

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2012-____

FOR
UNION PACIFIC RAILROAD COMPANY
ROSEVILLE YARD
CLASS II SURFACE IMPOUNDMENT
PLACER COUNTY

This Monitoring and Reporting Program (MRP) is issued to Union Pacific Railroad Company (Discharger). Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements dated September 2003 (hereafter "Standard Provisions"), is ordered by Waste Discharge Requirements Order No. R5-2012-____ (WDRs). Failure to comply with this MRP, or with the Standard Provisions, constitutes noncompliance with the WDRs and with California Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater and leachate in accordance with this MRP and the Monitoring Specifications in Standard Provisions.

All detection 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 and leachate monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in the tables of this MRP.

The Discharger shall use USEPA test methods with a detection limit that is lower than the Maximum Concentration Limit for that constituent or that is the lowest achievable detection limit for that constituent taking any matrix interferences into account. The reporting limit shall be no higher than the practical quantitation limit. The Discharger shall report all trace concentrations that are between the detection limit and the practical quantitation limit. All metals analyses shall be for dissolved metals. The Discharger shall conduct monitoring and inspections as described in the summary table below. Detailed monitoring and inspection requirements are provided in the following sections of this MRP.

Facility Monitoring and Inspection Summary		
Activity	Inspection/Monitoring Frequency	Notes
<u>Monitoring</u>		
Surface Impoundment Monitoring	Weekly, Monthly, Quarterly	See Section A.1
Groundwater Monitoring	Quarterly, Semiannually	See Section A.2
LCRS Monitoring	Monthly, Quarterly	See Section A.3
<u>Inspections</u>		
Annual Facility Inspection	Annual	See Section A.4.a

Storm Events	Following Major Storm Event	See Section A.4.b
Other Facility Inspections	Per Summary Table in A.4.c	See Section A.4.c

1. Surface Impoundment

Samples shall be collected from the surface impoundment in accordance with the table below:

Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Freeboard	feet and tenths	Weekly ¹	Semiannually
Remaining Capacity	gallons	Monthly	Semiannually
Flow ²	gallons	Monthly	Semiannually
pH	pH units	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Dissolved Arsenic	ug/L ³	Semiannually	Semiannually
Dissolved Lead	ug/L	Semiannually	Semiannually
Dissolved Nickel	ug/L	Semiannually	Semiannually
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
TPH as oil and grease	ug/L	Semiannually	Semiannually
TPH as diesel	ug/L	Semiannually	Semiannually

¹ Freeboard shall be measured weekly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. Freeboard shall be measured from the top of the surface impoundment down to the water level in the impoundment and can be measured using markings on the primary geomembrane liner or a free-standing gauge.

² Flow measured and recorded at totalizing meter from Class II surface impoundment to IPWF.

³ Micrograms per liter

2. Groundwater

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Section 20415 of Title 27. **Quarterly** water level measurements shall be taken in all monitoring wells pursuant to Section 20415(e)(15) of Title 27.

Groundwater samples shall be collected **semiannually** from the compliance wells (EW-5, W91-01, OSMW32, DI-58, W02, and W95-02), the background wells (W91-04 and W91-07), as shown on Attachment B, and any additional wells added as part of the approved groundwater monitoring system. The Discharger shall also monitor these and other monitoring wells at the site as required by the Site Cleanup Program. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be

collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

Groundwater Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Groundwater Elevation	feet & hundredths, MSL	Quarterly ¹	Semiannually
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Dissolved Arsenic	ug/L	Semiannually	Semiannually
Dissolved Lead	ug/L	Semiannually	Semiannually
Dissolved Nickel	ug/L	Semiannually	Semiannually
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
TPH as oil and grease	ug/L	Semiannually	Semiannually
TPH as diesel	ug/L	Semiannually	Semiannually

¹ Quarterly groundwater elevation monitoring is required by Section 20415(e)(15) of Title 27.

3. LCRS Monitoring

The LCRS manhole shall be inspected monthly for leachate. If leachate is present, then the LCRS manhole shall be sampled and analyzed for the following:

LCRS Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Presence of leachate	observation	Monthly	Semiannually
Flow Rate ¹	gallons/day	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Dissolved Arsenic	ug/L	Semiannually	Semiannually
Dissolved Lead	ug/L	Semiannually	Semiannually
Dissolved Nickel	ug/L	Semiannually	Semiannually
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
TPH as oil and grease	ug/L	Semiannually	Semiannually
TPH as diesel	ug/L	Semiannually	Semiannually

¹ Flow in gallons per day from LCRS manhole back to surface impoundment.

All LCRSs shall be tested **annually** as required by Title 27 Section 20340(d) to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported in the Annual Monitoring Report and shall include comparison with earlier tests made under comparable conditions.

4. Facility Monitoring

a. Annual 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 any damage to the surface impoundment, drainage control system, and groundwater monitoring equipment (including wells, etc.). Any necessary construction, maintenance, or repairs shall be completed by **1 November**. Reporting shall be conducted as required in Section B.1 of this MRP.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events (greater than two inches of precipitation in 24 hours), and shall conduct applicable Standard Observations contained in Section XII.S of the Standard Provisions. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall also check for discharge from the Class II surface impoundment invert siphon, and return any discharged water back to the Class II surface impoundment when capacity is regained. Reporting shall be conducted as required in Section B.1 of this MRP.

c. Other Facility Inspection Requirements

The Discharger shall conduct other facility inspections as summarized in the following table. Reporting shall be conducted as required in Section B.1 of this MRP.

Facility Inspection Requirements Summary		
Activity	Inspection/Monitoring Frequency	Notes
Record freeboard in the surface impoundment and any overflow basin	Weekly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period.	
Record meter readings from the LCRS manhole to the surface impoundment, the discharge from the surface impoundment, and the discharge to the sanitary sewer	Monthly	
Record onsite rainfall	Daily (automated rainfall gauge)	

Facility Inspection Requirements Summary		
Activity	Inspection/Monitoring Frequency	Notes
Visually inspect the integrity of the surface impoundment liner and make repairs as necessary	Quarterly	
Facility Inspection and Repairs	Annual inspection by 30 September, complete repairs by 1 November, report by 31 January	
Test the LCRS	Annually, prior to the wet season.	See Section VII.O of the Standard Provisions

B. REPORTING

The Discharger shall report all required monitoring data and information, and results of all required facility inspections **semiannually** as required in this Monitoring and Reporting Program and as required in the Standard Provisions. In reporting the monitoring data required by this program, the Discharger shall 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. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries. Data shall also be submitted in an acceptable digital format.

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. Field and laboratory tests shall be reported in the semiannual monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Central Valley Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

REQUIRED MONITORING REPORTS AND SUBMITTAL DATES:

1. Semiannual Monitoring Reports

The semiannual monitoring reports shall include all water quality data and observations collected during the reporting period and submitted as follows. Semiannual reports shall be submitted by **31 July** for the first semester (1 January to 30 June) and **31 January** for the second semester (1 July to 31 December). The second semiannual report shall be combined with the Annual Monitoring Report, below, and shall include in its title that it is for the report for the

second semiannual and the annual report. At a minimum the sampling and data collection required in the tables of this Monitoring and Reporting Program, Standard Provisions, and Waste Discharge Requirements shall be reported. Groundwater concentrations for each constituent shall be compared with the current concentration limits for each constituent from the latest Annual Monitoring Report, and information about any necessary resampling required in Section C.5 of this MRP. The semiannual report due on 31 January shall also report on the annual facility inspection from Section A.4.a of this MRP and shall include documentation of the inspection and any maintenance or repairs that were completed. The semiannual reports shall also include information from inspections performed after major storm events required in Section A.4.b of this MRP including Standard Observations and discharges from the Class II surface impoundment invert siphon. The semiannual reports shall also include documentation of all inspections, monitoring, and repairs required in Section A.4.c of this MRP, and shall include a calculation of the leakage rate to the LCRS on a monthly basis with comparison to the Action Leakage Rate of 420 gallons per day.

2. Annual Monitoring Report

The Discharger shall submit an Annual Monitoring Report covering the previous monitoring year. The report is due by **31 January** of each year. The Annual Monitoring Report shall be combined with the second semiannual monitoring report, but in addition shall include the following: The annual report shall contain the information specified in Standard Provisions, Section VIII.B of the "*Reports to be Filed with the Board.*" The Annual Monitoring Report shall include the results of the annual LCRS testing. The Annual Monitoring Report shall include the updated concentration limits for each required Monitoring Parameter using the methods in Section C.4 of this MRP, below.

3. Response to a Release

If the Discharger determines that there is either 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) or physical evidence of a release, the Discharger shall **immediately** notify the Central Valley Water 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 the resampling procedure in Section C.5 of this MRP and the requirements in Sections X.C and/or X.D of the Standard Provisions if a release is confirmed.

4. Water Quality Protection Standard Report

The Discharger submitted a Water Quality Protection Standard as part of the Report of Waste Discharge (ROWD) with the proposed method for calculating

concentration limits and protocol for actions required if concentration limits are exceeded. Requirements based on these proposals are provided in the next section of this MRP.

C. WATER QUALITY PROTECTION STANDARD

1. Water Quality Protection Standard

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Discharger submitted a Water Quality Protection Standard as part of the ROWD. Elements of the Water Quality Protection Standard are given in sections below.

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. 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 the facility are pH, electrical conductivity, arsenic, lead, nickel, volatile organic compounds, TPH as diesel, and TPH as oil & grease.

3. Monitoring Points

Groundwater:

Detection Monitoring Wells: EW-5, W91-01, OSMW32, DI-58, W-02, and W95-02
Background Wells: W91-04 and W91-07

Well locations are shown on Attachment B. Groundwater monitoring points shall also include any well or wells constructed after adoption of this MRP for purposes of monitoring groundwater for the Class II surface impoundment.

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 Section 20415 of Title 27; or
- b. By an acceptable alternate statistical method in accordance with Section 20415 of Title 27.

The Discharger submitted a proposed method for calculating concentration limits in the ROWD. The proposed method used by the Discharger is to use intrawell comparisons based on background conditions in each of the monitoring wells and to use Shewart-CUSUM control limits and upper prediction limits. In addition, the Discharger proposes to use distributional analysis to test for normality and outlying data. The Discharger will also use Mann-Kendall trend analysis to detect more subtle trends than with CUSUM control limits. The Discharger shall report the concentration limits in each semiannual and annual monitoring report for comparison with the most recent sampling data, and shall update the concentration limits annually to take the new semiannual background data into account.

Groundwater in Area A has been impacted by previous waste disposal practices and is being address by DTSC and the Central Valley Water Board's Site Cleanup Program. The concentration limits generated by the proposed methods include limits for non-naturally occurring constituents that are well above laboratory reporting limits and may also exceed applicable water quality goals. This is because the limits are statistically derived and their purpose is to detect a new release based on the existing "background" conditions of groundwater impacted from previous practices at the site. Intrawell comparisons are appropriate due to the different background data sets for each well that represent impacts from past practices and since the goal of the monitoring program is to detect a new release from the lined impoundment.

The Discharger has proposed methods for calculating concentration limits as described above, and has calculated limits for total petroleum hydrocarbons (TPH) in each well. Concentration limits for other constituents are required to be proposed in the Annual Monitoring Report using the methods proposed in the ROWD and described in this MRP, and to be updated annually as required in Section B.2 of this MRP. The concentration limits for TPH presented in the ROWD based on available data at the time the ROWD was prepared are as follows:

Well	Compound	Upper Prediction Limit (ug/L)	CUSUM Limit (ug/L)	Shewart Control Limit (ug/L)
DI-58	TPH	642.87	1,422.35	1,281.95
EW-5	TPH	955.71	2,024.03	1,825.58
W91-01	TPH	118.80	221.97	204.33
W91-04	TPH	180.00	190.29	175.49

W91-07	TPH	1,383.58	3,115.93	2,804.85
W95-02	TPH	214.90	470.99	427.20
OSM32	TPH	140.00	220.82	204.82
W-02	TPH	289.20	611.10	553.82

The Discharger shall prepare control charts for each required Monitoring Parameter required for groundwater monitoring. An exceedance of any of the three calculated limits from the most recent Annual Monitoring Report is tentative indication of a release.

5. Resampling Procedure

The Discharger shall **immediately** notify Central Valley Water Board staff of any tentative indication of a release followed by written notification by certified mail within **seven days**. The Discharger shall initiate verification sampling to verify whether there is measurably significant evidence of a release. Verification sampling shall consist of collection of one or more additional samples to verify the exceedance. If verification sampling indicates that results are measurably significant above the concentration limit, then a release is confirmed and the Discharger shall follow procedures for response to a release in Sections X.C and/or X.D of the Standard Provisions.

6. Point of Compliance

The point of compliance for the Concentration Limits given in C.4 is a vertical surface located at the hydraulically downgradient limit of the Class II surface impoundment that extends through the uppermost aquifer underlying the Unit.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. 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.

PAMELA C. CREEDON, Executive Officer

(Date)