

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2013-0070

WASTE DISCHARGE REQUIREMENTS
FOR
THE BNSF RAILWAY COMPANY
BNSF STOCKTON INTERMODAL FACILITY
CLASS II SURFACE IMPOUNDMENT
SAN JOAQUIN COUNTY

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

1. The BNSF Railway Company, formerly the Burlington Northern and Santa Fe Railway Company, (hereafter Discharger) owns and operates the Stockton Intermodal Facility. The facility was previously regulated by Waste Discharge Requirements (WDRs) Order No. 5-00-133 in conformance with Division 2 of Title 27 of the California Code of Regulations ("Title 27"). As part of the Discharger's 2012 Annual Monitoring Report the Discharger recommended changes to their groundwater monitoring system in order to eliminate the introduction of Total Petroleum Hydrocarbons as diesel (TPH-d) contaminants from ambient air, which historically may have created false positive results of TPH-d in groundwater monitoring wells. Regional Water Board staff in order to address those proposed changes and as part of its periodic review of WDRs has prepared these revised WDRs to reflect current conditions at the facility.
2. The facility is located approximately eight miles southeast of Stockton on the main BNSF rail track between Austin Road and Jack Tone Road at 6540 South Austin Road in Stockton, California. This property consists of approximately 470 acres and is described by Assessor's Parcel Number(s) 181-070-05, 181-090-07, 181-090-21, 181-090-22, 181-160-08, 181-170-01, and 181-170-05 in Section 26, T1N, R7E, MDB&M. The site is shown on Attachment A, which is incorporated herein and made a part of this Order by reference.
3. The Intermodal Facility transfers shipping containers and trailers between railcars transported by diesel powered locomotives and diesel powered semi-trailer trucks. Specialized diesel powered cranes are used to load and unload the containers and trailers to and from railcars. Diesel powered trucks are used to move the containers and trailers about the facility.
4. The facility is regulated under Title 27 due to industrial operations that produce wastewater that is a designated waste that must be contained in a Class II surface impoundment in order to protect beneficial uses of waters of the State. The wastewater is treated in an oil water separator (OWS) prior to discharge to a Waste

Management Unit (WMU) hereafter referred to as an "evaporation pond", a Class II surface impoundment (hereafter "surface impoundment"), as shown on Attachment B, which is incorporated herein and made a part of this Order by reference. Design specifications for the constructed Class II surface impoundment are given in Findings 43 through 50.

5. Storm water from nonindustrial process areas is also managed in three onsite percolation ponds that are not part of these WDRs. The Facility is currently not permitted to discharge any storm water to surface waters regulated under WDRs 97-03-DWQ Order, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities* (NPDES General Permit CAS000001).
6. The principal waste streams to the OWS is storm water and wash down water from two Crane Maintenance Pads, storm and wash down water from the Hostler Fueling Area, wash down water from the Hostler Maintenance Building, wash down water from the Crane and Trailer Maintenance Building, and condensate from two air compressors. A floor drain in the Fire Pump Building is connected to the OWS but is not normally expected to produce a discharge.
7. The OWS removes petroleum hydrocarbons from the influent wastewater. The separated petroleum hydrocarbons removed from the OWS is recycled at an offsite facility. Treated wastewater effluent from the OWS is directed to the evaporation pond.
8. The Class II surface impoundment has a total storage capacity of 135,593 gallons with an operational capacity of 75,251 gallons below the required minimum two feet of freeboard. The surface impoundment includes a spray evaporation system to improve the rate of evaporation. The evaporation system consists of a pump that pulls wastewater from the pond and directs it to ten spray nozzles. The nozzles are located within the lined area of the pond. The pond's existing spray nozzles are directed downward toward the liquid surface in the impoundment to prevent overspray outside of the lined area of the pond.
9. The wastewater storage system also includes Baker Tanks that are temporarily added to the system during the rainy season to hold excess storm water that would encroach into the evaporation pond's required minimum two feet freeboard requirement. The tanks are emptied into the evaporation pond and the empty tanks are removed after the rainy season ends.
10. The average annual discharge of wastewater to the surface impoundment between 1 January 2006 and 31 December 2011 was approximately 336,000 gallons per year. Data provided by the Discharger on wastewater inflow into the surface impoundment indicated that the impoundment cannot adequately store all the wastewater generated at the site. Furthermore, the data submitted does not provide an adequate water balance accounting of how much of the excessive flows were

stored in the Baker Tanks. Anomalies in the data submitted indicate that wastewater to and from the surface impoundment is not adequately accounted for. This Order requires the Discharger to submit a revised water balance analysis of the storage capacity of the surface impoundment including information on the use of the Baker Tanks.

11. The treated wastewater effluent from the OWS is discharged to the surface impoundment. Water volumes in the surface impoundment change due to evaporation, irregular discharge from the OWS, and periodic rainfall. The concentrations of Constituents of Concern (COCs) in the surface impoundment have increased over time due to evaporation. Based on monitoring of the surface impoundment from 19 June 2001 through 26 September 2012 the surface impoundment wastewater contains the following concentrations of COCs:

Constituent of Concern	Median Value	
Specific Conductance	1,190	µmhos/cm
Total Dissolved Solids	920	mg/L
Total Suspended Solids	105	mg/L
Chemical Oxygen Demand	448	mg/L
TPH -Diesel	6,800	µg/L
TPH- Oil and Grease	6.8	mg/L
Acetone	13.6	µg/L
2-Butanone	2.6	µg/L
Total Xylenes	1.0	µg/L
Carbon Disulfide	0.2	µg/L
4-Methyl-2-Pentanone	1.1	µg/L
Chloride	46	mg/L
Sulfate	10	mg/L
Nitrate	0.01	mg/L
Barium	100	µg/L
Copper	12	µg/L
Lead	5	µg/L
Zinc	105	µg/L

WASTE AND SITE CLASSIFICATION

12. Median concentrations of TPH-Diesel in the surface impoundment exceeds the USEPA Health Advisory of 100 µg/L and the secondary drinking water Maximum Contaminant Levels (MCLs) of 100 µg/L for taste and odor. Median concentrations of Specific Conductance (SC) and Total Dissolved Solids (TDS) exceeds the California Department of Public Health secondary MCL of 900 µmhos/cm and 500 mg/L respectively.

13. 'Designated waste' is defined in Water Code section 13173, as a nonhazardous waste which consists of, or contains pollutants which, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality standards, or which could cause degradation of waters of the state.
14. The discharge of waste from the OWS to surface and groundwater would exceed applicable water quality standards and thus poses a significant threat to water quality. Therefore, the discharge is a 'designated waste' and as such is discharged to the existing Class II surface impoundment or other appropriate containment structure as required by Title 27.

SITE DESCRIPTION

15. The estimated hydraulic conductivity of the native soils underlying the surface impoundment identified in the boring logs of point of compliance groundwater monitoring wells ranges between 10^{-3} and 10^{-6} cm/sec based on empirical relationships between soil classification of sandy silt (ML), silty sand (SM), and sand (SP and SW), and hydraulic conductivity published in geotechnical engineering literature.
16. The closest Holocene fault is the Foothills fault system approximately 28 miles to the east. This fault system was considered inactive until a Richter magnitude 5.7 earthquake occur near Oroville in 1975. Subsequently the Foothills fault system was reevaluated and seismic events along this fault system can be expected to range between 5.0 and 6.5 on the Richter scale. The maximum peak acceleration used for design criteria at the site was 0.20 g.
17. Land uses within 1,000 feet of the facility are industrial and open space/agriculture.
18. The facility receives an average of 13.95 inches of precipitation per year as measured at the Desert Research Institute's (DRI) Stockton Station. The mean pan evaporation is 51.15 inches per year as measured at the California Irrigation Management Information System (CIMIS) Manteca Station# 70.
19. The average 100-year, 24-hour precipitation event for the Facility is estimated to be 3.58 inches, based on the National Oceanic and Atmospheric Administration (NOAA 2012) Atlas 14, Volume 6, Version 2.
20. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 06077C0495F dated 16 October 2009.
21. WDRs Order No. 5-00-133, adopted in June 2000, found that there were approximately 209 domestic and agricultural groundwater supply wells within one

mile of the site. The results of this well survey may have changed. This Order in Section F.2.b requires the Discharger to provide a revised well survey to identify any changes to the previous well survey and also identify any residences within 1,000 ft. of the Class II surface impoundment that has a water supply well.

SURFACE AND GROUND WATER CONDITIONS

22. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basin, Fourth Edition* revised October 2011 (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
23. Surface drainage is toward the west. The site is drained by South Littlejohns Creek in the south and Weber Slough in the north. These water courses drain into Lone Tree Creek which drains into the San Joaquin River in the Sacramento-San Joaquin Delta Hydrologic Area (544) of the San Joaquin Basin.
24. The designated beneficial uses of San Joaquin River, as specified in the Basin Plan, are municipal and domestic supply, irrigation, stock watering, industrial service and process supply, water contact and non-contact water recreation, warm and cold fresh water habitat, warm and cold migration, wildlife habitat and navigation.
25. The first encountered groundwater is about 81 to 84 feet below the native ground surface based on the bore logs of the point of compliance groundwater monitoring wells MW-1 through MW-4. Groundwater elevations range from -21.5 feet MSL to -29.9 feet MSL. The groundwater is generally unconfined. The depth to groundwater fluctuates seasonally as much as 4.9 feet.
26. Monitoring data collected between 7 December 2001 and 2 November 2012 indicates background groundwater quality at MW-1 has an electrical conductivity (EC) ranging between 660 and 2160 $\mu\text{mhos/cm}$, with total dissolved solids (TDS) ranging between 441 and 1400 mg/l.
27. The direction of groundwater flow is toward the north. The average groundwater gradient is approximately 0.002 feet per foot. The average groundwater velocity is approximately 6 feet per year based on the permeability of poorly graded sand of 10^{-3} cm/sec and porosity of 0.35.
28. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, industrial service, and industrial process supply.

GROUNDWATER, UNSATURATED ZONE, AND SURFACE WATER MONITORING

29. A groundwater monitoring network was installed in association with the OWS and surface impoundment as shown on Attachment B. The monitoring well network consists of one upgradient well (MW-1) and three downgradient (MW-2, MW-3, and MW-4) groundwater monitoring wells. The background monitoring well, MW-1, is located outside of the intermodal facility, across Burnham Road. Monitoring well MW-2 is located downgradient of the OWS. Monitoring wells MW-3 and MW-4 are located downgradient of the surface impoundment.
30. The Discharger's detection monitoring program for groundwater at the surface impoundment and OWS satisfies the requirements contained in Title 27. However, the Discharger believes the current detection monitoring system is susceptible to airborne contamination from diesel sources such as trains, cranes, and trucks operating during groundwater sampling events. The Discharger has indicated that field blanks taken during sampling events when analyzed indicate quantifiable values of TPH-diesel and/or TPH-oil and grease that appear to be equivalent to TPH-diesel and/or TPH-oil and grease values measured in samples collected concurrently from the four groundwater monitoring wells. The Discharger has proposed modifications to the groundwater detection monitoring program. This Order in Section F.2.a and Section F.2.c requires the Discharger to reevaluate the Groundwater Monitoring Network and the Sample Collection and Analysis Plan and propose and implement approved changes needed to eliminate contamination of groundwater samples and/or identify the source of TPH in groundwater in order to ensure accurate detection of a release from the Class II surface impoundment as required by Title 27 specifications for a Detection Monitoring Program.
31. The Discharger's detection monitoring program for the unsaturated zone at the Class II surface impoundment satisfies the requirements contained in Title 27. The unsaturated (vadose) monitoring system (VZMS) utilizes a pan lysimeter (geonet blanket) under the entire area of the surface impoundment as an engineered alternative to the prescriptive unsaturated zone monitoring system requirements of Title 27 Section 20415(d). The VZMS sump is a gravel collection area with the capacity to store 449 gallons. Any liquid detected in the VZMS sump is removed and returned to the surface impoundment.

GROUNDWATER AND/OR SURFACE WATER DEGRADATION

32. In March 2001, prior to operation of the BNSF Intermodal Facility, the Discharger submitted a Water Quality Protection Standards Report (WQPS Report) with the results of background samples taken from MW-1 through MW-4. Total Petroleum Hydrocarbons as diesel (TEPH or TPH-d) was measured in two of four groundwater samples taken on 13 December 2000 from upgradient background well MW-1. The Discharger reported that *"it is believed that the concentrations of TEPH detected in two of the four samples collected on December 13, 2000, resulted from field or*

laboratory handling procedures.” No VOCs were detected in groundwater samples analyzed from MW-1. No TPH-d or oil and grease were detected in downgradient compliance wells MW-2 through MW-4. Benzene was the only VOC detected in downgradient wells at a concentration of 5.9 µg/L in MW-2.

33. Soil samples taken during construction of upgradient background well MW-1 on 25 September 2000 contained TPH-d at concentrations of 1.0 and 1.2 mg/kg at 9.5' and 79.5' below ground surface (bgs) respectively.
34. On 9 April 2001, Central Valley Water Board staff accepted the proposed WQPS Report with the condition that *“the Water Quality Protection Standard for any organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used.”*
35. In 2001, 2002, 2003, and 2007 the Detection Monitoring Reports (DMR) reported sporadic TPH-d in one or more groundwater monitoring wells. In a letter dated 26 March 2002 Regional Water Board staff directed the Discharger to resample MW-3 for TPH-d.
36. On 23 August 2007, Central Valley Water Board staff notified the Discharger that it must include method detection limits (MDLs) and practical quantitation limits (PQLs) on laboratory reports and verify their testing laboratory's quality assurance/quality control procedures for eliminating trace concentrations of COCs in trip and method blanks as required by their WDRs and MRP program.
37. In 2010 through 2012 DMRs, TPH-d was reported at or above trace levels in one or more groundwater monitoring wells.
38. On 28 August 2012, Central Valley Water Board staff notified the Discharger that it had not reported MDLs for TPH-d, oil and grease, and naturally occurring COCs for the period of 2008 through 2011 as required by their WDRs and MRP program.
39. On 25 September 2012, the Discharger performed a leak test of the surface impoundment's primary liner. Six leaks were detected by the electrostatic testing process. The repairs to the primary liner were completed on 25 October 2012.
40. In the 4th Quarter and annual 2012 DMR, the Discharger reported that eight field blanks were collected during two sampling events and TPH-d was detected in all eight field blanks indicating that site ambient air (and particulate) may be the source of TPH-d that has been historically reported in MW-1 through MW-4. The Discharger proposed in the annual 2012 DMR to install dedicated low flow pumps in all four groundwater monitoring wells in order to minimize the influence of ambient diesel particulates in samples collected. The Discharger also proposed to revise the Field Sampling Plan. This Order in Section F.2.a requires the Discharger to reevaluate the

Groundwater Monitoring Network and the Sample Collection and Analysis Plan in order to propose and implement approved changes needed to eliminate contamination of groundwater samples in order to give an accurate detection of a release as required by Title 27 Detection Monitoring Program.

41. In the 3rd Quarter 2012 DMR, the Discharger reported Total Suspended Solids (TSS) of 260 mg/L, 390 mg/L, 1,940 mg/L, and 1,260 mg/L in MW-1 through MW-4 respectively. The Discharger has repeatedly reported high TSS, an indication of high turbidity in groundwater monitoring wells which could indicate improper design and/or failure of the monitoring well's filter pack. This Order in Section F.2.c requires the Discharger to evaluate the cause of high TSS reported in groundwater monitoring wells and provide a report describing what actions if necessary will be taken to correct the problem.
42. The unsaturated zone has been monitored quarterly since 2002 and the Discharger has reported that the unsaturated zone has remained dry as liquids have not been detected by the unsaturated zone monitoring system.

DESIGN OF WASTE MANAGEMENT UNIT

43. The Discharger constructed an engineered alternative to the prescriptive liner requirements of Title 27 for a Class II surface impoundment. The engineered alternative consisted of from the top down:
 - a. A primary 60-mil-thick High Density Polyethylene (HDPE) geomembrane
 - b. A geonet drainage layer, as a Leachate Collection and Removal System (LCRS)
 - c. A secondary 60-mil-thick HDPE geomembrane in lieu of the clay liner
 - d. A pan lysimeter (vadose zone monitoring system) composed of a geonet drainage layer underlain by a tertiary 60-mil-thick HDPE geomembrane in lieu of a prescriptive unsaturated zone monitoring system.
44. The surface impoundment utilizes a geonet LCRS blanket across the entire area of the Class II surface impoundment. The LCRS sump is a gravel collection area with the capacity to store a minimum of 1,481 gallons, more than twice the maximum anticipated daily volume of leachate. Liquids removed from the LCRS are returned to the surface impoundment. The sump includes a high level alarm, such that if liquids trigger the level alarm the sump will be pumped out.
45. The Discharger constructed a unsaturated (vadose) zone monitoring system (VZMS) utilizing a pan lysimeter (geonet blanket with a HDPE liner) under the entire area of the surface impoundment as an engineered alternative to the prescriptive unsaturated zone monitoring system requirements of Title 27 Section 20415(d). The

VZMS sump is a gravel collection area with the capacity to store 449 gallons. Any liquids that are detected in the VZMS sump is removed and returned to the surface impoundment. The sump includes a high-level alarm, such that if liquids trigger the level alarm the sump will be pumped out. The vadose zone monitoring system is capable of measuring both saturated and unsaturated flows that may occur as a result of a leak in the secondary liner.

46. Section 20080(b) of Title 27 allows the Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Section 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative(s) provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27.
47. The Discharger must also demonstrate that any proposed engineered alternative is consistent with the performance goal in accordance with Sections 20240, 20250, and 20310 of Title 27.
48. The Board has routinely approved the substitution of geosynthetic clay liners for field constructed clay at other sites since March 1995. Therefore, the Discharger was not required to repeat the demonstration which had been made for other facilities because there are no significant differences in the characteristics of already approved liners and the liner that was proposed for the BNSF Intermodal facility.
49. Section 13360(a)(1) of the Water Code allows the Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
50. The Discharger constructed a liner system which will be operated to prevent migration of wastes from the surface impoundment to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the postclosure maintenance period in accordance with the criteria set forth in Title 27 for a Class II waste management units (WMUs).

FINANCIAL ASSURANCES

51. Title 27, sections 22207 and 22212, requires the Discharger to establish an irrevocable closure fund (or to provide other means of establishing financial assurances) with the Central Valley Water Board named as beneficiary, to ensure closure and postclosure of each surface impoundment in accordance with an

approved plan meeting all applicable State Water Board-promulgated requirements of Title 27. Title 27, sections 22225 et seq. describe the allowable mechanisms for providing financial assurances for closure costs. On 23 March 2012, the Discharger provided information complying with the Financial Means Test described in Section 22246. The Discharger estimated the closure cost at \$28,929.

52. Title 27, section 22222 requires the Discharger to establish an irrevocable corrective action fund (or to provide other means of establishing financial assurances) with the Central Valley Water Board named as beneficiary to ensure funds are available to address a known or reasonably foreseeable release from the Surface Impoundment, pursuant to Section 20380(b). Title 27, sections 22225 et seq. describe the allowable mechanisms for providing financial assurances for corrective action costs. On 23 March 2012, the Discharger provided information complying with the Financial Means Test described in Section 22246. The Discharger estimated the corrective action costs at \$94,594.

CEQA AND OTHER CONSIDERATIONS

53. To fulfill requirements imposed by the California Environmental Quality Act ("CEQA")(Pub. Resources Code, § 21000 et seq.), the San Joaquin County Community Development Department certified a final environmental impact report for the facility on 23 September 1999. The Board, acting as a responsible agency, was consulted during the development of these documents.
54. The Central Valley Water Board considered the environmental impact report and incorporated mitigation measures as necessary into these waste discharge requirements to prevent potentially significant impacts to water quality.
55. This Order implements:
- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
 - b. The prescriptive standards and performance goals of Division 2 of Title 27 of the California Code of Regulations.
56. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the 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.”

57. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2013-0070" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the Facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

58. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

59. 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.

60. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that Order 5-00-133 is rescinded except for purposes of enforcement, and that the BNSF Railway Company, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' at this facility is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in California Code of Regulations, title 22, section 66261.1 *et seq.*
2. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.
3. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.

B. DISCHARGE SPECIFICATIONS

General Specifications

1. Wastes shall only be discharged into, and shall be confined to, the waste management units (WMUs) specifically designed for their containment.

2. Prior to the discharge of waste to a WMU, all wells within 500 feet of the unit shall have sanitary seals or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Central Valley Water Board and to the State Department of Water Resources.

Protection From Storm Events

3. Waste management units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
4. 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 100-year, 24-hour precipitation conditions.
5. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site.
6. Annually prior to the anticipated rainy season, as part of MRP R5-2013-0070 Facility Monitoring Section A.7 the Discharger shall determine through a water balance analysis the required 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 certify in the MRP R5-2013-0070 Facility Monitoring Report (Section B.3.d) that such conditions exist.

Class II Surface Impoundment

7. The evaporation pond, a Class II surface impoundment, shall consists of from the top down:
 - a. A primary 60-mil-thick High Density Polyethylene (HDPE) geomembrane
 - b. A geonet drainage layer, as a Leachate Collection and Removal System (LCRS)
 - c. A secondary 60-mil-thick HDPE geomembrane in lieu of the clay liner
 - d. A pan lysimeter composed of a geonet drainage layer and a tertiary 60-mil-thick HDPE geomembrane in lieu of a vadose zone monitoring system (VZMS)
8. The unsaturated (Vadose) zone monitoring system shall be capable of measuring both saturated and unsaturated flows that may occur as a result of a release from the Class II surface impoundment.

9. Surface impoundments and related containment structures shall be maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required 2 feet of freeboard.
10. At all times the Discharger shall maintain a minimum of two feet of freeboard in all surface impoundments as measured from the lowest point of overflow.
11. The Discharger shall not spray designated waste during windy or other climatic conditions such that the designated waste is discharged from the Class II surface impoundment to surrounding areas outside the lined surface impoundment.
12. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the surface impoundments.
13. Materials used to construct LCRSs shall have appropriate physical and chemical properties to ensure the required transmission of leachate over the life of the surface impoundments and the post-closure maintenance period.
14. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by each surface impoundment and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation.
15. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
16. The surface impoundment(s) shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the water line.
17. Leachate removed from a surface impoundment's primary LCRS shall be discharged to the impoundment from which it originated.
18. If leachate is detected in the VZMS of a surface impoundment indicating a leak in the containment structures the Discharger shall:
 - a. Immediately cease discharge of waste, excluding leachate to the surface impoundment until the leaks can be found and repaired,
 - b. report to the Central Valley Water Board that the containment structures have failed within 72 hours,
 - c. submit written notification of the release to the Central Valley Water Board within seven days, the notification should include a time schedule to repair the containment structures, and
 - d. discharge of wastes to the surface impoundment will not resume until the Central Valley Water Board has determined that repairs to the liners are

complete and there is no further threat to water quality.

19. Solids that accumulate in the surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2, Chapter 3, Division 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Central Valley Water Board staff for review.
20. Leachate generation by a waste containment unit LCRS shall not exceed 85% of the design capacity of (a) the LCRS which is 1250 gallons. If leachate generation exceeds this value, then the Discharger shall immediately cease the discharge of waste, excluding leachate, to the waste management unit and shall notify the Central Valley Water Board in writing within **seven days**. Notification shall include a timetable for a remedial action to repair the containment structures or other action necessary to reduce leachate production.

Class II Surface Impoundment Closure

21. The closure of each Class II surface impoundment shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.
22. At closure of Class II surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a waste management unit approved by Central Valley Water Board staff. If after reasonable attempts, the Discharger demonstrates the removal of all remaining contamination is infeasible, the surface impoundment shall be closed as a landfill.

C. RECEIVING WATER LIMITATIONS

Water Quality Protection Standards

The concentrations of Constituents of Concern in waters passing through the Points of Compliance shall not exceed the Concentration Limits established pursuant to Monitoring and Reporting Program R5-2013-0070, which is attached to and made part of this Order.

D. FINANCIAL ASSURANCE

1. The Discharger shall, by **30 April of each year**, submit for approval by the Executive Officer, detailed cost estimates and a demonstration of assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the waste management unit. The Discharger shall provide the assurances of financial responsibility to the Board as required by Chapter 6 of Division 2 of Title 27 of the California Code of Regulations. The assurances of financial responsibility shall name the Board as beneficiary and shall provide that funds for corrective action shall be available to the Board upon the issuance of any Order under Chapter 5 of Division 7 of the Water Code. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation. The financial assurance fund for corrective action shall be established prior to discharging waste to the surface impoundment.
2. The Discharger shall demonstrate financial responsibility for closure and post-closure maintenance of each waste management unit, and shall submit a report of financial assurances by **30 April of each year** for Executive Officer review and approval. The Discharger shall provide the assurances of financial responsibility to the Central Valley Water Board as required by Chapter 6 of Division 2 of Title 27 of the California Code of Regulations. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Central Valley Water Board upon the issuance of any Order under Chapter 5 of Division 7 of the Water Code. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation. The financial assurance fund for closure and post-closure maintenance shall be established prior to discharging waste to the surface impoundment.

E. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements (SPRRs), 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. The Discharger shall comply with Monitoring and Reporting Program R5-2013-0070, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and monitoring groundwater, the unsaturated zone, and surface waters (if applicable) throughout the active life of the waste management units and the post-closure maintenance period. A

violation of Monitoring and Reporting Program R5-2013-0070 is a violation of these waste discharge requirements.

3. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
4. The Discharger shall comply with all applicable water quality criteria/objectives pertaining to this Facility specified in the Water Code and the Basin Plan that are not explicitly addressed in this Order.
5. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.
6. All reports required by this Order shall be submitted pursuant to Water Code section 13267.
7. The Discharger shall maintain a copy of this Order at the Facility, including the MRP No. R5-2013-0070 and the SPRRs dated September 2003 which are part of this Order, and make it available at all times to Facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
8. The Discharger shall maintain legible records of the volume and type of waste discharged to the surface impoundments and the manner and location 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 Board and of the State Water Resources Control Board, copies of these records shall be sent to the Central Valley Water Board.
9. The Discharger shall provide proof to the Central Valley Water Board **within sixty days after completing final closure** that the deed to the surface impoundment facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
 - a. the parcel has been used for disposal of liquid wastes;
 - b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the surface impoundment; and
 - c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

10. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order R5-2013-0070 and in the Standard Provisions and Reporting Requirements dated September 2003.
2. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program R5-2013-0070 upon adoption of this Order in accordance with the following time schedule:
 - a. **Evaluation of Groundwater Monitoring Network.** By **1 November 2013** the Discharger shall determine the source (ambient air, sampling procedures, upgradient sources, etc.) of TPH-Diesel and TPH-Oil and Grease detections in groundwater monitoring wells. The Discharger shall implement their proposal to install dedicated low flow pumps described in Finding 40 and collect groundwater, field, ambient air, and travel samples. The Discharger shall provide a report that includes an implementation plan and sampling schedule to rectify the problem with detections of hydrocarbons and VOCs in travel, field, and/or method blanks. Upon approval of the proposed changes and verification that the proposed changes were successful in eliminating the contamination of groundwater monitoring samples and/or identifying the source of TPH-d in groundwater samples the Discharger shall revise the Groundwater Monitoring Network and/or Sample Collection and Analysis Plan, and the Discharger shall submit a revised Water Quality Protection Standard Report for approval by the Central Valley Water Board. The evaluation will include the use of split samples for analysis by third party ELAP-certified laboratory to verify that contamination of VOCs in sample collection and analysis has been corrected.
 - b. **Revised Groundwater Supply Well Survey.** By **1 November 2013** the Discharger shall submit a report describing a supply well survey that identifies all groundwater supply wells within a one mile radius of the surface impoundment as well as identify any residences by location and Well ID. that uses a domestic supply well within 1000 feet of the Class II surface impoundment.

- c. **Report on high TSS/turbidity in groundwater monitoring wells.** By **1 November 2013** the Discharger shall provide a report with the results of an investigation as to the source of high TSS concentrations being reported in monitoring wells. If the Discharger determines that the wells need to be redeveloped, then the report will show that the work has been completed and the results documenting the reduction of TSS/turbidity in each redeveloped well.
 - d. **Water Balance Analysis of the Class II Surface Impoundment.** By **1 November 2013** the Discharger shall perform a water balance analysis and provide a report to Central Valley Water Board staff that will incorporate historical data on inflows to the surface impoundment as well as discharges to the Baker Tanks to revise the design, operation, and maintenance of the designated waste impoundment to ensure sufficient designated waste storage capacity is available at the beginning of the anticipated rainy season. If the water balance analysis indicates insufficient storage capacity the Discharger shall determine the additional storage necessary and shall provide an implementation schedule as to when such permanent storage capacity shall be installed.
3. All tasks and reports required in Section F.2 of this Order shall be overseen and certified by the appropriate registered professional with the state of California qualified to perform such tasks.
 4. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

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 Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this 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.

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 31 May 2013.

Original signed by

PAMELA C. CREEDON, Executive Officer

Attachments

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2013-0070
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. R5-2013-0070, 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. R5-2013-0070 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 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

<u>Constituent of Concern</u>	<u>Units</u>	<u>Concentration</u>
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 R5-2013-0070 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:

Original signed by

PAMELA C. CREEDON, Executive Officer

31 May 2013

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

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2013-0070
THE BNSF RAILWAY COMPANY
BNSF STOCKTON INTERMODAL FACILITY
CLASS II SURFACE IMPOUNDMENT
SAN JOAQUIN COUNTY

Background

The BNSF Railway Company, formerly the Burlington Northern and Santa Fe Railway Company, (hereafter Discharger) owns and operates the Stockton Intermodal Facility. The facility is located approximately 8 miles southeast of Stockton on the main BNSF rail track between Austin Road and Jack Tone Road at 6540 South Austin Road in Stockton, California in Section 26, T1N, R7E, MDB&M.

The facility is regulated under Title 27 due to industrial operations that produce wastewater that is a designated waste that must be contained in a Class II surface impoundment in order to protect beneficial uses of waters of the State. The wastewater is treated in an oil water separator (OWS) prior to discharge to an evaporation pond, a Class II surface impoundment.

The treated wastewater effluent from the OWS discharged to the surface impoundment contains the following constituents of concern based on monitoring of the surface impoundment from 19 June 2001 thru 26 September 2012:

Constituent of Concern	Median Value	
Specific Conductance	1,190	µmhos/cm
Total Dissolved Solids	920	mg/L
Total Suspended Solids	105	mg/L
Chemical Oxygen Demand	448	mg/L
TPH -Diesel	6,800	µg/L
TPH- Oil and Grease	6.8	mg/L
Acetone	13.6	µg/L
2-Butanone	2.6	µg/L
Total Xylenes	1.0	µg/L
Carbon Disulfide	0.2	µg/L
4-Methyl-2-Pentanone	1.1	µg/L
Chloride	46	mg/L
Sulfate	10	mg/L
Nitrate	0.01	mg/L
Barium	100	µg/L
Copper	12	µg/L
Lead	5	µg/L
Zinc	105	µg/L

In March 2001, prior to operation of the OWS and the Class II surface impoundment, the Discharger submitted a Water Quality Protection Standards Report (WQPS Report) where background samples were taken from MW-1 thru MW-4. Total Petroleum Hydrocarbons as

diesel (TEPH or TPH-d) was measured in two of four groundwater samples taken on 13 December 2000 from upgradient background well MW-1.

The Stockton Intermodal Facility's primary function is to load/unload freight to/from diesel powered locomotives from/to diesel powered trucks using diesel powered cranes. Since initiation of operation of the facility in 2001 the Discharger has periodically detected TPH-d in upgradient and downgradient groundwater monitoring wells.

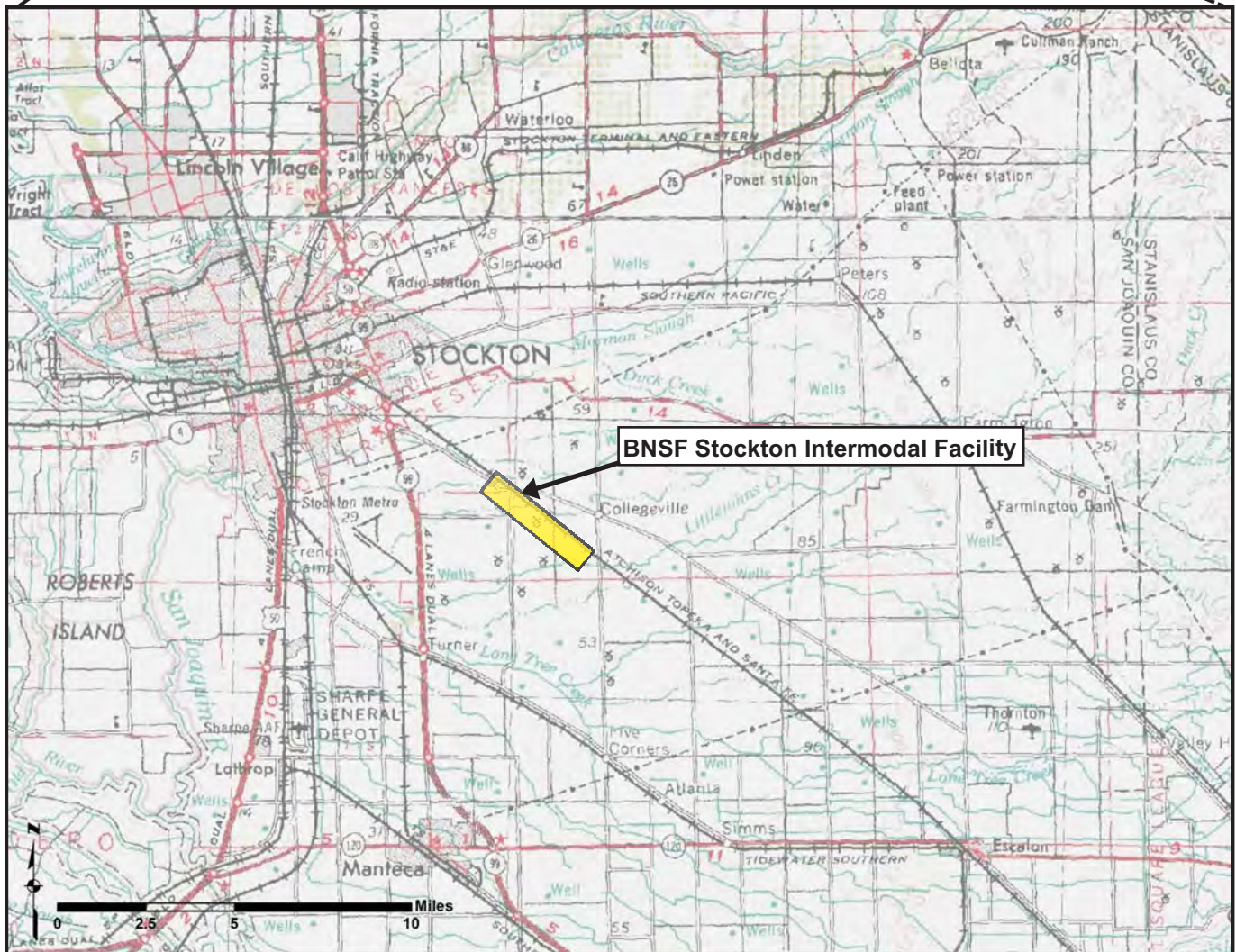
In the 4th quarter and annual 2012 Detection Monitoring Report (DMR) the Discharger reported that eight field blanks were collected during two sampling events and TPH-d was detected in all eight field blanks indicating that site ambient air (and particulate) may be the source of TPH-d that has been historically reported in MW-1 thru MW-4. The Discharger proposed in the annual 2012 DMR to install dedicated low flow pumps in all four groundwater monitoring wells in order to minimize the influence of ambient diesel particulates in samples collected. The Discharger also proposed to revise the Field Sampling Plan. This Order requires the Discharger to reevaluate the Groundwater Monitoring Network and the Sample Collection and Analysis Plan to make the necessary changes to eliminate contamination of groundwater samples in order to give an accurate detection of a release as required by Title 27 Detection Monitoring Program.

Summary of Revisions

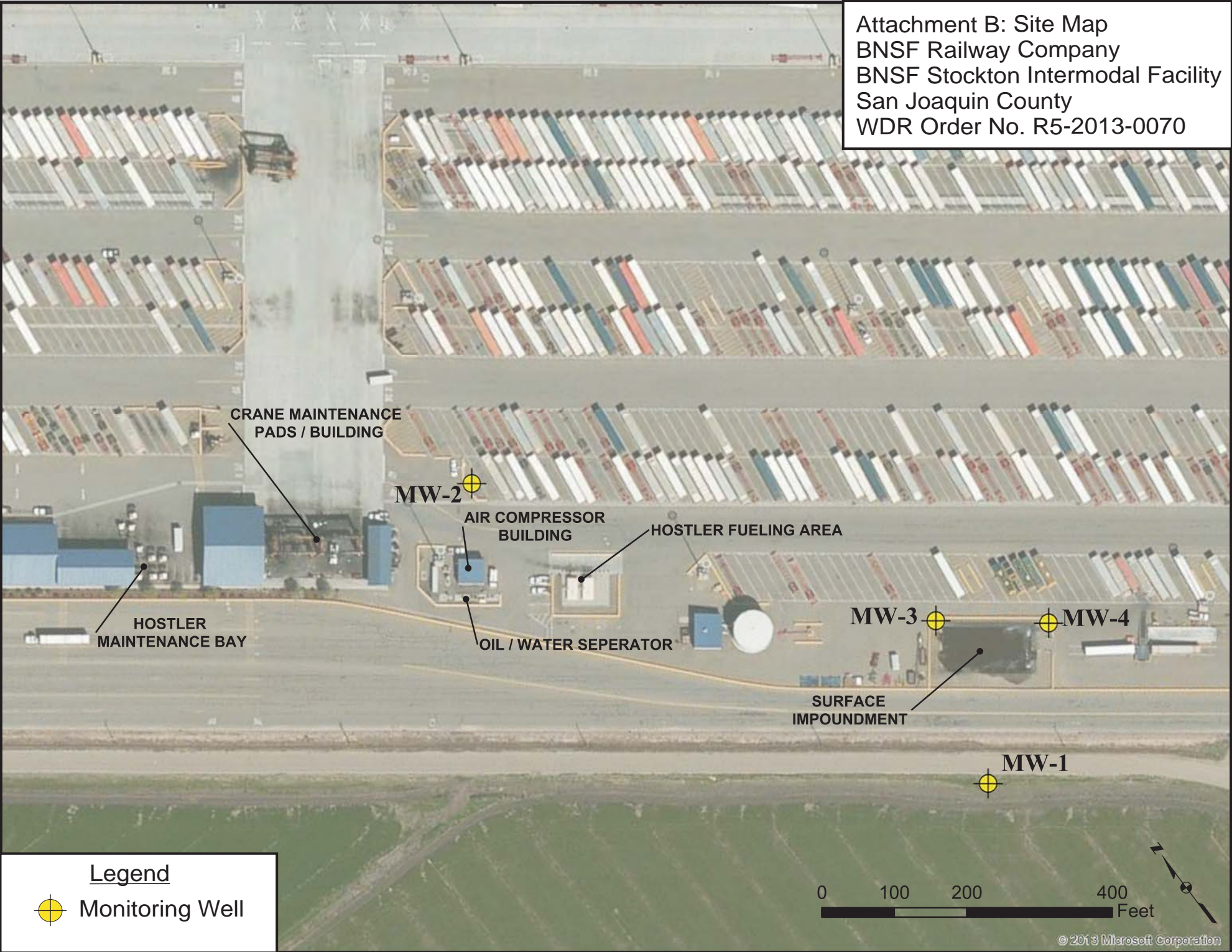
A summary of the revisions to previous WDRs Order No. 5-00-133 include:

- a. **Evaluation of Groundwater Monitoring Network.** The Discharger shall determine the source (ambient air, sampling procedures, upgradient sources, etc.) of TPH-Diesel and TPH-Oil and Grease detections in groundwater monitoring wells.
- b. **Revised Groundwater Supply Well Survey.** The Discharger shall perform a supply well survey that will identify all groundwater supply wells within a one mile radius of the surface impoundment.
- c. **Report on high TSS/turbidity in groundwater monitoring wells.** The Discharger shall provide a report that will investigate the source of high TSS concentrations reported in monitoring wells.
- d. **Water Balance Analysis of Surface impoundment.** The Discharger shall perform a water balance analysis on the surface impoundment to revise the design, operation, and maintenance of the designated waste surface impoundment.

Attachment A: Location Map
BNSF Railway Company
BNSF Stockton Intermodal Facility
San Joaquin County
WDR Order No. R5-2013-0070



Attachment B: Site Map
BNSF Railway Company
BNSF Stockton Intermodal Facility
San Joaquin County
WDR Order No. R5-2013-0070



CRANE MAINTENANCE
PADS / BUILDING

MW-2

AIR COMPRESSOR
BUILDING

HOSTLER FUELING AREA

HOSTLER
MAINTENANCE BAY

OIL / WATER SEPERATOR

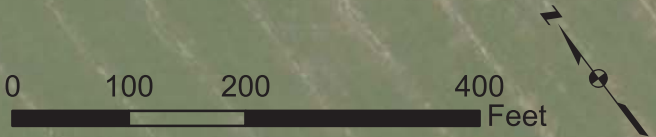
MW-3

MW-4

SURFACE
IMPOUNDMENT

MW-1

Legend
Monitoring Well



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STANDARD PROVISIONS AND REPORTING REQUIREMENTS
INDUSTRIAL FACILITIES
For Title 27 (27CCR §20005 et seq.)
September 2003

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES REGULATED BY TITLE 27
(27 CCR §20005 et seq.)
INDUSTRIAL FACILITIES

SEPTEMBER 2003

I. APPLICABILITY

- A. These Standard Provisions and Reporting Requirements are applicable to class II surface impoundments, waste piles, and land treatment units that are regulated pursuant to the provisions of Title 27 of the California Code of Regulations, §20005 et seq. (27 CCR or Title 27).
- B. "Order," as used throughout this document, means the Waste Discharge Requirements to which these Standard Provisions and Reporting Requirements are incorporated.
- C. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
- D. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
- E. If there is any conflicting or contradictory language between the Waste Discharge Requirements (WDRs), the Monitoring and Reporting Program (MRP), or the Standard Provisions and Reporting Requirements (SPRR), then language in the WDRs shall govern over either the MRP or the SPRR, and language in the MRP shall govern over the SPRR.
- F. Unless otherwise stated, all terms are as defined in §13050 of the California Water Code (CWC) and in §20164 of Title 27.

II. TERMS AND CONDITIONS

- A. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Regional Board or

the State Water Resources Control Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of these waste discharge requirements and the California Water Code, which can result in the imposition of civil monetary liability [CWC §13350(a)]

- B. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [CWC §13381]:
 - 1. Violation of any term or condition contained in this Order;
 - 2. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - 3. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - 4. A material change in the character, location, or volume of discharge.
- C. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge, or other appropriate joint technical document, with the Regional Water Quality Control Board (hereafter Board) [CWC §13260(c) and §13264(a)]. A material change includes, but is not limited to, the following:
 - 1. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - 2. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment); or
 - 3. A change in the type of waste being accepted for disposal.
- D. Representatives of the Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [CWC §13267(c)].
- E. The Board will review this Order periodically and will revise these waste discharge requirements when necessary [CWC §13263(e) and 27 CCR §21720(b)].
- F. Except for material determined to be confidential in accordance with California

law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board [CWC §13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

- G. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [CWC §13263(g)].

III. GENERAL PROVISIONS

- A. The discharge shall neither cause nor contribute to the contamination, degradation, or **pollution of ground water** via the release of waste constituents in either liquid or gaseous phase.
- B. The discharge shall neither cause nor contribute to any **surface water pollution**, contamination, or nuisance, including, but not limited to:
1. floating, suspended, or deposited macroscopic particulate matter or foam;
 2. increases in bottom deposits or aquatic growth;
 3. an adverse change in temperature, turbidity, or apparent color beyond natural background levels;
 4. the creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin;
 5. the introduction or increase in concentration of toxic or other pollutants/contaminants resulting in unreasonable impairment of beneficial uses of waters of the State.
- C. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the waste management unit (WMU) if such waste constituents could migrate to waters of the State—in either the liquid or the gaseous phase—and cause **a condition of contamination, pollution, degradation, or nuisance**.
- D. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of contamination, pollution, degradation, or nuisance to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in the Monitoring and Reporting Program.

- E. The discharger shall take **all reasonable steps to minimize any adverse impact** to the waters of the state resulting from noncompliance with this Order. ("Order," as used throughout this document, means the Waste Discharge Requirements). Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
- F. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [27 CCR §21710(c)(1)].
- G. The Discharger shall notify the Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Board approval following authorization for closure pursuant to the site Notification of Closure [27 CCR §21710(a)(4)].
- H. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU or portion of a WMU, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Resources Control Board or Regional Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Resources Control Board or Regional Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board [27 CCR §21720(f)].
- I. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the WMU, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - 1. require a higher level of containment than provided by the unit; or
 - 2. are 'restricted wastes'; or
 - 3. impair the integrity of containment structures;

is prohibited [27 CCR §20200(b)].

IV. **FINANCIAL ASSURANCE PROVISIONS**

- A. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the WMU [27 CCR §20380(b) and §22222].
- B. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified WMU in accordance with an approved closure and post-closure maintenance plan [27 CCR §20950(f) and §22207(a)].

V. **DISCHARGE SPECIFICATIONS**

- A. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the WMU and whether or not the wastes are required to be managed as a hazardous waste [27 CCR §20200(c)] or designated waste [27 CCR §20210].
- B. All WMUs shall be designed, constructed, and operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [27 CCR §20240(c)], including the capillary fringe.
- C. The Discharger shall submit operation plans describing those WMU operations which could affect water quality, including, but not limited to [27 CCR §21760(b)]:
 - 1. A description of proposed treatment, storage, and disposal methods;
 - 2. Contingency plans for the failure or breakdown of waste handling facilities or containment systems, including notice or any such failure, or any detection of waste or leachate in monitoring facilities, to the Board, local governments, and water users downgradient of the WMU(s); and
 - 3. A description of inspection and maintenance programs which will be undertaken regularly during disposal operations and the post-closure maintenance period.
- D. Leachate collected from a WMU shall be discharged to the WMU from

which it came, or discharged to an appropriate WMU in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [27 CCR §20200(d) and §20340(g)].

VI. FACILITY SPECIFICATIONS

- A. Surface and subsurface drainage from outside of a WMU shall be diverted from the WMU [27 CCR §20365(e)].
- B. The Discharger shall promptly notify the Board of any slope failure occurring at a WMU. Any failure which threatens the integrity of containment features or the WMU shall be promptly corrected in accordance with an approved method [27 CCR §21710(c)(2)].

VII. CONSTRUCTION SPECIFICATIONS

- A. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge. WMUs shall receive a final inspection and approval of the construction by Board staff before use of the WMU commences [27 CCR §20310(e)].
- B. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a WMU's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist [27 CCR §21710(d)].
- C. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [27 CCR §20320(a)].
- D. WMUs and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [27 CCR §20365(a)].
- E. All WMUs shall be designed to withstand the maximum probable earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [27 CCR §20370(a)].

- F. New WMUs and expansions of existing Class II WMUs shall have a 200 foot setback from any known Holocene fault [27 CCR §20250(d)].
- G. Liners shall be designed and constructed to contain the fluid, including gas, waste, and leachate [27 CCR §20330(a)].
- H. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [27 CCR §20320(c)].
- I. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [27 CCR §20320(b)].
- J. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [27 CCR §20324(g)(1)(A)].
- K. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control any gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [27 CCR §20324(i)(1)].
- L. Leachate collection and removal systems are required for Class II surface impoundments [27 CCR §20340(a)].
- M. All new WMUs or lateral expansions of existing WMUs that require a leachate collection and removal system shall have a blanket-type leachate collection and removal system that covers the bottom of the WMU and extends as far up the sides as possible. The leachate collection and removal system shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the WMU

[27 CCR §20340(e)].

- N. The leachate collection and removal system shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the WMU [27 CCR §20340(b)].
- O. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the WMU and during the post-closure maintenance period. The systems shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [27 CCR §20340(d)].
- P. Leachate Collection and Removal Systems shall be designed and constructed to ensure that there is no buildup of hydraulic head on the liner. The depth of fluid in the collection sump shall be kept at the minimum needed to ensure efficient pump operation [27 CCR §20340(c)].
- Q. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [27 CCR §20323] and approved by the Executive Officer.
- R. The Construction Quality Assurance (CQA) program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [27 CCR §20324(b)(2)].

VIII. REPORTING REQUIREMENTS

A. General Requirements

- 1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall **notify the Board by telephone** at (916) 255-3000 as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the nature, time and cause of **noncompliance**, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
- 2. The Discharger shall **immediately notify the Board** of any **evidence of a release**, or 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 of precipitation and drainage control structures.

3. The discharger shall **mail a copy of each** monitoring **report** and any other reports required by this Order to:

California Regional Water Quality Control Board
Central Valley Region
11029 Sun Center Drive #200
Rancho Cordova, CA 95670 (or the current address if the
office
relocates)

4. 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 for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board Executive Officer.

Such records shall show the following for each sample:

- a. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e. Calculation of results; and
- f. Results of analyses, and the MDL and PQL for each analysis.

Such records shall also include legible records of the volume and type of each waste discharged at each WMU and the manner and location of discharge. These waste discharge records shall be maintained at the facility until the beginning of the post-closure maintenance period, at which time copies of these records shall be sent to the Board.

5. **All reports and transmittal letters shall be signed** by persons identified below:
- a. *For a corporation:* by a principal executive officer of at least the level of senior vice-president.
 - b. *For a partnership or sole proprietorship:* by a general partner or the proprietor.
 - c. *For a municipality, state, federal or other public agency:* by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if;
 - i. the authorization is made in writing by a person described in a, b, or c of this provision;
 - ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a WMU, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - iii. the written authorization is submitted to the Board.

Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

6. In reporting the monitoring data, 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 lack thereof.
7. Unless otherwise required in the Monitoring and Reporting Program, monthly **monitoring reports shall be submitted** to the Board by the 15th day of the month following the month in which the samples were taken or observations made, and quarterly, semiannual, and annual monitoring reports shall be submitted to

the Board by the 15th day of the month following the calendar quarter in which the samples were taken or observations made.

8. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

B. Reports to be Filed with the Board

1. A transmittal **letter** explaining the essential points in each report shall accompany each report. Such a letter shall include a discussion of any violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting the violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.

2. Each monitoring report (e.g., Detection Monitoring Report, Constituents of Concern 5-Year Report) shall include a **compliance evaluation summary**. The summary shall contain at least:
 - a. For each monitored ground water body, a description and graphical presentation of the gradient and direction of **ground water flow** under/around the WMU, based upon water level elevations taken during the collection of the water quality data submitted in the report.

 - b. For each monitoring well addressed by the report, a description of the method and time of water level measurement, of the type of pump used for **purging** and the placement of the pump in the well, and of the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water).

 - c. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump—or other device—used and its placement for **sampling**, and a detailed description of the sampling procedure (number

- and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations).
- d. For each monitoring well addressed by the report, a description of how the well was **purged to remove** all portions of the water that was in the well bore while the sample was being taken.
 - e. A **map or aerial photograph** showing the locations of observation stations, Monitoring Points, and Background Monitoring Points.
 - f. **Laboratory** statements of results of all analyses evaluating compliance with requirements.
 - g. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
 - h. A summary and certification of completion of all Standard Observations for the WMU, for the perimeter of the WMU, and for the receiving waters.
 - i. The quantity and types of wastes discharged and the locations in the WMU where waste has been placed since submittal of the last such report.
3. The Discharger shall report by telephone concerning any **seepage from the disposal area** immediately after it is discovered. A written report shall be filed with the Board within seven days, containing at least the following information:
- a. a map showing the location(s) of seepage;
 - b. an estimate of the flow rate;
 - c. a description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 - d. corrective measures underway or proposed, and corresponding time schedule.
- See **RESPONSE TO A RELEASE** below.
4. The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the reporting period previous monitoring year. This report shall contain:

- a. For each Monitoring Point and Background Monitoring Point, submit in **graphical format** the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month Reporting Periods, presented in tabular form as well as on 3.50" **computer diskettes**, either in MS-DOS/ASCII format or in another file format acceptable to Board staff. Data sets too large to fit on a single 2 MB diskette may be submitted on disk in a commonly available compressed format (e.g. PKZIP or NORTON BACKUP). The Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analysis (§20420(h)), in that this facilitates periodic review by the Board's statistical consultant.
- c. A **comprehensive discussion of the compliance record**, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- d. A **map** showing the area and elevations in which filling has been completed during the previous calendar year.
- e. A **written** summary of the monitoring results, indicating any changes made or observed since the previous annual report.
- f. An evaluation of the effectiveness of the leachate monitoring/control facilities.

IX. PROVISIONS FOR MONITORING

A. General

1. The discharger shall maintain a **written sampling and analysis plan** sufficient to assure compliance with the terms of this Order.

Anyone performing sampling on behalf of the discharger shall be familiar with the sampling and analysis plan.

2. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and regularly **calibrated** to ensure their continued accuracy.
3. The discharger shall construct or abandon all **monitoring wells** to meet or exceed the standards stated in the State Department of Water Resources Bulletin 74-81 and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.
4. All sample analyses shall be conducted at a **laboratory accredited** for such analyses by the State Department of Health Services. The **Quality Assurance-Quality Control Program** must conform to EPA guidelines (e.g., "Laboratory Documentation Requirements for Data Validation," January 1990, USEPA Region 9) or to procedures approved by the Board.
5. The director **of the laboratory** whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
6. Unless samples are from water supply wells or unless otherwise specified by Board staff, all ground water samples to be analyzed for **metals** shall be field-filtered. Filtration methods shall minimize the entrainment of air into the sample (by using, for example, in-line pressure filtration).

B. **Sampling and Analytical Methods**

1. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span not to exceed 30 days, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods

for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.

2. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
3. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
4. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied by both the estimated MDL and PQL values for that analytical run.
5. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
6. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard

used to calibrate the analytical procedure.

7. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
8. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
9. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
10. Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at

least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

11. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Board staff.
12. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the **current** sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - i. The data contains two or more analytes that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
 - ii. The data contains one or more analyte that equals or exceeds its PQL.
 - b. **Discrete Retest** [Title 27 CCR Section 20415(e)(8)(E)]:
 - i. In the event that the Discharger concludes (pursuant to paragraph 12.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Regional Board staff by phone or e-

mail and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated.

- ii. For any given retest sample, the Discharger shall include, in the retest analysis, **only the laboratory analytical results for those analytes detected in the original sample**. As soon as the retest data are available, the Discharger shall conclude that there is measurably significant evidence of a release if two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL and shall:
 - a. **Immediately** notify the Regional Board about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - b. Comply with ¶14, below if any constituent or constituents were verified to be present.
 - iii. Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.
13. If the Executive Officer determines, after reviewing the submitted report in 12.b. above, that the detected constituent most likely originated from the WMU(s), the Discharger shall **immediately** implement the requirements of X. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements (September 2003).
 14. If the Discharger determines that there is measurably significant evidence of a release from the WMU at any monitoring point, the Discharger shall **immediately** implement the requirements of **X. Response To A Release, C. Release Has Been Verified**, contained in the Standard Provisions and Reporting Requirements.

X. RESPONSE TO A RELEASE

A. Monitoring Point Evidence of a Release

1. If the Discharger determines that there is “measurably significant” evidence of a release from the WMU (i.e. the initial statistical comparison or nonstatistical comparison indicates, for any constituent of concern or monitoring parameter, that a release is tentatively identified), the Discharger shall [27 CCR §20420(j)]:
 - a. **Notification** — **immediately notify Board staff verbally** of the finding and **provide** written notification by certified mail **within seven days** of such determination. The notification shall, for each affected monitoring point, identify the monitoring parameters and constituents of concern that have indicated “measurably significant” evidence of a release from the WMU [27 CCR §20420(j)(1)];
 - b. **Retest Optional** — can immediately initiate the verification (retest) procedure pre-approved by the Board [pursuant to §20415(e)(8)(E) of Title 27] to verify that there is “measurably significant” evidence of a release from the WMU for a parameter or constituent which has indicated a release at a monitoring point [27 CCR §20420(j)(2)]; and
 - c. **Next Step** — immediately following detection of a release [or after completing the retest pursuant to b) above and confirming the existence of a release], shall comply with the requirements of C. (Release Has Been Verified) below [27 CCR §20420(j)(3)].

B. **Physical Evidence of a Release**

If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall notify the Board **by certified mail within 7 days** of such determination, and within 90 days shall submit an amended report of waste discharge to make any appropriate changes to the detection monitoring program [27 CCR §20420(l)(1) & (2)].

C. **Release Has Been Verified**

1. If the detection was made based upon sampling and analysis for monitoring parameters, **immediately** sample all monitoring points in the affected medium at that WMU and determine the concentration of all constituents of concern. Because this constituent of concern scan does not involve statistical testing, the Discharger need collect and analyze

only a single water sample from each monitoring point in the

affected medium [27 CCR §20420(k)(1)].

2. The Discharger, **within 90 days** of determining “measurably significant” evidence of a release, shall submit an amended report of waste discharge to establish an evaluation monitoring program meeting the requirements of §20425 of Title 27 [27 CCR §20420(k)(5)].
3. The Discharger, **within 180 days** of determining “measurably significant” evidence of a release, shall submit to the Board an initial engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [27 CCR §20420(k)(6)].
4. If the Discharger determines that there is “measurably significant” evidence of a release from the WMU at any monitoring point, the Discharger may demonstrate that a source other than the WMU caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to §20420(k)(7) of Title 27 in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements of §20420(k)(6) & (7) of Title 27 unless the demonstration successfully shows that a source other than the WMU caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In making this demonstration, the Discharger shall notify the Board by certified mail of the intent to make the demonstration **within seven days** of determining “measurably significant” evidence of a release. The report shall be submitted to the Board **within 90 days** of determining “measurably significant” evidence of a release demonstrating that a source other than the WMU caused the evidence [27 CCR §20420(k)(7)].
5. The Discharger, **within 90 days** of establishing an Evaluation Monitoring Program, shall conduct an evaluation monitoring program used to assess the nature and extent of the release from the WMU and to design a corrective action program meeting the requirements of §20430 of Title 27. At a minimum, an evaluation

monitoring program for a WMU shall include:

- a. An assessment of the nature and extent of the release from the WMU. This assessment shall include a determination of the special distribution and concentration of each constituent of concern throughout the zone affected by the release. The Discharger shall submit this assessment to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(b)].
- b. Update the initial engineering feasibility study for corrective action based on the data collected to delineate the release and from the ongoing monitoring program. The Discharger shall submit this updated engineering feasibility study to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(c)].
- c. Submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 based on the data collected to delineate the release and on the updated engineering feasibility study. The Discharger shall submit this report to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(d)].

D. Release Beyond Facility Boundary

1. Any time the discharger concludes that a release from the WMU has proceeded beyond the facility boundary, the discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
2. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the discharger's current knowledge of the nature and extent of the release.
3. Subsequent to initial notification, the discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.
4. Each time the discharger sends a notification to Affected Persons, the discharger shall provide the Board, within seven

days of sending such notification, with both a copy of the notification and a current mailing list of Affected Persons.

XI. STANDARD CONDITIONS

A. Supervision and Certification

1. All WMUs shall be **designed and constructed** under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, and performance goals of Title 27 prior to waste discharge.
2. Designs of WMUs shall include a **Construction Quality Assurance Plan**, which shall:
 - a. be submitted for review and approval by the Board prior to construction;
 - b. demonstrate that the WMU has been constructed according to the specifications and plans as approved by the Board; and
 - c. provide quality control on the materials and construction practices used to construct the WMU and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
3. **Closure** of each WMU shall be performed under the direct supervision of a California registered civil engineer or California certified engineering geologist.

B. Operations

1. The discharger shall maintain in **good working order** and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
2. For any **electrically** operated equipment at the site, the **failure** of which could cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.

3. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be regarded as a defense for the discharger's violations of the Order.
4. The discharge shall remain within the designated disposal area at all times.
5. By the effective date of waste discharge requirements, the discharger shall have a plan for preventing and controlling **accidental discharges**, and for minimizing the effect of such events. This plan shall:
 - a. Identify the possible sources of accidental loss or leakage of wastes from each waste storage, treatment, or disposal unit.
 - b. Evaluate the effectiveness of present WMUs and operational procedures, and identify needed changes or contingency plans.
 - c. Predict the effectiveness of the proposed changes in waste management facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

The Board, after review of the plan, may establish conditions that it deems necessary to control leakage and minimize its effects.

6. WMU **gases** shall be adequately vented, removed from WMU, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the vadose (unsaturated) zone.
7. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overflowing.
8. Surface impoundments shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.
9. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.
10. Solids which accumulate in a surface impoundment shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for the surface

impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to the Board for review. The solids may be discharged to the Class III landfill units only if the Board determines that they qualify for classification as “nonhazardous solid waste” or “inert waste.”

11. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.

C. Siting

1. WMUs shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period.

Class II surface impoundments and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required two feet of freeboard.

2. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes, and shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

D. Closure

1. Closed WMUs shall be provided with at least two **permanent monuments**, installed by a licensed land surveyor or by a registered civil engineer authorized to perform land surveying, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.
2. Areas with **slopes greater than ten percent**, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

E. Post-Closure

1. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all WMUs will not threaten water quality.
2. The owner of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the WMUs and during subsequent use of the property for other purposes.

XII. DEFINITIONS

Unless otherwise stated, all terms are as defined in Chapter 2, Division 7, of the California Water Code (Section 13050 et seq.), in Article 2, Chapter 2, Division 2, Title 27 of the California Code of Regulations (27 CCR §20005 et seq.), and in Section 258.2, and elsewhere in Part 258, Title 40 of the Code of Federal Regulations.

The following additional definitions apply to the Order:

- A. **"Affected Persons"** means all individuals who either own or occupy land outside the boundaries of the parcel upon which the WMU is located that has been or may be affected by the **release** of leachate or waste constituents (in gas or liquid phase) from a WMU.
- B. **"Background Monitoring Point"** means a device (e.g., well) or location (e.g., a specific point along a lakeshore), upgradient or sidegradient from the WMU, or as otherwise approved by the Executive Officer, where water quality samples are taken that are not affected by any release from the WMU and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.
- C. **"Composite liner"** means a liner that consists of two or more components, which include a Synthetic Liner in direct and uniform contact with an underlying layer of prepared, low-permeability soil such that the net permeability of the resulting combination is significantly less than would be expected by reference to the permeability of the individual components layers.
- D. Unless otherwise specified, **"composite sample"** means a combination of individual samples either collected over a specified sampling period

or collected over an area at one time (synoptically):

1. at equal time intervals,
2. at varying time intervals so that each sample represents an equal portion of the media to be sampled.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results. "**Constituents of Concern (COC)**" means those constituents which are likely to be in the waste in the WMU or which are likely to be derived from waste constituents in the event of a release.

- E. "**Daily maximum concentration**" means the highest measurement made on any single discrete sample or composite sample.
- F. "**Grab sample**" means a discrete sample collected in less than 15 minutes.
- G. "**Matrix effect**" means any change in the method detection limit or practical quantitation limit for a given analyte as a result of the presence of other constituents - either of natural origin or introduced **by** humans as a result of a release or spill - that are present in the sample of water or soil-pore gas being analyzed.
- H. "**Method detection limit (MDL)**" means the lowest constituent concentration associated with a 99% reliability of a "non-zero" analytical result. The MDL shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory. MDLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs are expected to closely agree with published USEPA MDLs. If the lab suspects that, due to matrix or other effects, the detection limit for a particular analytical run differs significantly from the laboratory-derived MDL, the results should be flagged accordingly, along with an estimate of the detection limit achieved.
- I. "**Monitoring Parameters**" means the short list of constituents and parameters used for the majority of monitoring activity at a given WMU. Monitoring for the short list of Monitoring Parameters constitutes "indirect monitoring," in that the results are used to indicate indirectly the success or failure of adequate containment for the longer list of Constituents of Concern.
- J. "**Monitored Media**" means those water-, solid-, or gas-bearing media that are monitored pursuant to the Monitoring and Reporting Program. The Monitored Media may include:

1. Ground water in the uppermost aquifer, in any other portion of the zone of saturation in which it would be reasonable to anticipate that waste constituents migrating from the WMU could be detected, and in any perched zones underlying the WMU,
 2. Any bodies of surface water that could be measurably affected by a release,
 3. Soil pore liquid beneath and/or adjacent to the WMU, and
 4. Soil pore gas beneath and/or adjacent to the WMU.
- K. **“Monitoring Point”** means a device (e.g., well) or location (e.g., a specific point along a lakeshore), downgradient from the WMU and that is assigned in this Order, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.
- L. **“Monthly average concentration”** means the arithmetic mean of measurements made during the month.
- M. **“Monthly average discharge”** means the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging (e.g. gallons per day, cubic feet per day).
- Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges divided by the number of days during the month when the measurements were made.
- N. **“Order,”** as used throughout this document, means the Waste Discharge Requirements. The Monitoring and Reporting Program and Standard Provisions and Reporting Requirements are incorporated by reference into the Waste Discharge Requirements.
- O. **“Practical quantitation limit (PQL)”** means the lowest constituent concentration at which a numerical concentration can be assigned with reasonable certainty that its value represents the constituent’s actual concentration in the sample. Normally PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be restated from U.S. EPA analytical method manuals. In relatively interference-free water, laboratory-derived PQLs are expected to closely agree with published

U. S. EPA PQLs. If the lab suspects that, due to matrix or other effects, the quantitation limit for a particular analytical run differs significantly from the laboratory-derived PQL, the results should be flagged accordingly, along with an estimate of the quantitation limit achieved.

- P. **“Reporting Period”** means the time interval during which samples are collected and analyzed, and the results then reported to the Board, to comply with a specified monitoring and reporting frequency. The maximum reporting period for analysis of all Constituents of Concern is five years; for Monitoring Parameters it is six months (generally, Spring/Summer = April 1 to September 30, and Fall/Winter = October 1 to March 31). The Reporting Period for the Annual Summary Report extends from April 1 of the previous year to March 31 of the current year. The due date for the submittal of any given report will be 15 days after the end of its Reporting Period, unless otherwise stated.
- Q. **“Receiving Waters”** refers to any surface or ground water which actually or potentially receives waste constituents, leachate, or surface or ground waters which come in contact with waste materials or contaminated soils.
- R. **“Sample size”**:
1. For Monitoring Points, means the number of data points obtained from a given Monitoring Point during a given Reporting Period used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period; or
 2. For Background Monitoring Points, means the number of new and existing data points collected under §20415(e)(11 and 12) from all applicable Background Monitoring Points in a given monitored medium—used to collectively represent the background concentration and variability of a given analyte in carrying out statistical or non-statistical analysis of that analyte during a given Reporting Period.
- S. **“Standard Observations”** means:
1. For Receiving Waters:
 - a. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
 - b. Discoloration and turbidity: description of color, source, and size of affected area;
 - c. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;

- d. Evidence of water uses: presence of water-associated wildlife;
 - e. Flow rate; and
 - f. Weather conditions: wind direction and estimated velocity, total precipitation during recent days and on the day of observation;
2. Along the perimeter of the WMU:
 - a. Evidence of liquid leaving or entering the WMU, estimated size of affected area, and flow rate (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 - c. Evidence of erosion and/or of daylighted refuse.
 3. For the WMU:
 - a. Evidence of ponded water at any point on the waste management facility (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - c. Evidence of erosion and/or of daylighted refuse; and
- T. **“Standard Analysis and Measurements”** means:
1. Turbidity, in NTU;
 2. Water elevation to the nearest 1/100th foot above mean sea level; and
 3. Sampling and statistical/non-statistical analysis of the Monitoring Parameters.
- U. **“Synthetic Liner”** means a layer of flexible, man-made material that is installed in accordance with the standard of the industry over an area of land prior to the discharge of waste there.
- V. **“VOC_{water}”** (Volatile Organics Monitoring Parameter for Water) means the composite monitoring parameter encompassing all VOCs that are detectable in less than ten percent of applicable background samples from a monitored water-bearing medium (e.g., the unsaturated zone, the uppermost aquifer, a zone of perched ground water, or a surface water body). This parameter is analyzed via the non-statistical analytical method described elsewhere in this Order to identify a release to waters of the state of VOCs whose presence in background water is detected too infrequently to allow statistical analysis.

- W. “**VOC_{spg}**” (Volatile Organics Monitoring Parameter for Soil Pore Gas) means Monitoring Parameters addressing all volatile organic constituents detectable in a sample of soil pore gas.

- X. “**Volatile organic constituents (VOCs)**” means the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.