

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2013-XXXX
FOR
THE BNSF RAILWAY COMPANY
BNSF STOCKTON INTERMODAL FACILITY
CLASS II SURFACE IMPOUNDMENT
SAN JOAQUIN COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, Title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5 201X-XXXX, and the Standard Provisions and Reporting Requirements (SPRRs) dated September 2003. Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Monitoring Specifications in Standard Provisions and Reporting Requirements (2003). Detection monitoring for any proposed new Unit shall be installed, operational, and one year of monitoring data collected **prior to** the discharge of wastes. A minimum of 8 samples should be used to develop background concentrations for COCs. All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

All point of compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in **Tables 2 through 5**.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in **Table 6**.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Waste Discharge Monitoring
A.2	Surface Impoundment
A.3	Groundwater Monitoring
A.4	Unsaturated(Vadose) Zone Monitoring
A.5	LCRS Monitoring
A.6	Surface Water Monitoring (Not Applicable)
A.7	Facility Monitoring

1. Waste Discharge Monitoring

The Discharger shall monitor all wastes discharged from the Oil-Water Separator (OWS) to the Class II surface impoundment and other temporary storage vessels per **Table 1** in order to provide a water balance on a weekly basis and report the results in the quarterly Detection Monitoring Reports.

2. Surface Impoundment

Surface impoundment samples shall be collected in a convenient location at least 50 feet from the influent structure. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in **Table 2**.

3. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Title 27, section 20415 in accordance with a Monitoring Program approved by the Executive Officer. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27.

The Discharger shall revise the groundwater detection monitoring system (after review and approval by Central Valley Water Board staff) as needed.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

The current groundwater monitoring network consists of the following:

<u>Well</u>	<u>Status</u>	<u>Units Being Monitored</u>
MW-1	Background	N/A
MW-2	Detection	Oil-Water Separator
MW-3	Detection	Surface Impoundment
MW-4	Detection	Surface Impoundment

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in **Table 3**. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The monitoring parameters shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schueller plot.

4. Unsaturated(Vadose) Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, section 20415 in accordance with a monitoring plan approved by the Executive Officer. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Unsaturated zone samples shall be collected from the monitoring devices and background monitoring devices of the approved unsaturated zone monitoring system. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in **Table 4**. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point.

The unsaturated (vadose) zone monitoring system (VZMS) consists of a geonet drainage layer under the entire area of the surface impoundment. The VZMS sump shall be inspected quarterly for leachate. In any quarter in which leachate is detected in

the VZMS sump grab samples shall be collected and analyzed for the parameters in **Table 4**.

The unsaturated zone monitoring report shall include the total volume of liquid removed from the VZMS system. Unsaturated zone monitoring reports shall be included with the corresponding semiannual groundwater monitoring and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

5. LCRS Monitoring

The LCRS sump shall be inspected quarterly for leachate. Upon detection of leachate in a previously dry LCRS, the Discharger shall immediately collect a grab sample of the leachate for analysis of the monitoring parameters listed in **Table 5**. The Discharger shall continue to collect grab samples of the leachate at the frequency listed in Table 5. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table 5.

All LCRSs shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Board and shall include comparison with earlier tests made under comparable conditions.

6. Surface Water Monitoring (Not Applicable)

7. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in section F.4.f. of Standard Provisions and Reporting Requirements. The Discharger shall determine through a water balance analysis the storage capacity of the evaporation pond necessary to contain the anticipated quantity of designated waste generated during the rainy season and shall take the necessary measures to ensure adequate storage capacity is available to contain such waste. The Discharger shall report the estimated volume of capacity necessary to contain such waste during the anticipated rainy season, and shall certify that storage capacity is available prior to the rainy season beginning 1 November to contain such waste. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including

photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

B. REPORTING

1. Reporting Schedule

The Discharger shall submit the following reports in accordance with the required schedule:

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
a.	Quarterly Monitoring Reports ¹	31 March	1 August
		30 June	1 August
		30 September	1 February
		31 December	1 February
b.	Semiannual Monitoring Reports	30 June	1 August
		31 December	1 February
c.	Annual Monitoring Summary Report	31 December	1 February
d.	Facility Monitoring Report	31 October	15 November
e.	Response to a Release	Continuous	7 days from discovery
f.	Water Quality Protection Standard Report		As Required
g.	Financial Assurances Report	31 December	30 April

¹ Quarterly Monitoring Reports submitted as separate documents along with semiannual monitoring reports.

2. Reporting Requirements

The Discharger shall submit monitoring reports quarterly with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order No. R5-201X-XXX and the Standard Provisions and Reporting Requirements (particularly Section IX: "Provisions for Monitoring" and Section X: "Response to a Release").

- a. In reporting the monitoring data required by this program upon adoption of this Order, the Discharger shall:
 1. arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.
 2. report all laboratory MDLs and PQLs.
 3. provide electronic data in xls format for surface impoundment monitoring results including OWS discharge and surface impoundment water balance data.
 4. provide all historical and current monitoring data for the groundwater, LCRS, and Vadose Zone monitoring in xls format.
 5. combine the analytical results for COCs of the same chemical composition (e.g. Freon 12 and dichlorodifluoromethane) prior to all data analysis and report together as the same COC.
 6. only report laboratory results of COCs below the MDL as nondetect ("ND"). Laboratory results indicating trace values of COCs between the MDL and PQL (Reporting Limit or RL) shall be reported as estimated values (flagged and estimated value reported). Laboratory results of COCs at or above the PQL shall be reported and indicated clearly as exceeding the PQL relative to laboratory results reported below the PQL.
 7. clearly distinguish on time series graphs data that is reported as nondetect versus data that was reported at or above MDL (trace) levels.
- b. Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

- c. The results of all monitoring conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.
- d. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period. Such records shall be legible and shall show the following for each sample:
 1. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
 2. Date, time, and manner of sampling;
 3. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
 4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
 5. Calculation of results; and
 6. Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

3. Required Reports

The Discharger shall submit the following reports:

- a. **Quarterly Monitoring Report:** The Waste Discharge (Section A.1), Surface Impoundment (Section A.2), Unsaturated Zone (Section A.4), and LCRS (Section A.5) monitoring results shall be submitted per the schedule specified in Section B.1.a. of this Monitoring and Reporting Program.
- b. **Semiannual Monitoring Report:** The Groundwater Monitoring (Section A.3) results shall be submitted per the schedule specified in Section B.1.b of this Monitoring and Reporting Program. All monitoring reports shall include all water quality data and observation collected during the reporting period. At a minimum the sampling and data collection in Section A of this Monitoring and Reporting Program, Standard Provisions and Reporting Requirements (2003), and Waste Discharge Requirements shall be reported. Each semiannual monitoring report shall contain at least the following:
 1. For each groundwater monitoring point addressed by the report, a description of:
 - a) The time of water level measurement;
 - b) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - c) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - d) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - e) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
 2. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 3. The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].

4. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water. Concentrations below the reporting limit shall not be reported as "ND" unless the concentration is below the method detection limit and the method detection limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables I through V unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
 5. Laboratory statements of results of all analyses evaluating compliance with requirements.
 6. A summary of all Standard Observations for the reporting period required in Section XII.S. of Standard Provisions and Reporting Requirements (2003).
- c. **Annual Monitoring Summary Report.** The Discharger shall submit an Annual Monitoring Summary Report to the Board covering the previous monitoring year per the Reporting Schedule section B.1.c. The annual report shall contain the information specified in Standard Provisions and Reporting Requirements (2003), Section VIII.B. of the "*Reports to be Filed with the Board.*"
 - d. **Facility Monitoring Report.** Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in Section XII.S. of Standard Provisions and Reporting Requirements (2003). The Discharger shall submit a Facility Monitoring Report covering the previous monitoring year per the Reporting Schedule section B.1.d.
 - e. **Response to a Release.** If the Discharger determines that there is significant statistical evidence of a release (i.e. the initial statistical comparison or non-statistical comparison indicates, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified), the Discharger shall immediately notify the Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination and implement Response to Release section of the Standard Provisions and Reporting Requirements (2003). The Discharger shall submit an Response to a Release Report per the Reporting Schedule section B.1.e.
 - f. **Water Quality Protection Standard Report.** Any proposed changes in a statistical method or concentration limits for a constituent of concern or monitoring parameter a Water Quality Protection Standard Report shall be submitted and include the information required in Section C.1. of this Monitoring Reporting Program. Any changes to Water Quality Protection Standards shall be approved by the Executive

Officer in a Revised Monitoring and Reporting Program. The Discharger shall submit an Water Quality Protection Standard Report per the Reporting Schedule section B.1.f.

- g. **Financial Assurances Report:** The Discharger shall submit an annual financial assurances report that updates the financial assurances for closure, post-closure maintenance, and corrective action per the Reporting Schedule section B.1.g. For additional information refer to Financial Assurances section D of the WDRs.

C. WATER QUALITY PROTECTION STANDARD

1. Water Quality Protection Standard Report

For each Waste Management Unit (WMU or Unit), the Water Quality Protection Standard shall consist of all constituents of concern (COCs), the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval. The Discharger shall not change the method for establishing concentration limits or determining compliance with established concentration limits without prior written approval from the Central Valley Water Board. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium.

The report shall:

- a. Identify all distinct bodies of surface and groundwater that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost

groundwater zone(s).

- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

2. Monitoring Parameters

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables 1 through 5 for the specified monitored medium.

3. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables 1 through 5 for the specified monitored medium.

4. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415; or
- b. By an alternate statistical method acceptable to the Executive Officer in accordance with Title 27, section 20415.

- c. Concentration limits shall not be calculated using data identified as outliers using the EPA 1989 Outlier Test or calculated using data that indicates an upward trend due to a release of COCs to receiving water.
- d. The currently established concentration limits for constituents of concern are listed below:

Concentration Limits		
<u>Constituent of Concern</u>	<u>Units</u>	<u>Concentration</u>
Specific Conductance (SC)	mg/L	1572
Total Dissolved Solids (TDS)	mg/L	1231
Turbidity	NTU Units	5
pH	pH Units	6.0-9.0
Chemical Oxygen Demand (COD)	mg/L	50 ²
TPEH -Diesel	µg/L	TBD ¹
TPEH- Oil and Grease	mg/L	TBD ¹
Chloride	mg/L	140 ²
Sulfate	mg/L	105
Nitrate Nitrogen	mg/L	34 ²
Barium, Dissolved	µg/L	228 ²
Copper, Dissolved	µg/L	8
Lead, Dissolved	µg/L	5
Zinc, Dissolved	µg/L	35
VOCs	µg/L	Non-Detect (<MDL)

¹To Be Determined (TBD). Discharger is required by WDRs R5-2013-XXXX to identify source of these constituents in background well MW-1 to determine if WQPS concentration limit is above non-detect level.

²Concentration limits are calculated after outliers are removed or indication of a downward trend in COC concentrations over past five years. Outliers shall not be used to calculate concentration limits when concentration limits are used for detection monitoring.

5. Retesting Procedures for Confirming Evidence of a Release

Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the

concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification IX.B.12 of the SPRRs.
- b. For analytes detected in 10% or greater of the background samples such as naturally occurring constituents like chloride the Discharger shall use a statistical retest method and associated verification procedure pursuant to Title 27, section 20415(e)(8)(E).

6. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

Date

Table 1 - Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Quantity discharged to Surface Impoundment	Gallons	Weekly
Quantity bypassed to other waste storage vessels	Gallons	Weekly
Remaining capacity of Surface Impoundment (To Freeboard Point)	Gallons	Weekly
Remaining capacity of all other waste storage vessels	Gallons	Weekly

Table 2 - Surface Impoundment (SI) Monitoring

<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameter</u>		
Flow Rate into SI	Gallons per Week	<u>Weekly</u>
Standing Water Level	Feet & Tenths	<u>Weekly</u>
Current Storage Volume in SI	Gallons	<u>Weekly</u>
Remaining Freeboard	Feet & Tenths	<u>Weekly</u>
Temperature	°C	<u>Quarterly</u>
Specific Conductance	µmhos/cm	<u>Quarterly</u>
pH	pH Units	<u>Quarterly</u>
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	<u>Quarterly</u>
Total Suspended Solids	mg/L	<u>Quarterly</u>
Chemical Oxygen Demand	mg/L	<u>Quarterly</u>
TPH-diesel (EPA Method 8015B)	µg/L	<u>Quarterly</u>
TPH-oil & grease (EPA Method 1664A)	mg/L	<u>Quarterly</u>
Volatile Organic Compounds (EPA Method 8260B)	µg/L	<u>Quarterly</u>
Chloride	mg/L	<u>Quarterly</u>
Sulfate	mg/L	<u>Quarterly</u>
Nitrate - Nitrogen	mg/L	<u>Quarterly</u>
Dissolved Metals (Barium, Copper, Lead, & Zinc)	µg/L	<u>Quarterly</u>

Table 3 - Groundwater Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameter</u>		
Groundwater Elevation	Ft., & hundredths, MSL	Quarterly
Temperature	°C	Semi-Annually
Specific Conductance	µmhos/cm	Semi-Annually
pH	pH number	Semi-Annually
Turbidity	NTU Units	Semi-Annually
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Semi-Annually
Chemical Oxygen Demand	mg/L	Semi-Annually
TPH-diesel (EPA Method 8015B)	µg/L	Semi-Annually
TPH-oil & grease (EPA Method 1664A)	mg/L	Semi-Annually
Volatile Organic Compounds (EPA Method 8260B)	µg/L	Semi-Annually
Chloride	mg/L	Semi-Annually
Sulfate	mg/L	Semi-Annually
Nitrate - Nitrogen	mg/L	Semi-Annually
Dissolved Metals (Barium, Copper, Lead, & Zinc)	µg/L	Semi-Annually

Table 4- Unsaturated Zone Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameter</u>		
Flow Rate	gallons/month	Monthly
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH Units	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Quarterly
TPH-diesel (EPA Method 8015B)	µg/L	Quarterly
TPH-oil & grease (EPA Method 1664A)	mg/L	Quarterly
Volatile Organic Compounds (VOCs) (EPA Method 8260B)	µg/L	Quarterly
Chloride	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Dissolved Metals (Barium, Copper, Lead, & Zinc)	µg/L	Quarterly

Table 5 - LCRS Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameter</u>		
Flow Rate	gallons/month	Monthly
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH Units	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Quarterly
TPH-diesel (EPA Method 8015B)	µg/L	Quarterly
TPH-oil & grease (EPA Method 1664A)	mg/L	Quarterly
Volatile Organic Compounds (VOCs) (EPA Method 8260B)	µg/L	Quarterly
Chloride	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Nitrate - Nitrogen	mg/L	Quarterly
Dissolved Metals (Barium, Copper, Lead, & Zinc)	µg/L	Quarterly

Table 6 – Metals Analysis		
<u>Constituent</u>	<u>Method</u>	<u>Method Detection Limit (MDL)</u>
Barium, Dissolved	EPA 200.8	1.0 µg/L
Copper, Dissolved	EPA 200.8	0.5 µg/L
Lead, Dissolved	EPA 200.8	1.0 µg/L
Zinc, Dissolved	EPA 200.8	2.0 µg/L