

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2012-_____

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

The California Regional Water Quality Control Board, Central Valley Region (hereafter Central Valley Water Board), finds that:

1. Union Pacific Railroad Company (hereafter "Discharger") owns and operates a two million gallon lined surface impoundment at its Roseville Yard in Placer County. The surface impoundment holds industrial wastewater flows and storm water runoff from various maintenance areas, fueling areas, and parking lots that must be captured, treated, and discharged to the sanitary sewer under permit. On 3 August 2010, Central Valley Water Board staff requested an amended Report of Waste Discharge (ROWD) to update previous waste discharge requirements (WDRs) 92-197 so that the lined surface impoundment can be properly regulated under the requirements of Title 27, California Code of Regulations (CCR) Section 20005, et seq. (Title 27). The Discharger submitted an amended ROWD on 19 April 2011, but Central Valley Water Board staff requested additional information. The Discharger submitted an updated version of the ROWD on 1 August 2011, and submitted other requested information related to water balance and seismic analysis on 25 October 2011.
2. The lined surface impoundment is on the 720-acre Union Pacific Railroad Roseville Yard that consists of several different parcels including Assessor's Parcel Numbers 473-100-011, 473-070-005, and 473-070-009 at 9451 Atkinson Street in Roseville, Placer County (Section 10, T10N, R7E, MDB&M), as shown on Attachment A, which is attached hereto and made part of the Order by reference. The south end of the Roseville Yard extends into Sacramento County, but the portion containing the surface impoundment and all areas draining to it is in Placer County.
3. The Roseville Yard has been in operation since the early 1900s and consists of three major areas; the North Yard, the South Yard, and Area A. The lined surface impoundment, an adjacent 12 million gallon unlined pond, and an industrial pretreatment wastewater facility (IPWF) are located in Area A, as shown on Attachment B, which is attached hereto and made part of the Order by reference.
4. The North Yard includes a diesel shop area, diesel service area, and a subway fueling area. The South Yard includes numerous parallel railroad tracks. Drainage from several areas of the North Yard totaling about 12 acres flow to the IPWF and the lined surface impoundment. Drainage areas include 5.7 acres of tracks, a 3.2-acre wash area, 2.4 acres of parking lots, and a 0.5-acre subway fueling area, as shown on

Attachment C, which is attached hereto and made part of the Order by reference. According to the Discharger, the storm water from the 10-acre diesel shop area shown on Attachment C does not flow to the IPWF or surface impoundment. Constituents in the industrial wastewater include diesel fuel, lubricating oils, and metals in the industrial wastewater and runoff from the above-referenced drainage areas. Constituents of concern for the surface impoundment are petroleum hydrocarbons including oil/grease and diesel fuel, as well as metals including arsenic, lead, and nickel.

5. Previous WDRs Order No. 92-197, adopted by the Central Valley Water Board on 25 September 1992, prescribed requirements for capturing and storing storm water that has contacted active industrial areas, wastes, and locomotive wash water for discharge to the lined surface impoundment under the "Non15" program. The Discharger has made several improvements to reduce the volume of water that enters the surface impoundment; however, this revised Order requires that the discharge be regulated in accordance with Title 27 due to concentrations of petroleum hydrocarbons in the water that indicate it is a designated waste as defined in California Water Code (CWC) Section 13173(b).
6. This Order regulates the lined surface impoundment as a Class II waste management unit under Title 27, and includes prohibitions on the use of the adjacent unlined pond for discharge or storage of industrial wastewater. The surface impoundment was originally lined in 1989 with a 40-mil high-density poly ethylene (HDPE) geomembrane lower liner and a geosynthetic clay liner (GCL) primary liner with a 6-inch pea gravel leachate collection and removal system (LCRS) in between. In 1990, a 60-mil HDPE geomembrane top liner was installed over the GCL with an 8-inch compacted fill layer in between. The liner cross-section is shown on Attachment D, which is attached hereto and made part of the Order by reference. WDRs were first adopted by the Central Valley Water Board for this site to regulate the discharge of industrial wastewater and storm water to two "treatment basins" and a storm water basin in 1983. The current unlined pond and lined surface impoundment were constructed adjacent to the old ponds in 1989.

WASTE AND WASTE MANAGEMENT UNIT CLASSIFICATION

7. The State Water Resources Control Board (State Water Board) promulgated regulations under Title 27 consisting of requirements, waste classifications, and waste management unit classifications designed to protect the beneficial uses of waters of the state for projects involving the discharge of designated waste to land for treatment, storage, or disposal.
8. California Water Code (CWC) Section 13173(b) defines "designated waste" to include "[n]on hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that exceed applicable water quality objectives or that could reasonably be expected to affect beneficial uses of waters of the state as contained in the appropriate state water quality control plan."

9. The Discharger provided data in the ROWD for samples collected from the surface impoundment since 2007, which are shown in the table below. The table also includes the California primary maximum contaminant level (primary MCL) and the lowest applicable water quality goal (WQG) for groundwater for protection of drinking water beneficial use for domestic and municipal supply wells. All concentrations are in micrograms per liter (ug/L).

Date	Oil and Grease (ug/L)	Total Petroleum Hydrocarbons ¹ (ug/L)	Dissolved Lead (ug/L)	Dissolved Arsenic ² (ug/L)	Dissolved Nickel (ug/L)
1/18/2007	40,000	13,000	21	13	16
5/22/2007	31,500	9,200	25	28	11
7/25/2007	37,000	21,000	95	37	16
10/16/2007	89,300	42,000	43	23	13
1/8/2008	137,000	54,000	29	120	9.5
4/3/2008	54,200	49,000	22	<10	12
8/18/2008	134,000	67,000	18	150	14
10/21/2008	139,000	79,000	14	150	12
1/22/2009	86,800	68,000	14	14	14
7/6/2009	31,900	22,000	12	6.9	12
10/27/2009	58,700	16,000	41	120	14
1/20/2010	23,500	8,400	6	<10	8.3
4/26/2010	35,600	12,000	9.9	<10	11
7/22/2010	49,500	11,000	51	52	10
10/21/2010	32,400	30,000	33	71	6.7
1/19/2011	<5,000	<5,000	59	<10	11
Primary MCL	None	None	15	10	100
Lowest Applicable WQG	None	56 (USEPA IRIS reference dose for drinking water for diesel oil)	0.2 (California public health goal)	0.004 (California public health goal)	12 (California public health goal)

¹ Reported as "Unknown Hydrocarbon" in the diesel range.

² Arsenic data presented above are from LCRS sump, not directly from surface impoundment. Impoundment data for arsenic are generally <10 ug/L.

10. Concentrations of total petroleum hydrocarbons (TPH) in the diesel range in the water samples from the surface impoundment greatly exceed both the lowest applicable water quality goal for diesel oil of 56 ug/L which is the USEPA IRIS reference dose as a drinking water level. This is a toxicity objective for the protection of human health based on two liters per day drinking water consumption. The concentrations also greatly exceed the 100 ug/L taste and odor threshold for diesel oil for the protection of human welfare. Concentrations of dissolved lead and arsenic in the water samples from the surface impoundment or LCRS sump exceed the respective California primary MCLs and the California public health goal. Concentrations of dissolved nickel exceed the

California public health goal for some of the data. If surface impoundment was unlined, the water contained in it would be released in concentrations exceeding the applicable water quality objectives and could reasonably be expected to affect the drinking water beneficial uses of the underlying groundwater. Therefore, the water in the surface impoundment is a designated waste as defined in the CWC and is subject to regulation under Title 27.

11. The surface impoundment is a waste management unit (WMU) that has previously been regulated under "Non15" WDRs, and was not classified under Title 27. The impoundment is equipped with a liner system and leachate collection and removal system that meets the prescriptive requirements and performance standards of Title 27. This Order classifies the WMU as a Class II surface impoundment under Title 27 and the impoundment meets the applicable Title 27 construction requirements for a Class II surface impoundment. This Order includes requirements for periodic inspection, electronic leak testing, and repair of the liner system if needed. This Order also contains an Action Leakage Rate (ALR) for maximum leakage into the LCRS.

SITE DESCRIPTION

12. Surrounding land use within one mile of the Roseville Yard is a mix of residential, industrial, commercial, parks and recreation, and public open space. Dry Creek flows through the middle of the Roseville Yard immediately to the southwest of the unlined pond in Area A. Groundwater flow direction in the North Yard and Area A is generally to the southwest. Groundwater flow direction in the South Yard is generally to the southwest except in the vicinity of Dry Creek where it is to the northeast toward the creek.
13. The average annual precipitation at the facility is 22.80 inches based on the nearest weather station in Rocklin. The 100-year wet season was calculated to be 41.05 inches based on data from the Western Regional Climate Center for Rocklin. The 1,000-year 24-hour storm event is 5.14 inches based on data from the Western Regional Climate Center for Rocklin.
14. The channel for Dry Creek runs adjacent to the berm of the unlined pond as shown on Attachment B. The unlined pond is between the creek and the lined surface impoundment. The area in the immediate vicinity of Dry Creek, including the unlined pond and the lined surface impoundment are within the limits of the 100-year floodplain based on the flood insurance rate map number 06061C0478F produced by the Federal Emergency Management Agency. Near Area A, the 100-year flood elevation ranges from 120 feet to 124 feet above mean sea level (msl) based on NGVD 1929. Using NAVD 1988 datum, the range of 100-year flood elevations are 122.5 feet to 126.5 feet. The top of the berm elevation of the lined surface impoundment is 128 feet above msl based on NAVD 1988. The ROWD states that the top of the berm around both the lined and unlined basins are higher than the 100-year flood elevation by two feet. Therefore, the lined surface impoundment would not be inundated by a 100-year flood on Dry

Creek and is in compliance with Title 27 Section 20250(c) regarding prevention of inundation from a 100-year flood.

15. Sediments beneath Area A include a shallow and deep soil zone. The shallow soil zone extends from the ground surface to the base of the shallow water-bearing zone and is composed of relatively continuous unconsolidated to semi-consolidated sand, silt, and clay channel fill deposits inter-bedded with discontinuous lenses of silty and clayey sand. The thickness of the shallow soil zone ranges from 20 to 30 feet below ground surface (bgs). Groundwater in the shallow water-bearing zone has historically flowed to the southwest with a hydraulic gradient of about 0.0023 to 0.0027 feet/foot.
16. The deep soil zone extends from the base of the shallow water-bearing zone to the top of the deep water-bearing zone. The depth to the top of the deep water-bearing zone ranges from approximately 130 to 140 feet bgs. The deep soil zone is predominantly composed of silts and clays inter-bedded with lesser amounts of gravel and sand. The thickness of the deep soil zone ranges from approximately 100 to 110 feet. Groundwater in the deep water-bearing zone has historically flowed to the southwest with a hydraulic gradient of about 0.0023 to 0.0033 feet/foot.
17. The surface impoundment is constructed to a depth of approximately 11 feet bgs and the first groundwater is in the shallow water-bearing zone approximately 20 feet bgs.
18. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basin, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Pursuant to CWC Section 13263(a), waste discharge requirements must implement the Basin Plan.
19. The designated beneficial uses of the underlying groundwater, as specified in the Basin Plan, are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
20. Surface water at the Roseville Yard that is not routed to the IPWF and surface impoundment is discharged to Dry Creek under the statewide general storm water permit for industrial facilities, and was formerly regulated under an individual NPDES permit from 1974 until 2000. Therefore, these WDRs do not regulate discharges of storm water to Dry Creek.
21. Dry Creek is tributary to the Sacramento River approximately one mile upstream of the I Street Bridge in Sacramento. The designated beneficial uses of the Sacramento River from the Colusa Drain to the I Street Bridge are municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.

22. The ROWD states that according to the California Geological Survey (CGS), no known faults are in the immediate vicinity of the site. The closest fault is the Foothills Fault approximately 20 miles away with a Maximum Credible Earthquake (MCE) magnitude of 6.5. The other two closest faults are more than 50 miles away. The ROWD states that the ground motion values from the MCE based on a seismic event with a 10 percent probability of exceedance in 50 years, or return period of 475 years, would be 0.157 g in alluvium based on data compiled by CGS and U.S. Geological Survey.

SITE HISTORY

23. The Central Valley Water Board's regulation of the Roseville Yard began in 1959 with the adoption of a resolution prescribing requirements for the discharge of industrial effluent to Dry Creek. In 1983, the Central Valley Water Board adopted WDRs 83-126 prescribing requirements for three then-existing retention basins that were used to pre-treat the industrial wastewater by sedimentation and skimming prior to discharge to Dry Creek. The WDRs found that the wastewater contained volatile organic compounds (VOCs) and metals and included a time schedule for segregation of storm water from industrial waste water, replacement of unlined ponds with lined ponds, and construction of an industrial wastewater pre-treatment facility for discharge to the sanitary sewer.
24. In 1984, the Central Valley Water Board adopted Cease and Desist Order 84-059 due to the Discharger's failure to comply with the time schedule in the WDRs. In 1989, the Executive Officer issued Cleanup and Abatement (CAO) Order 89-703 and Administrative Civil Liability Complaint 89-500 for discharges of storm water runoff containing diesel fuels and lubricating oils to Dry Creek during the winter of 1989. A new lined industrial wastewater surface impoundment was constructed in 1989 adjacent to a new unlined pond, and the IPWF was also constructed. The Central Valley Water Board adopted WDRs 90-052 and then WDRs 92-197 to regulate the ponds and the IPWF.
25. The Central Valley Water Board also adopted NPDES permits for discharges to Dry Creek beginning in 1974, but the Discharger applied for coverage under the statewide storm water permit for industrial facilities in 1999 and the latest NPDES permit, Order 94-333, was rescinded in 2000.
26. Site-wide investigation and cleanup of soil and groundwater at the Roseville Yard, including the area of the basins, are being addressed under the oversight of the Department of Toxic Substances Control (DTSC) in cooperation with the Central Valley Water Board's Site Cleanup Program. The Discharger entered into a Consent Order with DTSC in 1990 for investigation and cleanup for the entire rail yard site. For Area A, which includes the area in the vicinity of the lined and unlined basins, a Remedial Action Plan (RAP) was approved by DTSC on 23 August 2003. The remedy for this area included excavation and offsite disposal of impacted materials and the installation of a slurry wall and an asphalt surface cap. A summary of the implementation of the RAP was presented to DTSC in a 15 June 2005 Remedial Action Plan Completion Report

that was subsequently approved by DTSC. Per the requirements of the RAP, a land-use covenant for Area A was implemented on 27 June 2008 for the protection of present and future public health and the environment. Groundwater monitoring and sampling is being conducted within Area A in accordance with the approved RAP, an Operation and Maintenance Agreement entered into with DTSC in 2008, and a Monitoring and Reporting Program overseen by the Central Valley Water Board's Site Cleanup Program.

CLASS II SURFACE IMPOUNDMENT AND PRE-TREATMENT FACILITY

27. Industrial wastewater and runoff from approximately 12 acres of the North Yard is directed to the IPWF for pre-treatment prior to discharge to the sanitary sewer under permit by the City of Roseville. The average flow of industrial wastewater is approximately 12 gallons per minute (gpm). The lined Class II surface impoundment is used for storage of excess water during and after rainfall events prior to treatment. The sewer permit allows a flow rate of up to 85,000 gallons per day (gpd) which is an average flow rate of approximately 59 gpm. The sewer permit requires pre-treatment of the wastewater and quarterly sampling of the effluent for various metals, oil & grease, total petroleum hydrocarbons, and total toxic organics with specific limits for each analyte. This sampling is conducted by the City of Roseville. The treatment system is capable of up to 500 gpm while the process pumps are capable of 380 gpm. Typically, the treatment system only operates during business hours on Monday through Friday, so the flow rate to the sanitary sewer during operation may be higher than 59 gpm as long as the flow does not exceed 85,000 gpd on average. The City of Roseville monitors the discharge meter monthly, and the Discharger submitted information from the City stating that the flow limitation is an annual average to allow for greater flows during the rainy season.
28. Industrial wastewater and storm water flows enter into an influent manhole and then flow into the headworks sump area where it is pumped to the IPWF. The IPWF treatment process includes grit removal, an oil-water separator, and flocculation/sludge removal. Oil that is skimmed off in the separator is pumped to two oil storage tanks. The wastewater is then injected with a coagulant then a flocculent and enters into a flocculation tank. The wastewater then enters a dissolved air floatation system from which the sludge is pumped out into two sludge tanks. The treated water is then discharged to the sanitary sewer. A process flow diagram of the IPWF is shown in Attachment E, which is attached hereto and made part of the Order by reference.
29. In order to provide excess hydraulic capacity, a 230,000-gallon above ground tank is connected to the headworks sump. The lined Class II surface impoundment is connected to the above ground tank. The lined impoundment is connected to the unlined pond by an inverted siphon that is 2.75 feet from the top of the lined impoundment. The Discharger reports that significant reductions to the area draining to the IPWF and surface impoundment were made during 2004; however, a significant drainage area of 12 acres remains. The Discharger also reports that no wastewater has

flowed to the unlined pond since the reductions in the drainage area were made. A water balance was included in the ROWD and is summarized in later Findings below.

30. Under current operations, wastewater is pumped out of the lined surface impoundment with a 150 gpm pump whenever the depth of water in the impoundment exceeds 4 feet. The pump discharges to a nearby manhole that is connected back to the headworks of the IPWF. During normal operations, the pump operates approximately six hours per day on every third day excluding weekends. Operations may need to be adjusted in order to maintain needed capacity in the surface impoundment for the design storm event and seasonal precipitation required by Title 27.
31. The lined surface impoundment was constructed in 1989 and an additional geomembrane and an 8-inch soil fill layer were added in 1990. The surface impoundment capacity is 2.07 million gallons if it were completely filled and is 1.64 million gallons at two feet of freeboard (two feet from the top of the impoundment). The impoundment has a maximum depth of 12 feet in the middle and a minimum depth of 9.5 feet along the edges. The areal extent of the impoundment is approximately 0.42 acres. The components of the liner system (also shown in Attachment D) are, from top to bottom:
 - a) 60-mil HDPE geomembrane
 - b) 8-inch compacted soil fill (cushion layer)
 - c) Geosynthetic clay liner (GCL)
 - d) 6-inch pea gravel LCRS layer
 - e) 40-mil HDPE geomembrane
 - f) Compacted fill subgrade
32. The 6-inch gravel LCRS layer is sloped at 3% along with the contours of the bottom of the impoundment and drains to a collection sump where water flows through a pipe to a manhole outside of the impoundment for pumping back to the surface impoundment. The system includes a flow totalizing meter to record flow from the LCRS manhole back to the surface impoundment.
33. The ROWD includes a proposed Action Leakage Rate (ALR) for the surface impoundment LCRS. The ALR is a maximum flow rate through the primary liner to the LCRS beyond which the Discharger is required to take actions to inspect and repair the primary liner system. The Discharger proposes an ALR based on the recommendations in the 1992 USEPA guidance document *Action Leakage Rate for Leak Detection Systems*. The guidance recommends that ALR for lined surface impoundments be set at no more than 1,000 gallons per acre per day. Using this recommendation, the Discharger calculated an ALR of 420 gallons per day for the 0.42-acre impoundment. This Order sets the ALR for the surface impoundment at 420 gallons per day. The ALR will be calculated based on monthly readings of the flow totalizer that records flow from the LCRS manhole back to the surface impoundment.

34. Title 27 Section 20370(a) requires Class II units to be designed to withstand the maximum credible earthquake (MCE) without damage to foundation or containment structures. The ROWD contains a stability analysis for the existing Class II surface impoundment. The stability analysis analyzes the impoundment under both static and dynamic conditions. The static stability analysis indicates a factor of safety of 2.05, which is greater than the factor of safety of 1.5 required by Title 27. The dynamic (seismic) stability analysis using the peak ground acceleration of 0.157 g for the MCE indicates a factor of safety of 1.64, which is greater than the required 1.5.
35. Title 27 Section 20375(a) requires Class II surface impoundments to have capacity for seasonal precipitation, a 1,000-year 24-hour design storm event, and to maintain at least two feet of freeboard. The 1,000-year, 24-hour storm event for the site is 5.14 inches. For Title 27-required seasonal precipitation, the Discharger has been required to use the 100-year wet season distributed monthly to account for reasonable worst-case scenario. Use of the average wet season has not been allowed since the surface impoundment would not have sufficient storage capacity during about 50% of the annual wet seasons. The 100-year wet season for the site is 41.05 inches based on rainfall data from the Rocklin gauge. The ROWD includes a table showing how this rainfall would be distributed monthly by distributing the total amount among the months using the percentage of monthly precipitation that occurs on average. This results in the following for the 100-year wet season as shown in the ROWD:

Month	100-Year Wet Season (Inches)
January	8.81
February	6.95
March	5.89
April	3.22
May	1.37
June	0.50
July	0.05
August	0.05
September	0.58
October	2.25
November	4.63
December	6.75
Total	41.05

36. A detailed water balance for the surface impoundment is included in the ROWD. The water balance takes the following factors into account:
- The average daily base wastewater flow is 17,572 gpd or about 12 gpm based on historical records.
 - A surface area of 514,831 square feet (12 acres) from the North Yard drains to the IPWF during precipitation events.

- c) The runoff coefficient for estimating runoff volume using the Rational Method is 0.54 based on land uses in the runoff area. The Discharger also estimated runoff using the Natural Resources Conservation Service Method using a curve number of 89 based on local soils information.
 - d) The maximum flow rate out of the surface impoundment is 150 gpm based on the pump capacity. The maximum flow rate to the sanitary sewer is 380 gpm, but cannot exceed 85,000 gpd (59 gpm) for an annual average.
 - e) Evaporation losses from the impoundment total 69,472 cubic feet per year or 519,634 gallons per year, and are distributed monthly.
 - f) The 100-year wet season (41.05 inches) is distributed monthly in accordance with average monthly rainfall patterns.
 - g) The capacity of the lined impoundment at the two-foot freeboard level is 219,114 cubic feet or 1,638,973 gallons.
37. Based on the water balance in the ROWD, the Discharger reports that the surface impoundment has sufficient capacity to maintain more two feet of freeboard during the height of the 100-year wet season. The highest volume would be seen during March at 214,438 cubic feet or 1,604,000 gallons stored in the impoundment which is less than the volume of 219,114 cubic feet at the two-foot freeboard level.
38. The water balance indicates that the lined surface impoundment does not have sufficient capacity to contain the runoff from the 12 acre drainage area during the required 1,000-year, 24-hour storm event. The ROWD states that if a new lined overflow basin is required for the 1,000-year, 24-hour storm flow, it shall handle a minimum of 166,188 cubic feet of runoff. The ROWD proposes an impoundment that with a volume of 202,500 cubic feet (approximately 1.5 million gallons) including the required two feet of freeboard. The initially proposed dimensions of the impoundment are 200 feet by 75 feet by 13.5 feet deep which would be an area of approximately 0.34 acres. These dimensions may change during design so long as the overall needed volume is maintained.
39. The Discharger proposes a single-composite liner system for the overflow basin to be constructed within the confines of the existing 12 million gallon unlined basin. The proposed liner system would consist of an HDPE geomembrane overlaying a geosynthetic clay liner (GCL). The overflow impoundment is not being required to meet full Class II surface impoundment standards since it would be used very infrequently and for very limited duration during and after very large storm events that approach the 1,000-year, 24-hour storm event. This Order requires that the overflow impoundment be constructed and be pumped out as soon as capacity in the Class II surface impoundment is available.
40. This Order and the attached monitoring and reporting program also requires the Discharger to record onsite rainfall and freeboard levels daily and report them in the required monitoring reports. This Order also requires a flow totalizing meter to record

flow from the impoundment back to the IPWF so that the volume of wastewater being handled by the impoundment can be calculated.

GROUNDWATER CONDITIONS

- 41. There are numerous monitoring wells at the site associated with site investigation and cleanup including several associated with the surface impoundment in Area A. The Discharger has selected eight monitoring wells to be used for the detection monitoring program for the surface impoundment. Proposed background wells located upgradient from the impoundment are W91-04 and W91-07. Detection monitoring wells include cross-gradient well W95-02, and downgradient wells EW-5, W91-01, OSMW32, DI-58, and W-02. Locations of monitoring wells are included on Attachment B of this Order.
- 42. The constituents of concern (COCs) for the surface impoundment proposed in the ROWD are arsenic, lead, nickel, and TPH. The proposed COCs are based on data from the surface impoundment and LCRS. TPH will include separate analyses for TPH as diesel and TPH as oil & grease. Other potential COCs that could be present in the wastewater such as other VOCs and are required to be sampled in the attached monitoring and reporting program.
- 43. Groundwater in Area A has been impacted by previous waste disposal practices and is being address by DTSC and the Site Cleanup Program as discussed in Finding 26. Non-naturally occurring compounds that have been detected in groundwater include acetone, 2-butanone, chloroethane, chloromethane, methyl-tertiary butyl ether (MTBE), and TPH as diesel. The following table includes information presented in the ROWD for groundwater data in Area A from January 2009 to January 2010.

Constituent	Samples Taken	Samples above detection limit	Average Detected Concentration
Arsenic	17	1	20 ug/L
Acetone	68	2	28.5 ug/L
2-butanone	68	5	1.9 ug/L
Chloroethane	77	1	1.1 ug/L
Chloromethane	77	1	0.58 ug/L
MTBE	68	1	1.1 ug/L
TPH as diesel	77	69	261 ug/L

- 44. In the past, much of the groundwater and surface impoundment monitoring data has been reported with laboratory reporting limits that were set at or sometimes above the Maximum Contaminant Level (MCL). For instance, the reporting limit for arsenic has been set at either 10 ug/L or 20 ug/L for most of the samples collected from monitoring wells and the surface impoundment. The primary MCL for arsenic is 10 ug/L. The lowest applicable water quality goal for arsenic is the California Public Health Goal which is 0.004 ug/L. The previously used reporting limits for arsenic are too high to properly regulate the discharge to the surface impoundment or to properly assess

conditions for groundwater investigation and cleanup. The attached monitoring and reporting program requires the Discharger to use USEPA test methods with the lowest achievable detection limits and to set the reporting limit no higher than the practical quantitation limit.

45. As required by Title 27, the ROWD includes a proposed detection monitoring program and includes proposed methods for calculating concentration limits for the COCs to be used for detecting a release to groundwater from the surface impoundment. The objective of the detection monitoring program is to detect a new release from the lined surface impoundment. Since groundwater is already impacted with constituents listed in Finding 43, 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. Once again, site-wide cleanup including the cleanup objectives for each constituent that is impacting groundwater is being overseen by DTSC and the Site Cleanup Program. This Order does not include requirements for addressing the impacts caused by the past practices and treats current groundwater conditions as the background for purposes of detection monitoring. The methods for calculating concentration limits are included in the attached monitoring and reporting program.

SURFACE IMPOUNDMENT CLEAN-CLOSURE

46. A Preliminary Closure Plan (PCP) for the surface impoundment is included in Section 9 of the ROWD. Pursuant to Title 27 Section 21400(a)(1), the PCP proposes clean-closure of the surface impoundment. The PCP proposes to prepare a final closure plan prior to commencing closure activities. The liner system, LCRS, and any sludges will be removed and taken to an off-site appropriately-permitted landfill. The PCP plan assumes that 1,100 tons of sludge will require disposal. The soil underlying the impoundment will be sampled for the presence of contaminants, and the PCP assumes limited overexcavation of the top two feet of soil will be conducted. The site will then be graded for future use.
47. The PCP includes an itemized cost estimate for third party costs to clean-close the surface impoundment. The total of the estimate is \$3,223,000 in 2011 dollars. This cost estimate is approved by the adoption of these WDRs. Pursuant to Title 27 Section 22207(a), this Order requires the Discharger to establish financial assurances for closure of the Class II surface impoundment in accordance with the approved cost estimate naming the Central Valley Water Board as the beneficiary.

FINANCIAL ASSURANCES FOR CORRECTIVE ACTION

48. Title 27 Section 22222 requires the Discharger to establish financial assurances for corrective action of a known or reasonably foreseeable release. A cost estimate for

corrective action is included in Section 10 of the ROWD. The total of the cost estimate for corrective action is \$2,099,000 in 2011 dollars. This cost estimate is approved by the adoption of these WDRs. This Order requires the Discharger to establish financial assurances for corrective action in accordance with the approved cost estimate naming the Central Valley Water Board as the beneficiary.

CEQA AND OTHER CONSIDERATIONS

49. This action to revise WDRs for this facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, Section 21000 et seq., in accordance with Title 14 CCR, Section 15301. The reissuance and amendment of the WDRs is exempt from CEQA under Section 15301 for the existing facility. The requirement for the Discharger to line a portion of the existing unlined wastewater pond to protect groundwater is also exempt under Section 15301 since there is no expansion of the existing permitted facility.
50. This Order implements:
- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition; and*
 - b. The prescriptive standards and performance goals of Title 27 of the California Code of Regulations, effective 18 July 1997, and subsequent revisions.
51. Section 13267 of the California Water Code states, in part, “(a) *A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region*” and “(b) (1) *In conducting an investigation..., the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify evidence that supports requiring the person to provide the reports.*”
52. The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility, and is responsible for the discharges of waste at the facility subject to this Order and is, therefore, subject to CWC Section 13267(b).

PROCEDURAL REQUIREMENTS

53. All local agencies with jurisdiction to regulate land use, solid waste disposal, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
54. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
55. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
56. Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Section 13320 of the California Water Code and Title 23, California Code of Regulations Sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of the Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

IT IS HEREBY ORDERED pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 92-197 is rescinded and Union Pacific Railroad Company, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following.

A. PROHIBITIONS

1. The discharge of 'hazardous waste' into the ponds regulated by this Order is prohibited. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Title 27.
2. Discharge of wastes to surface waters or surface water drainage courses is prohibited, other than as allowed by discharges regulated by the statewide general storm water permit for industrial facilities.

3. The discharge of wastewater and/or contaminated runoff to the ground surface in unlined areas after it enters the IPWF or Class II surface impoundment is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharge shall not cause a nuisance or condition or pollution as defined by the California Water Code, Section 13050.
2. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions.
3. Annually, prior to the anticipated rainy season but no later than **1 November**, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed.
4. The Class II surface impoundment shall have capacity to contain precipitation and site runoff from a 100-year wet season of 41.05 inches distributed at least monthly. The Discharger shall provide the required additional capacity for containment of a 1,000-year 24-hour storm event of 5.14 inches in accordance with the schedule in the provisions of this Order below.
5. The Class II surface impoundment and any lined overflow basin shall maintain at least two feet of freeboard at all times (measured from the top of the basin at the point where it would overflow to the surface of the wastewater in the basin).
6. The Discharger shall record onsite rainfall and lined surface impoundment freeboard levels in accordance with the attached monitoring and reporting program.
7. Wastewater and runoff that overflows from the Class II surface impoundment into any lined overflow basin shall be pumped back into the Class II surface impoundment as capacity becomes available.
8. The Discharger shall operate the treatment system at its maximum flow rate within City permit limitations to regain as much surface impoundment capacity as possible following any precipitation event.
9. Prior to the wet season and by **1 November**, the surface impoundment shall have its full capacity available (be as empty as possible) to accommodate rainfall during the wet season. Minor amounts of water may be present in the impoundment at this time but no more than the minimum amount of water needed to operate the pump to the treatment system.

10. The surface impoundment and lined overflow basin shall be maintained to prevent scouring and/or erosion of the liner and other containment features at points of discharge to the impoundment and by wind-caused wave action at the waterline.
11. Leachate removed from the surface impoundment LCRSs shall be placed back into the surface impoundment after any required sampling. Any leachate holding tank or manhole shall be large enough to accommodate anticipated flows from the LCRS without overflowing, and shall be able to automatically discharge back to the surface impoundment in the event of overflowing.
12. The **Action Leakage Rate (ALR)** for the Class II surface impoundment is **420 gpd** or 12,600 gallons over a 30-day period. If leachate generation in the LCRS of the Class II surface impoundment exceeds the ALR, the Discharger shall immediately take steps to locate and repair leak(s) in the liner system and immediately notify the Central Valley Water Board. If repairs do not result in a leakage rate less than the required ALR, the Discharger shall immediately notify the Central Valley Water Board. The notification shall include a timetable for remedial action to repair the upper liner of the surface impoundment or action necessary to reduce leachate production.
13. The Discharger shall maintain a flow totalizing meter to record flow from the LCRS manhole sump back to the Class II surface impoundment so that the ALR can be calculated.
14. The Discharger shall install and maintain a flow totalizing meter to record flow from the impoundment back to the IPWF so that the volume of wastewater being handled by the Class II surface impoundment can be calculated.
15. The LCRS shall be operated and maintained to collect twice the anticipated daily volume of leachate generated by the Class II surface impoundment and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in the LCRS shall be kept at the minimum needed to ensure efficient pump operation given the pump intake height and cycle frequency.
16. The LCRS shall be designed and operated to function without clogging through the scheduled closure of the surface impoundment. The surface impoundment shall be equipped to facilitate annual testing to demonstrate proper operation as required by Title 27 Section 20340(d).
17. Sediment or solids that accumulate in the Class II surface impoundment shall be removed when necessary to maintain the designed storage capacity. Sludge and solids removal shall be accomplished in a manner that ensures the continued integrity of liners and leachate collection systems in accordance with the facility's operations plan. Prior to disposal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27. Sediment or solids shall be dried to less than 50% moisture prior to disposal of at a permitted disposal

facility with containment classification appropriate for the classification of the waste.

18. Following sediment/solids removal from the Class II surface impoundment, the Discharger shall conduct an electronic leak location survey of the upper liner of the surface impoundment and shall repair any leaks or damage to the upper liner prior to discharging waste to the impoundment.

C. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. The Class II surface impoundment shall be equipped with a double liner system and LCRS as described in the ROWD and in Finding 31 of this Order.
2. Any overflow basin for temporary storage of wastewater and runoff shall be equipped with at least a composite liner system consisting of an HDPE geomembrane overlaying a geosynthetic clay liner as proposed in the ROWD.
3. The Discharger shall submit a design report including plans, specifications, and a construction quality assurance plan for review and approval prior to constructing any new lined impoundments or overflow basins.
4. The Discharger shall submit a final report documenting construction of any new lined impoundments or overflow basins for review and approval prior to discharging wastes to the impoundment.
5. The Class II surface impoundment and any overflow basin shall have permanent markings on the liner, or a permanent freeboard gauge so that the freeboard can be observed and recorded at any time. The markings or gauge shall have increments no greater than 6-inches.
6. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating period of the surface impoundment.
7. Materials used to construct an LCRS shall have appropriate physical and chemical properties to ensure the required transmission of leachate over the life of the surface impoundment.

D. CLOSURE SPECIFICATIONS

1. At closure of the Class II surface impoundment and overflow basin, the Discharger shall clean-close the units pursuant to Title 27 Section 21400(a)(1). All precipitates, settled solids, liner materials, and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to an appropriately permitted landfill facility. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that

removal of all remaining contamination is infeasible, the impoundment and/or overflow basins shall be closed as a landfill pursuant to Title 27 Section 21400(b)(2)(a).

2. Prior to closure, the Discharger shall submit a Final Closure Plan prepared by a California-registered civil engineer or certified engineering geologist, and that contains all applicable information required in Title 27 Section 21769. The plan shall include elements proposed in the ROWD, and shall meet the requirements of this Order.

E. FINANCIAL ASSURANCES

1. By **1 June 2012**, pursuant to Title 27 Section 22207, the Discharger shall submit a report showing that it has established an irrevocable \$3,223,000 **closure fund** with the Central Valley Water Board named as beneficiary to ensure closure of the Class II surface impoundment in accordance with the cost estimate in the ROWD. The financial assurances mechanism shall be one listed in Title 27 Section 22228 that the Discharger is eligible for. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by 1 June 2012 or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by **1 June 2013** showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, such as a Guarantee, the Discharger shall submit a report showing the mechanism is in place by **1 June 2012**.
2. By **1 June 2012**, pursuant to Title 27 Section 22222, the Discharger shall submit a report showing that it has established an irrevocable \$2,099,000 **corrective action fund** with the Central Valley Water Board named as beneficiary to ensure funds are available to address a known or reasonably foreseeable release from the Class II surface impoundment. The financial assurances mechanism shall be one listed in Title 27 Section 22228 that the Discharger is eligible for. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by 1 June 2012 or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by **1 June 2013** showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, the Discharger shall submit a report showing the mechanism is in place by **1 June 2012**.
3. By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the closure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236.

F. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Discharges Regulated by Title 27, dated September 2003, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. Pursuant to CWC Section 13267, the Discharger shall comply with Monitoring and Reporting Program No. R5-2012-____, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program No. R5-2012-____ is a violation of these waste discharge requirements.
3. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
4. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared by a California-registered civil engineer or certified engineering geologist:
 - a. By **1 May 2012**, the Discharger shall submit a report showing that a flow totalizing meter has been installed to measure flow from the Class II surface impoundment to the IPWF.
 - b. By **1 June 2012**, the Discharger shall submit a plan to collect any additional groundwater samples necessary that may provide at least four data points for each Monitoring Parameter required in the groundwater monitoring program in Monitoring and Reporting Program No. R5-2012-____ such that concentration limits can be calculated in the 2012 Annual Monitoring Report that is due by 31 January 2013.
 - c. By **29 June 2012**, the Discharger shall submit a design report, plans, specifications, and a construction quality assurance plan for a composite-lined overflow basin designed to capture and store runoff from a 1,000-year, 24-hour storm event as described in Findings 38 and 39. The liner system shall consist of an HDPE geomembrane and a geosynthetic clay liner as proposed in the ROWD.

- d. By **28 February 2013**, the Discharger shall submit the final report documenting the construction of the overflow basin, results of the construction quality assurance testing, and certifying that the basin meets the requirements of this Order.
5. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel. All other site operating records required by this Order may be maintained offsite, but must be available to Central Valley Water Board staff within 48 hours of being requested.
6. The Discharger shall maintain legible records of the volume and type of waste discharged to and from the surface impoundment and the manner of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Central Valley Water Board and of the State Water Resources Control Board.
7. The Discharger shall comply with all applicable provisions Title 27 that are not specifically referred to in this Order.
8. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order and of the California Water Code.
9. The Discharger shall immediately notify the Central Valley Water Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
10. In the event of any change in control or ownership of the facility or disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision VIII.A.5 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
11. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.

12. This Order shall take effect upon the date of adoption.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer

WLB