U	03/25/19	14.1	2.35	59.0	(66.0)	(58.0)	(78.0)	29.5	27.0	65.0	(2.89)	166	26.0	(28.1)	6.00	4.10	4.60	158	130	6	3.2584	6.8E-04
G-12-1	3.5	U	03/25/19	<0.0163	0.068	0.056	0.101	0.116	0.169	0.129	0.056	0.102	<0.0101	0.165	0.032	0.091	0.071	0.136	0.0192	0.135	0.141	1	0.0065	1.4E-06
G-13-1	3.5	U	03/26/19	<0.0163	0.0293	0.0166	0.04	0.038	0.054	0.044	0.018	0.036	<0.0101	0.052	0.0098	0.0253	<0.0086	<0.0147	<0.0153	0.038	0.046			
G-14-1	3.5	U	03/26/19	<0.0163	0.32	0.202	0.61	0.92	1.38	0.86	0.42	0.79	0.052	0.95	0.045	0.61	0.113	0.142	0.078	0.40	0.91	2	0.0517	1.1E-05
G-15-1	3.5	U	03/26/19	<0.0163	0.0171	0.06	<0.016	<0.0124	<0.0109	0.022	<0.0091	<0.006	<0.0101	0.0062	0.0209	0.0088	0.154	0.36	0.141	0.05	0.0107			
MW-2-1	3.5	U	03/26/19	0.97	0.273	6.70	11.9	(11.0)	15.5	5.90	5.10	11.8	0.59	25.7	2.12	5.60	0.172	0.173	0.097	15.8	20.6	5	0.618	1.3E-04
MW-3-1	3.5	U	03/26/19	<0.0163	<0.0086	0.0079	0.0192	0.0134	0.0201	<0.0084	<0.0091	0.0146	<0.0101	0.0247	<0.0086	<0.0082	<0.0086	<0.00147	<0.0153	0.0177	0.0205			
MW-4-1	0.4	U	03/26/19	0.34	0.039	0.94	1.52	1.47	2.42	0.90	0.65	1.85	0.061	4.70	0.45	0.85	0.045	0.053	0.042	4.40	3.50	3	0.0826	1.8E-05
MW-5-1	3.5	U	03/26/19	<0.0163	<0.0086	<0.0043	<0.016	<0.0124	<0.0109	<0.0084	<0.0091	0.0064	<0.0101	0.0102	<0.0086	<0.0082	<0.0086	<0.0147	<0.0153	0.0098	0.0093			
G-16-1	3.5	U	12/09/19	<0.0163	0.21	0.094	0.36	0.62	0.74	0.64	0.262	0.42	0.109	0.51	0.0151	0.48	0.0098	<0.0147	0.022	0.185	0.50	1	0.0348	7.7E-06
G-17-1	3.5	U	12/09/19	<0.0163	0.067	0.0311	0.088	0.125	0.183	0.139	0.058	0.116	0.0239	0.128	0.0095	0.107	0.0086	<0.0147	<0.0153	0.063	0.122	1	0.007	1.6E-06
G-18-1	3.5	U	12/09/19	<0.0163	0.0104	0.042	0.109	0.116	0.159	0.084	0.056	0.123	0.0134	0.293	0.0187	0.077	<0.0086	<0.0147	<0.0153	0.227	0.243	1	0.0065	1.4E-06
G-19-1	3.5	U	12/09/19	<0.0163	0.0228	0.0125	0.04	0.048	0.074	0.054	0.0203	0.046	<0.0101	0.058	<0.0086	0.042	<0.0086	<0.0147	<0.0153	0.0279	0.055			
G-20-1	3.5	U	12/09/19	0.0294	<0.0086	0.103	0.303	0.298	0.45	0.237	0.133	0.35	0.043	0.82	0.035	0.21	<0.0086	<0.0147	<0.0153	0.49	0.64	1	0.0167	3.8E-06
G-21-1	3.5	U	12/09/19	<0.0163	0.0198	0.058	0.231	0.267	0.38	0.211	0.127	0.267	0.039	0.52	0.0132	0.185	<0.0086	<0.0147	<0.0153	0.221	0.44	1	0.015	3.4E-06
G-22-1	1.5	U	03/08/21	0.064	0.034	0.306	0.76	0.66	0.88	0.294	0.283	0.74	0.067	1.87	0.069	0.37	<0.0101	<0.0138	<0.0096	0.99	1.47	1	0.0371	8.1E-06
G-23-1	1.5	U	03/08/21	8.90	2.45	36.0	(50.0)	(47.0)	(53.0)	26.3	19.6	45.0	(5.50)	114	13.9	(29.5)	2.22	1.39	2.62	88.0	94.0	6	2.6404	5.7E-04
G-24-1	1.5	U	03/08/21	0.44	0.263	0.269	0.059	0.064	0.085	0.046	0.0258	0.066	<0.0142	0.128	0.64	0.051	4.70	1.09	0.68	0.99	0.199			
G-25-1	1.5	U	03/08/21	<0.0132	0.044	0.037	0.0289	0.062	0.074	0.065	0.0179	0.0314	<0.0142	0.033	0.0135	0.057	0.126	0.192	0.097	0.079	0.07			
G-26-1	3.0	U	03/08/21	<0.0132	0.0165	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	<0.0091	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	0.008	<0.0091			
G-27-1	3.0	U	03/08/21	<0.0132	0.0124	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	<0.0091	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	<0.0077	<0.0091			
G-28-1	3.0	U	03/08/21	<0.0132	0.0116	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	0.0115	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	0.0103	0.0111			
G-29-1	1.5	U	03/08/21	0.0145	0.052	0.155	0.80	0.87	1.14	0.41	0.38	0.81	0.097	1.39	0.0198	0.51	0.0221	0.0198	0.0155	0.28	1.19	1	0.0489	1.1E-05
G-30-1	1.5	U	03/08/21	<0.0132	<0.0092	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	<0.0091	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	<0.0077	<0.0091			
G-31-1	3.0	U	03/08/21	<0.0132	0.0237	0.0148	0.051	0.059	0.087	0.036	0.0266	0.051	<0.0142	0.075	<0.0094	0.043	<0.0101	<0.0138	<0.0096	0.0249	0.07			
G-32-1	3.0	U	03/08/21	<0.0132	<0.0092	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	0.0095	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	<0.0077	0.0109			
G-33-1	3.0	U	03/08/21	<0.0132	<0.0092	<0.0073	<0.0158	<0.0142	<0.0099	<0.0118	<0.0091	<0.0124	<0.0142	0.0159	<0.0094	<0.0126	<0.0101	<0.0138	<0.0096	0.011	0.0129			
HS-1	1-1.5	U	04/12/22	0.067	0.198	0.47	1.52	1.66	2.23	1.14	0.86	1.74	0.255	3.40	0.08	0.92	<0.0118	<0.0186	<0.0201	1.38	2.78	4	0.0965	2.1E-05
HS-2	1-1.5	U	04/12/22	0.193	<0.018	0.86	3.60	(2.72)	4.10	2.18	1.31	3.30	0.39	9.10	0.169	1.75	<0.0236	<0.0372	<0.0402	4.10	7.00	5	0.1611	3.5E-05
HS-3	1-1.5	U	04/12/22	<0.011	<0.009	0.036	0.141	0.114	0.157	0.10	0.079	0.157	0.0174	0.41	<0.0091	0.061	<0.0118	<0.0186	<0.0201	0.182	0.33	0	0	0.0E+00
		U																						
Groundwater RCL				---	---	197	---	0.47	0.4781	---	---	0.1442	---	88.8	14.8	---	---	---	0.6582	---	54.5			
Non-Industrial Direct Contact RCL				3590	---	17900	1.14	0.115	1.15	---	11.5	115	0.115	2390	2390	1.15	17.6	239	5.52	---	1790		1.00E+00	5.00E-06
Industrial Direct Contact RCL				(45200)	---	(100000)	(20.8)	(2.11)	(21.1)	---	(211)	(2110)	(2.11)	(30100)	(30100)	(21.1)	(72.7)	(3010)	(24.1)	---	(22600)			
Soil Saturation Concentration (C-sat)*				---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			

**Bold** = Groundwater RCL Exceedance  
**Bold & Underline** = **Non Industrial Direct Contact RCL Exceedance**  
**(Bold & Parentheses)** = Industrial Direct Contact RCL Exceedance  
**Bold & Asteric \*** = C-sat Exceedance  
 NS = Not Sampled  
 (ppm) = parts per million  
 PAH = Polynuclear Aromatic Hydrocarbons

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
 S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)  
 NM = Not Measured  
 ND = No Detects

A.3 Residual Soil Analytical Results Table  
Herriges Oil BP S BRRTS #02-67-111819

NR720 Direct Contact Hazard Risk (PVOC and PAH)																			
Sample ID	Depth (feet)	Saturation U/S	Date	PID	Lead (ppm)	DRO (ppm)	GRO (ppm)	Benzene (ppm)	Ethyl-benzene (ppm)	MTBE (ppm)	Naphthalene (ppm)	Toluene (ppm)	1,2,4-Trime-thylbenzene (ppm)	1,3,5-Trime-thylbenzene (ppm)	Xylene (Total) (ppm)	Other VOC's (ppb)	Exeedance Count	Hazard Index	Cumulative Cancer Risk
B-1	8-12	S	06/01/12	47.0	NS	NS	NS	<0.2	<0.2	<0.2	3.87	0.271J	1.4	1	1.281J	NS			
B-4	8-12	S	06/01/12	683.0	NS	NS	NS	<2	12.6	<2	50.7	4.03	358*	169	225	NS			
G-1-1	3.5	U	03/25/19	0.10	210.0	NS	NS	0.075	<0.025	<0.025	0.124	0.084	0.056	0.044	0.143	NS	5	0.7357	4.2E-05
G-2-1	3.5	U	03/25/19	0.30	49.2	NS	NS	<0.025	<0.025	<0.025	0.082	<0.025	<0.025	0.0284	0.0294-0.0794	NS			
G-3-1	3.5	U	03/25/19	275.20	12.8	NS	NS	<1.25	<1.25	<1.25	58	1.4	10.7	6.1	6.65	NS	7	0.6271	3.9E-05
G-3-2	5.0	S	03/25/19	1157.00	NS	2350	4400	0.51	0.33	<0.05	2.78	<0.032	0.035	<0.032	<0.116	SEE VOC SHEET TCLP LEAD <0.1 TCLP BENZENE <0.05			
G-4-2	5.0	U	03/25/19	22.20	NS	NS	NS	<1.25	<1.25	<1.25	45	<1.25	5.1	4.0	4.73	NS			
G-5-1	3.0	U	03/25/19	844.00	316.0	NS	NS	2.17	3.2	<0.25	26.8	6.1	8.9	9.6	13.8	NS	8	1.3849	7.7E-05
G-5-2	6.0	S	03/25/19	898.00	NS	NS	NS	0.32	0.92	<0.025	4.5	1.5	0.80	2.07	4.05	NS			
G-6-1	3.5	U	03/25/19	4.10	11.9	NS	NS	0.082	0.149	<0.025	0.51	0.28	0.39	1.0	0.761	NS	1	0.0549	9.5E-06
G-6-2	6.0	S	03/25/19	50.40	NS	NS	NS	<0.025	0.111	<0.025	1.71	<0.025	0.262	0.126	0.385	NS			
G-7-1	3.5	U	03/25/19	13.70	6.3	NS	NS	0.075	<0.025	<0.025	0.141	0.061	<0.025	0.0295	<0.075	NS			
G-10-1	3.5	U	03/25/19	1.80	86.1	NS	NS	<0.025	<0.025	<0.025	0.128	0.072	0.041	0.045	0.049-0.099	NS	1	0.2407	4.9E-06
G-10-2	5.0	U	03/25/19	1.90	NS	NS	NS	0.030	0.035	0.044	0.114	0.143	0.067	0.066	0.181	NS			
G-11-1	3.5	U	03/25/19	2.20	47.0	NS	NS	<0.25	<0.25	<0.25	11.9	<0.25	<0.25	<0.25	<0.75	NS	7	3.5089	6.9E-04
G-11-2	5.0	U	03/25/19	53.80	NS	NS	NS	<1.25	<1.25	<1.25	58	<1.25	2.37	1.87	<3.75	NS			
G-12-1	3.5	U	03/25/19	27.50	274.0	NS	NS	<0.25	0.42	<0.25	12.3	0.308	4.2	3.8	2.48	NS	2	0.7894	3.9E-06
G-12-2	5.0	U	03/25/19	21.90	NS	NS	NS	<1.25	<1.25	<1.25	60	<1.25	5.1	5.5	1.56-4.06	NS			
G-13-2	5.0	S	03/26/19	74.20	NS	NS	NS	0.34	0.289	<0.25	4.6	0.62	1.05	0.90	1.68	NS			
G-14-1	3.5	U	03/26/19	1.00	351.0	NS	NS	<0.025	0.0311	<0.025	0.284	0.080	0.112	0.055	0.224	NS	2	0.9333	1.1E-05
G-15-1	3.5	U	03/26/19	91.10	146.0	NS	NS	<0.025	<0.025	<0.025	0.40	<0.025	0.048	0.035	0.091	NS			
G-15-2	5.0	S	03/26/19	342.90	NS	NS	NS	0.29	<0.25	<0.25	9.2	0.37	1.19	1.28	1.17	NS			
MW-2-1	3.5	U	03/26/19	1.90	261.0	NS	NS	0.0268	<0.025	<0.025	0.262	0.034	0.077	0.042	0.054-0.071	NS	5	1.2972	1.3E-04
MW-4-1	0-4	U	03/26/19	2.80	51.0	NS	NS	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0261-0.0761	NS	3	0.0877	1.8E-05
G-24-1	1.5	U	03/08/21	65.0	NS	NS	NS	0.061	0.159	<0.025	0.68	0.111	8.1	2.93	0.92	NS			
G-25-1	1.5	U	03/08/21	7.80	NS	NS	NS	0.046	0.069	<0.025	0.097	0.244	0.279	0.136	0.682	NS			
Groundwater RCL					27	-	-	0.0051	1.57	0.027	0.6582	1.1072	1.3787		3.96	-			
Non-Industrial Direct Contact RCL					400	-	-	1.6	8.02	63.8	5.52	818	219	182	260	-		1.00E+00	1.00E-05
Industrial Direct Contact RCL					(800)	-	-	(7.07)	(35.4)	(282)	(24.1)	(818)	(219)	(182)	(260)	-		1.00E+00	1.00E-05
Soil Saturation Concentration (C-sat)*					-	-	-	1820*	480*	8870*	-	818*	219*	182*	260*	-			

Bold = Groundwater RCL Exceedance

Bold & Underline = Non Industrial Direct Contact RCL Exceedance

(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance

Bold & Asteric \* = C-sat Exceedance

NS = Not Sampled

NM = Not Measured

(ppm) = parts per million

ND = No Detects

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

PID = Photoionization Detector

PVOC's = Petroleum Volatile Organic Compounds

VOC's = Volatile Organic Compounds

Note: Non-Industrial RCLs apply to this site.

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)



A.3 Residual Soil Analytical Results Table  
(PAH)  
Herriges Oil BP S BRRTS #02-67-111819

																					NR722 Direct Contact Hazard Risk (cPAH)			
Sample	Depth (feet)	Saturation U/S	Date	Acenaph-thene (ppm)	Acenaph-thylene (ppm)	Anthracene (ppm)	Benzo(a) anthracene (ppm)	Benzo(a) pyrene (ppm)	Benzo(b) fluoranthene (ppm)	Benzo(g,h,i) perylene (ppm)	Benzo(k) fluoranthene (ppm)	Chrysene (ppm)	Dibenzo(a,h) anthracene (ppm)	Fluoranthene (ppm)	Fluorene (ppm)	Indeno(1,2,3-cd) pyrene (ppm)	1-Methyl-naphthalene (ppm)	2-Methyl-naphthalene (ppm)	Naph-thalene (ppm)	Phenan-threne (ppm)	Pyrene (ppm)	Exceedance Count	Hazard Index	Cumulative Cancer Risk
G-1-1	3.5	U	03/25/19	0.16	0.54	0.91	2.46	(3.60)	5.00	3.50	1.59	3.70	0.239	6.00	0.301	2.61	0.166	0.198	0.172	2.60	5.40	5	0.2022	4.2E-05
G-3-1	3.5	U	03/25/19	0.44	0.65	0.73	1.71	(2.22)	3.30	2.37	1.03	2.43	0.13	3.60	1.28	1.57	19.6	24	12.6	2.56	3.50	7	0.1247	2.6E-05
G-5-1	3.0	U	03/25/19	1.87	1.94	1.69	2.83	(5.00)	7.40	6.40	1.98	4.00	1.33	6.70	3.06	4.60	33.0	13.2	8.20	4.30	7.40	7	0.2809	6.8E-05
G-6-1	3.5	U	03/25/19	0.0203	0.06	0.262	0.68	0.79	1.10	0.66	0.35	0.84	0.042	1.62	0.044	0.53	0.071	0.097	0.079	0.73	1.32	1	0.0444	9.3E-06
G-10-1	3.5	U	03/25/19	0.037	0.07	0.122	0.39	0.41	0.61	0.306	0.192	0.45	0.0255	0.70	0.038	0.235	0.094	0.109	0.076	0.53	0.67	1	0.023	4.9E-06
G-11-1	3.5	U	03/25/19	14.1	2.35	59.0	(66.0)	(58.0)	(78.0)	29.5	27.0	65.0	(2.89)	166	26.0	(28.1)	6.00	4.10	4.60	158	130	6	3.2584	6.8E-04
G-12-1	3.5	U	03/25/19	<0.0163	0.068	0.056	0.101	0.116	0.169	0.129	0.056	0.102	<0.0101	0.165	0.032	0.091	0.071	0.136	0.0192	0.135	0.141	1	0.0065	1.4E-06
G-14-1	3.5	U	03/26/19	<0.0163	0.32	0.202	0.61	0.92	1.38	0.86	0.42	0.79	0.052	0.95	0.045	0.61	0.113	0.142	0.078	0.40	0.91	2	0.0517	1.1E-05
MW-2-1	3.5	U	03/26/19	0.97	0.273	6.70	11.9	(11.0)	15.5	5.90	5.10	11.8	0.59	25.7	2.12	5.60	0.172	0.173	0.097	15.8	20.6	5	0.618	1.3E-04
MW-4-1	0-4	U	03/26/19	0.34	0.039	0.94	1.52	1.47	2.42	0.90	0.65	1.85	0.061	4.70	0.45	0.85	0.045	0.053	0.042	4.40	3.50	3	0.0826	1.8E-05
G-16-1	3.5	U	12/09/19	<0.0163	0.21	0.094	0.36	0.62	0.74	0.64	0.262	0.42	0.109	0.51	0.0151	0.48	0.0098	<0.0147	0.022	0.185	0.50	1	0.0348	7.7E-06
G-17-1	3.5	U	12/09/19	<0.0163	0.067	0.0311	0.088	0.125	0.183	0.139	0.058	0.116	0.0239	0.128	0.0095	0.107	0.0086	<0.0147	<0.0153	0.063	0.122	1	0.007	1.6E-06
G-18-1	3.5	U	12/09/19	<0.0163	0.0104	0.042	0.109	0.116	0.159	0.084	0.056	0.123	0.0134	0.293	0.0187	0.077	<0.0086	<0.0147	<0.0153	0.227	0.243	1	0.0065	1.4E-06
G-20-1	3.5	U	12/09/19	0.0294	<0.0086	0.103	0.303	0.298	0.45	0.237	0.133	0.35	0.043	0.82	0.035	0.21	<0.0086	<0.0147	<0.0153	0.49	0.64	1	0.0167	3.8E-06
G-21-1	3.5	U	12/09/19	<0.0163	0.0198	0.058	0.231	0.267	0.38	0.211	0.127	0.267	0.039	0.52	0.0132	0.185	<0.0086	<0.0147	<0.0153	0.221	0.44	1	0.015	3.4E-06
G-22-1	1.5	U	03/08/21	0.064	0.034	0.306	0.76	0.66	0.88	0.294	0.283	0.74	0.067	1.87	0.069	0.37	<0.0101	<0.0138	<0.0096	0.99	1.47	1	0.0371	8.1E-06
G-23-1	1.5	U	03/08/21	8.90	2.45	36.0	(50.0)	(47.0)	(53.0)	26.3	19.6	45.0	(5.50)	114	13.9	(29.5)	2.22	1.39	2.62	88.0	94.0	6	2.6404	5.7E-04
G-24-1	1.5	U	03/08/21	0.44	0.263	0.269	0.059	0.064	0.085	0.046	0.0258	0.066	<0.0142	0.128	0.64	0.051	4.70	1.09	0.68	0.99	0.199			
G-29-1	1.5	U	03/08/21	0.0145	0.052	0.155	0.80	0.87	1.14	0.41	0.38	0.81	0.097	1.39	0.0198	0.51	0.0221	0.0198	0.0155	0.28	1.19	1	0.0489	1.1E-05
HS-1	1-1.5	U	04/12/22	0.067	0.198	0.47	1.52	1.66	2.23	1.14	0.86	1.74	0.255	3.4	0.08	0.92	<0.0118	<0.0186	<0.0201	1.38	2.78	4	0.0965	2.1E-05
HS-2	1-1.5	U	04/12/22	0.193	<0.018	0.86	3.60	(2.72)	4.10	2.18	1.31	3.30	0.39	9.10	0.169	1.75	<0.0236	<0.0372	<0.0402	4.10	7.00	5	0.1611	3.5E-05
HS-3	1-1.5	U	04/12/22	<0.011	<0.009	0.036	0.141	0.114	0.157	0.10	0.079	0.157	0.0174	0.41	<0.0091	0.061	<0.0118	<0.0186	<0.0201	0.182	0.33	0	0	0.0E+00
Groundwater RCL				----	----	197	----	0.47	0.4781	----	----	0.1442	----	88.8	14.8	----	----	----	0.6582	----	54.5			
Non-Industrial Direct Contact RCL				3590	----	17900	1.14	0.115	1.15	----	11.5	115	0.115	2390	2390	1.15	17.6	239	5.52	----	1790		1.00E+00	5.00E-06
Industrial Direct Contact RCL				(45200)	----	(100000)	(20.8)	(2.11)	(21.1)	----	(211)	(2110)	(2.11)	(30100)	(30100)	(21.1)	(72.7)	(3010)	(24.1)	----	(22600)			
Soil Saturation Concentration (C-sat)*				----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----			

Bold = Groundwater RCL Exceedance

Bold & Underline = Non Industrial Direct Contact RCL Exceedance

(Bold & Parentheses) = Industrial Direct Contact RCL Exceedance

Bold & Asteric \* = C-sat Exceedance

NS = Not Sampled

(ppm) = parts per million

NM = Not Measured

ND = No Detects

U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

**A.1 Groundwater Analytical Table**  
**Herriges Oil BP S BRRTS #02-67-111819**

**Well MW-1**

**PVC Elevation =** 945.77 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
06/18/19	941.96	3.81	<1.1	<b>16.9</b>	4.8	<0.28	24.8	<0.19	6.11	1.53-1.82
09/10/19	941.79	3.98	NS	<b>20.6</b>	4.8	<0.24	0.224	0.4	3.71	1.51-2.21
01/06/20	942.26	3.51	NS	<b>31</b>	8.7	<0.71	3.80	0.68	1.47-2.13	<2.04
3/25/2020	942.57	3.20	NS	<b>22.5</b>	7.1	<0.71	2.42	0.72	8.51	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**Well MW-2**

**PVC Elevation =** 946.00 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
06/18/19	942.35	3.65	<1.1	<b>7.2</b>	<0.26	6.7	<2.1	<0.19	<1.43	<0.72
09/10/19	941.80	4.20	NS	<b>19.4</b>	<0.29	4.3	0.12	<0.29	<1.13	<1.22
01/06/20	941.98	4.02	NS	<b>7.7</b>	<0.55	2.4	1.36	<0.62	<1.37	<2.04
3/25/2020	943.05	2.95	NS	<b>17.7</b>	<0.55	1.68	1.26	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**Well MW-3**

**PVC Elevation =** 945.70 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
06/18/19	934.54	11.16	<1.1	<0.22	<0.26	0.56	<2.1	<0.19	<1.43	<0.72
09/10/19	934.39	11.31	NS	<0.32	<0.29	<0.24	0.041	<0.29	<1.13	<1.22
01/06/20	934.53	11.17	NS	<0.48	<0.55	<0.71	0.114	<0.62	<1.37	<2.04
3/25/2020	934.80	10.90	NS	<0.48	<0.55	<0.71	<0.013	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**A.1 Groundwater Analytical Table**  
**Herriges Oil BP S BRRTS #02-67-111819**

**Well MW-4**

**PVC Elevation =** 944.56 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
06/18/19	935.96	8.60	<1.1	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
09/10/19	935.25	9.31	NS	<0.32	<0.29	<0.24	0.051	<0.29	<1.13	<1.22
01/06/20	935.87	8.69	NS	<0.48	<0.55	<0.71	0.075	<0.62	<1.37	<2.04
3/25/2020	936.47	8.09	NS	<0.48	<0.55	<0.71	<0.03	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**Well MW-5**

**PVC Elevation =** 944.37 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
06/18/19	936.04	8.33	<1.1	<0.22	<0.26	3.7	<2.1	<0.19	<1.43	<0.72
09/10/19	935.96	8.41	NS	<0.32	<0.29	3.02	0.046	<0.29	<1.13	<1.22
01/06/20	936.30	8.07	NS	<0.48	<0.55	3.6	0.066	<0.62	<1.37	<2.04
3/25/2020	936.63	7.74	NS	<0.48	<0.55	3.4	<0.03	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**Well MW-6**

**PVC Elevation =** 944.13 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
01/06/20	936.08	8.05	NS	<0.22	<0.26	<0.28	0.109	<0.19	<1.43	<0.72
3/25/2020	938.50	5.63	NS	<0.48	<0.55	<0.71	<0.03	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

**A.1 Groundwater Analytical Table**  
**Herriges Oil BP S BRRTS #02-67-111819**

**Well MW-7**

**PVC Elevation =** 944.00 (feet) (MSL)

Date	Water Elevation (in feet msl)	Depth to water from top of PVC (in feet)	Lead (ppb)	Benzene (ppb)	Ethyl- benzene (ppb)	MTBE (ppb)	Naph- thalene (ppb)	Toluene (ppb)	Trimethyl- benzenes (ppb)	Xylene (Total) (ppb)
01/06/20	935.50	8.50	NS	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
3/25/2020	936.28	7.72	NS	<0.48	<0.55	<0.71	<0.03	<0.62	<1.37	<2.04
<b>ENFORCEMENT STANDARD ES = Bold</b>			<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = <i>Italics</i></b>			<i>1.5</i>	<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

A.1 Groundwater Analytical Table  
(PAH)  
Herriges Oil BP S BRRTS #02-67-111819

Well MW-1

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
6/18/2019	<0.0282	<0.0468	<0.045	0.049	<0.0501	<0.048	<0.0426	<0.0438	<0.0471	<0.0519	0.032	0.036	<0.0363	<0.0573	<0.0558	<0.078	<0.0429	<0.0363
9/10/2019	0.127	0.057	0.052	0.027	0.0181	0.042	0.0289	0.0167	0.0254	<0.0173	0.042	0.84	<0.0121	0.123	0.107	0.224	0.082	0.037
1/6/2020	0.289	0.0296	0.172	<0.02	<0.0167	0.0234	0.0163	<0.0146	<0.0157	<0.0173	0.0312	0.39	<0.0121	2.84	0.184	3.80	0.133	0.0239
3/25/2020	0.42	0.078	0.097	0.0213	<0.0167	<0.016	<0.0142	<0.0146	<0.0157	<0.0173	0.0308	0.53	<0.0121	3.9	0.36	2.42	0.153	0.0274
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million  
NS = not sampled NM = not measured  
Note: Elevations are presented in feet mean sea level (msl).

Well MW-2

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
6/18/2019	<0.0094	<0.0156	<0.015	0.036	0.021	0.033	0.024	0.022	0.035	0.020	0.031	0.013	0.023	<0.0191	<0.0186	0.101	0.042	0.029
9/10/2019	0.0154	<0.0156	0.0165	0.033	0.0276	0.057	0.048	0.021	0.037	<0.0173	0.062	0.0215	<0.0121	0.04	0.0188	0.12	0.046	0.051
1/6/2020	0.143	0.034	0.039	0.091	0.122	0.218	0.113	0.069	0.131	0.0201	0.184	0.037	0.085	1.13	0.251	1.36	0.099	0.164
3/25/2020	0.17	0.044	0.079	0.234	0.35	0.74	0.286	0.202	0.38	0.0570	0.64	0.076	0.256	1.37	0.146	1.26	0.253	0.55
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million  
NS = not sampled NM = not measured  
Note: Elevations are presented in feet mean sea level (msl).

Well MW-3

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
6/18/2019	<0.0094	<0.0156	<0.015	0.018	<0.0167	0.038	0.027	0.017	0.027	<0.0173	0.033	<0.0079	0.018	<0.0191	<0.0186	<0.026	0.026	0.038
9/10/2019	<0.0094	<0.0156	<0.015	0.0166	<0.0167	0.0218	0.0143	<0.0146	0.0158	<0.0173	0.0192	<0.0079	<0.0121	0.084	0.066	0.041	0.0218	0.0199
1/6/2020	0.0253	<0.0156	0.0186	0.0265	0.03	0.051	0.029	0.0266	0.033	<0.0173	0.041	0.06	0.0229	0.158	0.176	0.114	0.14	0.038
3/25/2020	<0.0094	<0.0156	<0.015	<0.02	<0.0167	0.0234	0.0149	<0.0146	<0.0157	<0.0173	0.0134	<0.0079	<0.0121	<0.0191	<0.0186	<0.03	0.0146	0.0123
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million  
NS = not sampled NM = not measured  
Note: Elevations are presented in feet mean sea level (msl).



# A.1 Groundwater Analytical Table

(PAH)

Herriges Oil BP S BRRTS #02-67-111819

Well MW-4

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
6/18/2019	<0.0094	<0.0156	<0.015	0.024	<0.0167	0.037	0.024	0.017	0.028	<0.0173	0.036	<0.0079	0.022	<0.0191	<0.0186	0.062	0.045	0.031
9/10/2019	<0.0094	<0.0156	0.0277	0.051	0.032	0.076	0.038	0.027	0.055	<0.0173	0.124	0.012	<0.0121	<0.0191	<0.0186	0.051	0.106	0.096
1/6/2020	<0.0094	<0.0156	<0.015	0.0304	0.032	0.07	0.0298	0.0231	0.0287	<0.0173	0.049	0.0183	0.0241	0.0258	0.04	0.075	0.054	0.044
3/25/2020	<0.0094	<0.0156	<0.015	<0.02	<0.0167	0.0163	<0.0142	<0.0146	<0.0157	<0.0173	0.0152	<0.0079	<0.0121	<0.0191	<0.0186	<0.03	0.0199	0.0134
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

Well MW-5

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
6/18/2019	0.018	0.229	0.165	0.51	0.59	0.83	0.55	0.292	0.48	0.121	0.71	0.032	0.43	<0.0191	<0.0186	0.049	0.279	0.66
9/10/2019	0.0113	0.206	0.126	0.40	0.49	0.72	0.43	0.227	0.36	0.10	0.52	<0.0079	0.314	<0.01961	<0.0186	0.046	0.185	0.51
1/6/2020	0.0132	0.224	0.108	0.34	0.48	0.67	0.33	0.19	0.37	0.058	0.47	0.02	0.254	0.0234	0.027	0.066	0.158	0.45
3/25/2020	0.012	<0.0156	<0.015	0.0235	0.0197	0.0257	0.0172	<0.0146	<0.0157	<0.0173	0.0137	<0.0079	0.0129	<0.0191	<0.0186	<0.03	<0.0143	0.0151
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

Well MW-6

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
1/6/2020	0.0146	0.0209	0.0207	0.147	0.165	0.246	0.108	0.111	0.163	0.038	0.19	0.019	0.093	0.0217	0.038	0.109	0.083	0.166
3/25/2020	<0.0094	<0.0156	<0.015	<0.02	<0.0167	<0.016	<0.0142	<0.0146	<0.0157	<0.0173	<0.0088	<0.0079	<0.0121	<0.0191	<0.0186	<0.03	<0.0143	<0.0121
ENFORCEMENT STANDARD = ES – Bold			3000	-	0.2	0.2	-	-	0.2	-	400	400	-	-	-	100	-	250
PREVENTIVE ACTION LIMIT = PAL - Italics			600	-	0.02	0.02	-	-	0.02	-	80	80	-	-	-	10	-	50

(ppb) = parts per billion (ppm) = parts per million

NS = not sampled NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

A.1 Groundwater Analytical Table

(PAH)

Herriges Oil BP S BRRTS #02-67-111819

Well MW-7

Date	Ace-naphthene (ppb)	Acenaphthylene (ppb)	Anthracene (ppb)	Benzo(a)anthracene (ppb)	Benzo(a)pyrene (ppb)	Benzo(b)fluoranthene (ppb)	Benzo(g,h,i)Perylene (ppb)	Benzo(k)fluoranthene (ppb)	Chrysene (ppb)	Dibenzo(a,h)anthracene (ppb)	Fluoranthene (ppb)	Fluorene (ppb)	Indeno(1,2,3-cd)pyrene (ppb)	1-Methylnaphthalene (ppb)	2-Methylnaphthalene (ppb)	Naphthalene (ppb)	Phenanthrene (ppb)	Pyrene (ppb)
1/6/2020	0.0095	<0.0156	0.0153	0.0273	0.0234	0.034	0.0231	0.0194	0.0241	<0.0173	0.033	0.0127	0.0203	0.038	0.056	0.117	0.048	0.031
3/25/2020	<0.0094	<0.0156	<0.015	<0.02	<0.0167	<0.016	<0.0142	<0.0146	<0.0157	<0.0173	0.014	<0.0079	<0.0121	<0.0191	<0.0186	<0.03	0.0153	0.0145
ENFORCEMENT STANDARD = ES – Bold			<b>3000</b>	-	<b>0.2</b>	<b>0.2</b>	-	-	<b>0.2</b>	-	<b>400</b>	<b>400</b>	-	-	-	<b>100</b>	-	<b>250</b>
PREVENTIVE ACTION LIMIT = PAL - Italics			<i>600</i>	-	<i>0.02</i>	<i>0.02</i>	-	-	<i>0.02</i>	-	<i>80</i>	<i>80</i>	-	-	-	<i>10</i>	-	<i>50</i>

(ppb) = parts per billion

(ppm) = parts per million

NS = not sampled

NM = not measured

Note: Elevations are presented in feet mean sea level (msl).

A.1 Groundwater Analytical Table  
Herriges Oil BP S BRRTS #02-67-111819

Well Sampling Conducted on: 06/18/19 06/18/19 06/18/19 06/18/19 06/18/19 01/06/20 01/06/20

VOC's								ENFORCEMENT STANDARD = ES – Bold	PREVENTIVE ACTION LIMIT = PAL - <i>Italics</i>
Well Name	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7		
Lead, dissolved/ppb	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	NS	NS	15	1.5
Benzene/ppb	16.9	7.2	<0.22	< 0.22	< 0.22	< 0.22	< 0.22	5	0.5
Bromobenzene/ppb	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	==	==
Bromodichloromethane/ppb	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	0.6	0.06
Bromoform/ppb	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	4.4	0.44
tert-Butylbenzene/ppb	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	==	==
sec-Butylbenzene/ppb	1.67 "J"	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	< 0.79	==	==
n-Butylbenzene/ppb	1.85 "J"	< 0.71	< 0.71	< 0.71	< 0.71	< 0.71	< 0.71	==	==
Carbon Tetrachloride/ppb	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	5	0.5
Chlorobenzene/ppb	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	==	==
Chloroethane/ppb	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	400	80
Chloroform/ppb	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	6	0.6
Chloromethane/ppb	< 0.54	< 0.54	< 0.54	< 0.54	< 0.54	< 0.54	< 0.54	30	3
2-Chlorotoluene/ppb	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	==	==
4-Chlorotoluene/ppb	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	==	==
1,2-Dibromo-3-chloropropane/ppb	< 2.96	< 2.96	< 2.96	< 2.96	< 2.96	< 2.96	< 2.96	0.2	0.02
Dibromochloromethane/ppb	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	60	6
1,4-Dichlorobenzene/ppb	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	75	15
1,3-Dichlorobenzene/ppb	< 0.85	< 0.85	< 0.85	< 0.85	< 0.85	< 0.85	< 0.85	600	120
1,2-Dichlorobenzene/ppb	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	600	60
Dichlorodifluoromethane/ppb	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	1000	200
1,2-Dichloroethane/ppb	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	5	0.5
1,1-Dichloroethane/ppb	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	850	85
1,1-Dichloroethene/ppb	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	7	0.7
cis-1,2-Dichloroethene/ppb	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	70	7
trans-1,2-Dichloroethene/ppb	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	100	20
1,2-Dichloropropane/ppb	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	5	0.5
1,3-Dichloropropane/ppb	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	==	==
trans-1,3-Dichloropropene/ppb	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	0.4	0.04
cis-1,3-Dichloropropene/ppb	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	==	==
Di-isopropyl ether/ppb	< 0.21	0.30 "J"	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	0.05	0.005
EDB (1,2-Dibromoethane)/ppb	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	700	140
Ethylbenzene/ppb	4.8	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	==	==
Hexachlorobutadiene/ppb	< 1.34	< 1.34	< 1.34	< 1.34	< 1.34	< 1.34	< 1.34	==	==
Isopropylbenzene/ppb	5.9	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78	==	==
p-Isopropyltoluene/ppb	1.07	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	==	==
Methylene chloride/ppb	< 1.32	< 1.32	< 1.32	< 1.32	< 1.32	< 1.32	< 1.32	5	0.5
Methyl tert-butyl ether (MTBE)/ppb	< 0.28	6.7	0.56 "J"	< 0.28	3.7	< 0.28	< 0.28	60	12
Naphthalene/ppb	24.8	< 2.1	< 2.1	< 2.1	< 2.1	0.109	< 2.1	100	10
n-Propylbenzene/ppb	9.1	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	< 0.61	==	==
1,1,2,2-Tetrachloroethane/ppb	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.2	0.02
1,1,1,2-Tetrachloroethane/ppb	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	70	7
Tetrachloroethene (PCE)/ppb	1.05 "J"	0.74 "J"	0.40 "J"	< 0.38	< 0.38	< 0.38	< 0.38	5	0.5
Toluene/ppb	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	800	160
1,2,4-Trichlorobenzene/ppb	< 1.15	< 1.15	< 1.15	< 1.15	< 1.15	< 1.15	< 1.15	70	14
1,2,3-Trichlorobenzene/ppb	< 1.71	< 1.71	< 1.71	< 1.71	< 1.71	< 1.71	< 1.71	==	==
1,1,1-Trichloroethane/ppb	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	200	40
1,1,2-Trichloroethane/ppb	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	5	0.5
Trichloroethene (TCE)/ppb	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	5	0.5
Trichlorofluoromethane/ppb	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	==	==
1,2,4-Trimethylbenzene/ppb	3.5	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	Total TMB's 480	Total TMB's 96
1,3,5-Trimethylbenzene/ppb	2.61	< 0.63	< 0.63	< 0.63	< 0.63	< 0.63	< 0.63	0.2	0.02
Vinyl Chloride/ppb	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	Total Xylenes 2000	Total Xylenes 400
m&p-Xylene/ppb	1.53	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43		
o-Xylene/ppb	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29		

NS = not sampled, NM = Not Measured  
Q = Analyte detected above laboratory method detection limit but below practical quantitation limit.  
= = No Exceedences  
(ppb) = parts per billion  
"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

**A.1 Groundwater Analytical Table**  
**(Geoprobe)**  
**Herriges Oil BP S BRRTS #02-67-111819**

Sample ID	Date	Benzene (ppb)	Ethyl Benzene (ppb)	MTBE (ppb)	Naphthalene (ppb)	Toluene (ppb)	Trimethylbenzenes (ppb)	Xylene (Total) (ppb)
G-1-W	3/25/2019	<0.22	0.27	0.29	<2.1	0.45	<1.43	2.47
G-2-W	3/25/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
G-3-W	3/25/2019	<b>68</b>	82	<1.4	<b>440</b>	<0.95	<7.15	<3.60
G-4-W	3/26/2019	<0.22	<0.26	1.33	<2.1	<0.19	<1.43	<0.72
G-5-W	3/25/2019	<b>79</b>	5.1	<1.4	<b>140</b>	1.8	8.5-12.5	9.4-10.85
G-6-W	3/25/2019	<b>38</b>	1.6	5.1	<b>45</b>	0.27	<1.43	12.28
G-7-W	3/26/2019	2.78	<0.26	0.47	18.8	<0.19	<1.43	2.31
G-8-W	3/25/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
G-9-W	3/25/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
G-10-W	3/26/2019	<0.22	<0.26	22.7	<2.1	<0.19	<1.43	<0.72
G-11-W	3/26/2019	1.55	2.65	<1.4	<b>158</b>	<0.95	<7.15	2.05-4.20
G-12-W	3/26/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	1.53
G-13-W	3/26/2019	<b>19.8</b>	<2.6	<2.8	<b>177</b>	<1.9	<14.3	7.1-10
G-14-W	3/26/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.72
G-15-W	3/26/2019	3.5	0.46	<0.28	26.8	0.33	0.88-1.51	1.43
<b>ENFORCEMENT STANDARD ES = Bold</b>		<b>5</b>	<b>700</b>	<b>60</b>	<b>100</b>	<b>800</b>	<b>480</b>	<b>2000</b>
<b>PREVENTIVE ACTION LIMIT PAL = Italics</b>		<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

NS = Not Sampled

(ppb) = parts per billion

A.4 Vapor Analytical Table  
Sub-Slab Sampling Data Table for Herriges Oil BP S  
BY METCO

Sub-Slab Sampling conducted on September 10, 2019

Sample ID				WDNR Small Commercial Sub-Slab Vapor VISL for Various VOCs  Quick Look-Up Table Updated November, 2017	WDNR Non – Residential Indoor Air Vapor VISL for Various VOCs  Quick Look-Up Table Updated November, 2017	
	SS-1	SS-2	SS-3	(ug/m <sup>3</sup> )	(ug/m <sup>3</sup> )	
Benzene – ug/m <sup>3</sup>	0.64	3.3	0.65	530	16	c
Carbon Tetrachloride – ug/m <sup>3</sup>	NS	NS	NS	670	20	c
Chloroform – ug/m <sup>3</sup>	NS	NS	NS	180	5.3	c
Chloromethane – ug/m <sup>3</sup>	NS	NS	NS	13000	390	n
Dichlorodifluoromethane – ug/m <sup>3</sup>	NS	NS	NS	15000	440	n
1,1-Dichloroethane (1,1-DCA) – ug/m <sup>3</sup>	NS	NS	NS	2600	77	c
1,2-Dichloroethane (1,2-DCA) – ug/m <sup>3</sup>	NS	NS	NS	160	4.7	c
1,1-Dichloroethylene (1,1-DCE) – ug/m <sup>3</sup>	NS	NS	NS	29000	880	n
1,2-Dichloroethylene (cis and trans) – ug/m <sup>3</sup>	NS	NS	NS	NA	NA	-
Ethylbenzene – ug/m <sup>3</sup>	<1.5	2.1	2.2	1600	49	c
Methylene chloride – ug/m <sup>3</sup>	NS	NS	NS	87000	2600	n
Methyl Tert-Butyl Ether (MTBE) – ug/m <sup>3</sup>	<6.4	<6.6	<6.4	16000	470	c
Naphthalene – ug/m <sup>3</sup>	<4.7	<4.8	<4.7	120	3.6	c
Tetrachloroethylene -ug/m <sup>3</sup>	NS	NS	NS	6000	180	n
Toluene – ug/m <sup>3</sup>	2.9	6.2	3.4	730000	22000	n
1,1,1-Trichloroethane – ug/m <sup>3</sup>	NS	NS	NS	730000	22000	n
Trichloroethylene – ug/m <sup>3</sup>	NS	NS	NS	290	8.8	n
Trichlorofluoromethane (Halcarbon 11) – ug/m <sup>3</sup>	NS	NS	NS	NA	NA	-
Trimethylbenzene (1,2,4) – ug/m <sup>3</sup>	2.5	3.3	9.3	8700	260	n
Trimethylbenzene (1,3,5) – ug/m <sup>3</sup>	<1.7	<1.8	<1.7	8700	260	n
Vinyl chloride – ug/m <sup>3</sup>	NS	NS	NS	930	28	c
Xylene (total) -ug/m <sup>3</sup>	<4.6	7.2	11.9	15000	440	n

ug/m<sup>3</sup> = Micrograms per cubic meter.

< = Less than the reporting limit indicated in parentheses.

**Bold = Sub-Slab Standard Exceedance**

NS = Not sampled

c = Carcinogen

n = Non Carcinogen

\* Please note that other VOCs were detected that are not on the WDNR Sub-Slab Vapor Action Levels Quick Look-Up Table.