CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-201X-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
PACTIV LLC
CLASS III SOLID WASTE LANDFILL
TEHAMA COUNTY

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

1. Pactiv LLC (hereinafter Discharger) owns and operates a Class III solid waste landfill about one mile south of the City of Red Bluff and ¼ mile west of the Red Bluff Diversion Dam on the Sacramento River, in Section 33, T27N, R3W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order by reference. The Class III solid waste landfill is regulated under authority given in Water Code section 13000 et seq. and California Code of Regulations, title 27 ("Title 27").

2. The 99.98 acre Pactiv LLC facility is located at 1000 Diamond Avenue, Red Bluff on Assessor Parcel Number 035-470-231-1. The facility consists of a molded pulp processing plant for production of paper plates, wastewater treatment ponds, and one 10.2 acre unlined waste management unit (Unit) for disposal of paper pulp sludge solids from Pactiv LLC's onsite wastewater treatment plant as shown in Attachment B, which is incorporated herein and made part of this Order by reference.

3. Industrial and manufacturing activities have been conducted by various companies at the present day Pactiv LLC site for over 100 years. The present day Pactiv property and the adjacent Meyers Motel property were previously owned and operated as a saw mill by the Sierra Lumber Company. In 1907, Diamond Match Company acquired the saw mill as part of a larger purchase. Saw mill operations ended in 1911. In 1956, Diamond International Corporation re-opened the mill and operated a molded products facility at the site. In 1983, the molded products portion of the facility was sold to Pactiv, which was then known as Packaging Company of America. The saw mill portion of the site (west side of the present day property line) was sold to Roseburg Forest Products Company in 1988. Sierra Pacific Industries bought the saw mill in 1993, and then sold the property to Meyers Motel in 1995.

4. The landfill at the Pactiv LLC site was first operated by Diamond International Corporation in 1957 as an open burn dump. During construction of the Red Bluff Diversion Dam (RBDD) in 1964, the Department of Interior, Bureau of Reclamation (BOR) installed a levee system separating the north and east sides of the landfill from the adjacent Sacramento River and Red Bank Creek, respectively. After construction of the levee system, Diamond International Corporation continued using the burn dump area for on-

site disposal of dried paper pulp. It is reported (*Environmental Evaluation Report, CH2MHILL, August 2002*) that Roseburg Forest Products Company "may have" removed other residual burn material from the saw mill property and added it to the present day Pactiv LLC Class III landfill. Pactiv LLC continues to operate the landfill for disposal of dried paper pulp.

5. Prior to 2011, the landfill Unit covered approximately 12.3 acres of land. This area included an approximately 1-acre low area that historically collected storm water runoff from the landfill. During summer 2010, the Discharger investigated this low area to determine if waste disposal activities had occurred within there. The investigation concluded that waste material was buried in the northern portion of the low area to a depth of approximately 249.5 feet msl, which resulted in wastes being saturated during periods of gates-down operation at the Red Bluff Diversion Dam. During spring 2011, the Discharger excavated buried waste within the northern portion of the low area and replaced it with clean fill up to an elevation of approximately 254 feet msl. Waste materials excavated during a partial clean-closure project in 2010 and 2011 were used to fill the remaining air space within the low area to an elevation comparable to existing landfill surface topography. The low area was capped with 1 foot of clean intermediate cover soil and graded to drain away from the Unit. Appropriate erosion and sediment control best management practices were installed after final grading.

6. During 2010 and 2011, the BOR purchased the northern portion of the landfill abutting the Sacramento River on the north and the mouth of Red Bank Creek on the east to allow for construction of the Fish Passage Improvement Project (FPIP), which enables water diversion from the Sacramento River into conveyance structures operated by the Tehama-Colusa Canal Authority (TCCA). The FPIP is described in detail in Findings Nos. 7 through 12 below.

7. The RBDD consists of a concrete weir structure that is approximately 750 feet long with 11 large slide gates. Earth wings and levees make the total length of the dam 5,985 feet. For more than 20 years, the dam was operated with the gates-in, which raised the elevation of the Sacramento River behind the dam a little more than 10 feet and created Lake Red Bluff that allowed gravity flow of river water into the TCCA conveyance structures. Operation of the RBDD with gates-in created an impediment to salmonids and green sturgeon fish passage, so the dam began periodically operating with the gates-out. By July 2008, operation of the RBDD was in the control of the federal court in Fresno and the gates-in operating period had been reduced to approximately 15 June through 31 August annually. Gates-in operation of the RBDD ended as of 1 September 2011, which required construction and operation of the FPIP. The FPIP consists of a fish screen structure abutting the Sacramento River, a forebay, pumping plant, electrical switchyard, an open canal with a siphon below Red Bank Creek for conveyance of water into existing TCCA infrastructure, and a roadway access bridge over Red Bank Creek. Construction of the FPIP required clean-closure of approximately 2.1 acres of the northern portion of the Pactiv LLC Class III Landfill.

8. The partial clean-closure of the northern portion of the Pactiv LLC Class III Landfill was completed by the BOR in accordance with approved work plans so that installation of the FPIP (the open canal, siphon, and landfill access road were constructed in the area of the landfill that was clean-closed) could occur. Clean-closure activities were conducted in two phases by two different contractors. The first phase involved excavation of the northern most portion of the landfill abutting the levee and Sacramento River in an area referred to as Parcel A. In Parcel A, approximately 45,000 cubic yards of material was excavated. The material excavated from Parcel A consisted of approximately 2,000 cubic yards of cover soil, approximately 41,000 cubic yards of waste material (consisting of paper pulp sludge and burn material with soil and debris intermixed), and approximately 2,000 cubic yards of native soil from beneath the waste pile. Three metal drums, or pieces of drums, were unearthed during excavation of Parcel A. These drums appeared to have been used as refuse bins or weights as they were filled with concrete and had a lifting eye attached to them. During excavation of Parcel A, waste material was observed to extend further north toward the levee and Sacramento River. This small pocket of additional waste was excavated after sheet pile walls for the canal construction had been installed.

9. The second phase of clean-closure occurred directly south of Parcel A and is referred to as Parcel B2. Approximately 14,500 cubic yards of material were excavated from Parcel B2. The material excavated from Parcel B2 consisted of approximately 500 cubic yards of cover soil, approximately 13,000 cubic yards of waste material (consisting of paper pulp sludge and burn material with soil and debris intermixed) and approximately 1,000 cubic yards of native soil from beneath the waste pile. Three empty crushed metal drums and another group of empty crushed metal drums were also removed from Parcel B2.

10. Parcel A and Parcel B2 were backfilled with soil generated from other areas of the FPIP that met residential human health screening criteria developed for the project. In general, human health screening levels developed for the project were the lowest concentration for a constituent obtained from United States Environmental Protection Agency Residual Screening Levels and California Human Health Screening Levels.

11. Confirmation samples were obtained from native soil beneath the waste piles in Parcel A and Parcel B2 and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, pesticides, herbicides, total petroleum hydrocarbons (TPH) as gas, diesel, and motor oil, polychlorinated biphenyls (PCBs), and dioxins/furans. The first round of confirmation sampling in Parcel A identified some constituents exceeding approved screening criteria, so additional native soil was removed from the eastern portion of the excavation with a second round of confirmation sampling performed. Results of the second round of sampling found all constituent concentrations below approved screening criteria. A third round of excavation and confirmation sampling took place for the waste material identified between the sheet pile walls and the Sacramento River. For Parcel B2, the initial round of confirmation sampling found all constituent concentrations below approved screening criteria. For both Parcels A and B2, confirmation soil sampling indicated that all waste materials and affected geologic media

beneath the waste pile had been removed to the extent that they no longer posed a threat to water quality, in accordance with Title 27, section 21090(f).

12. Stockpile Management Areas (SMAs) were established for storing and characterizing excavated materials. The SMAs were constructed with 60-mil HDPE geomembrane liners installed beneath the stockpiles. Samples from each stockpile were obtained and analyzed for the same constituents as the Parcel A and Parcel B2 confirmation samples. Piles were covered with plastic tarps while awaiting sample results. With the exception of cover soil and some native soil from the bottom of the excavations, all materials excavated from Parcel A and Parcel B2 were disposed at authorized off-site landfill facilities. Materials determined to be non-hazardous solid waste were disposed at either Anderson Landfill in Shasta County or Tehama County Landfill west of Red Bluff. Materials classified as hazardous waste were transported to Clean Harbors Buttonwillow Landfill.

13. On 27 June 2013, the Discharger submitted an amended Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the landfill. The JTD also includes a revised Site-Specific Preliminary Closure and Post-Closure Maintenance Plan and a Site-Specific Corrective Action Plan submitted on 23 September 2013. The information in the ROWD/JTD has been used in revising these waste discharge requirements (WDRs). The ROWD/JTD contains applicable information required in Title 27, including revised Unit acreage, a revised groundwater detection monitoring program, and a Preliminary Closure and Post-Closure Maintenance Plan containing cost estimates for closure, post-closure maintenance, and corrective action.

14. On 22 February 1991, the Central Valley Water Board issued Order No. 91-064 in which the landfill Unit was classified as a Class III Unit for the discharge of non-hazardous dried paper sludge generated from Pactiv LLC's on-site wastewater treatment system. This Order continues to classify the landfill Unit as a Class III Unit in accordance with Title 27. This Order supersedes Order No. 91-064.

15. This Order implements applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in sections A through H of these WDRs below, and in the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-201X-XXXX and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all landfills are considered to be "standard" and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.

16. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency in charge of implementing CalRecycle's regulations.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

17. The paper pulp sludge that Pactiv LLC produces consists of recycled cellulose paper fiber from the manufacture of paper plates. The paper pulp sludge is classified as non-hazardous solid waste. This paper pulp sludge is generated through operation of the on-site wastewater treatment system. Cellulose paper fibers that are not captured during the manufacture of paper plates are separated through flotation in a series of ponds. Water effluent from the treatment ponds is further treated through the operation of an aeration basin and a clarifier. Treated wastewater effluent is discharged through a buried process line that runs below the west side of the landfill Unit south to north and discharges into the Sacramento River under authority of National Pollutant Discharge Elimination System (NPDES) Permit No. CA0004821. Surface water monitoring of the Sacramento River is also conducted in accordance with NPDES Permit No. CA0004821. Solids removed from the operation of the clarifier are redirected to the treatment ponds for additional separation and removal. Once a pond reaches capacity, it is taken out of service to allow the paper pulp sludge to dry in the sun until the moisture content is below 50%. Once dried, the sludge is excavated from the pond and transported to the on-site landfill for disposal. In general, the sludge takes approximately two years to dry. On average, Pactiv LLC produces approximately 154 tons of pulp waste each year. Disposal occurs infrequently on an as needed basis.

18. As described in Findings 8 and 9 above, some thin layers of burn materials and other wastes are intermixed with paper pulp sludge within the Unit. Samples collected from excavated waste materials during the landfill partial clean-closure project identified constituents of concern that may degrade water quality and/or beneficial uses of groundwater in the vicinity of the Unit. Sample results of excavated wastes identified several metals including copper, lead, and mercury at elevated concentrations, with two samples exceeding the Soluble Threshold Limit Concentration of 5 mg/L for lead (5.8 mg/L and 10.1 mg/L, respectively). Total petroleum hydrocarbons (TPH) as diesel and motor oil were also identified at elevated concentrations. The maximum TPH diesel concentration was 1,200 mg/kg and the maximum TPH motor oil concentration was 5,800 mg/kg. Various VOCs, polycyclic aromatic hydrocarbons (PAHs), and dioxin/furan compounds were detected at low concentrations below applicable screening criteria. SVOCs and PCBs have been detected at low concentrations in samples from the waste pile during previous site assessments. Pesticides and herbicides were not detected above laboratory reporting limits. Waste materials in the Unit are categorized as non-

hazardous solid waste, with the exception of the two samples that exceeded the Soluble Threshold Limit Concentration for lead.

19. Prior to construction of the FPIP, waste material was present in the landfill at elevations as low as 243 feet mean sea level (msl). Following completion of the FPIP, the lowest waste elevation in the landfill is estimated to be approximately 247 to 249 feet msl.

20. The Discharger proposes to continue to discharge nonhazardous paper pulp sludge to the unlined Class III landfill Unit at the facility. These classified wastes may be discharged only in accordance with Title 27 as required by this Order.

21. The active unlined landfill Unit at the facility is an "existing Unit" as defined under Title 27, section 20080(d) that was operating before 27 November 1984 and may continue to accept waste until the Unit is ready for closure, unless the Discharger is required to close sooner to address environmental impacts or other regulatory concerns.

SITE DESCRIPTION

22. The Pactiv LLC Class III Landfill is located on relatively flat ground at elevations ranging from 275 feet msl at the southwestern part of the Unit to 265 feet msl at the northeastern part of the Unit. The Unit is bounded by a flood protection levee and the Sacramento River on the north, a flood protection levee and Red Bank Creek on the east, former mill property owned by Meyer Motel on the west, and the Pactiv LLC plant and wastewater treatment ponds on the south.

23. Land uses within one mile of the facility include public land to the north and east, industrial at the site and to the west, and commercial directly south of the facility.

24. There are two on-site deep industrial production wells at the Pactiv LLC facility. Five other municipal, domestic, and/or agricultural wells have been identified within one mile of the facility.

25. Geologic deposits beneath the Pactiv LLC Class III Landfill consist of unconsolidated Quaternary river deposits, alluvial fan deposits, and loosely-consolidated Pliocene age river deposits. The Quaternary Riverbank Formation is a series of unconsolidated stream and flood plain deposits composed of varying mixtures of sand, silt, and clay. The Riverbank Formation is generally present at elevations ranging from 238 feet msl to 280 feet msl. The Quaternary Red Bluff Formation is a continental alluvial fan deposit beneath the Riverbank Formation composed of gravel with varying amounts of sand, silt, and clay. The Red Bluff Formation is generally present at elevations ranging from 218 feet msl to 255 feet msl. The Red Bluff Formation is a water bearing zone even though it has an average hydraulic conductivity of 1.6 feet/day. Underlying the Red Bluff Formation is the Pliocene Tehama Formation, a fluvial deposit composed of dense sandy clay and clayey gravel. The Tehama Formation is present below elevations of approximately 220

feet msl, and regionally, is an aquifer used for domestic, industrial, and agricultural supply.

26. Based on slug tests conducted in several site monitoring wells that are screened across the contact between the Riverbank Formation and the underlying Red Bluff Formation, the average hydraulic conductivity of the Riverbank Formation is 19.2 feet/day. Slug tests conducted on wells screened entirely within the Red Bluff Formation found the average hydraulic conductivity to be 1.6 feet/day. A slug test on another well screened entirely within the Tehama Formation found the measured hydraulic conductivity to be 1.8 feet/day.

27. No faults have been identified as passing through the Pactiv LLC facility. The closest potentially active fault is the Battle Creek Fault located approximately 16 miles north of the site. The nearest identified active faults are the Hat Creek Fault located approximately 58 miles northeast of the site and the Cleveland Hill Fault located approximately 63 miles southeast of the site. Seismic events originating on these faults are not likely to produce ground accelerations exceeding 0.05g at the landfill site.

28. The facility receives an average of 22 inches of precipitation per year as measured at the Red Bluff Airport Station. The mean pan evaporation is 70 inches per year.

29. The 100-year, 24-hour precipitation event for the facility is estimated to be 4.74 inches, based on Department of Water Resources' Bulletin 195 entitled *Rainfall Analyses for Drainage Design*, dated October 1976.

30. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 065053-0789-H, Map Number 06103C0789H, the waste management facility is located within the 100-year flood plain, which has been determined to be at an elevation of 266.3 feet msl. However, the 100-year flood plain determination does not take into account the levee system that was installed around the north and east sides of the Unit to an elevation of 268.5 feet msl in 1964 by the BOR. The levee system effectively protects the Unit from floods with a 100-year return frequency.

31. Storm water discharges from the Unit are managed through perimeter drainage ditches and culverts. Intermediate cover over the Unit is well vegetated, which acts as an effective best management practice.

SURFACE WATER AND GROUNDWATER CONDITIONS

32. The *Water Quality Control Plan for the Sacramento and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

33. Surface water drainage from the site is to Red Bank Creek on the east, a tributary of the Sacramento River, and to the Sacramento River on the north.

34. The designated beneficial uses of the Sacramento River, as specified in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; navigation; hydropower generation; water contact recreation; non-contact water recreation; commercial and sport fishing; warm fresh water habitat; cold freshwater habitat; wildlife habitat; migration of aquatic organisms; and spawning, reproduction, and/or early development.

35. Prior to the FPIP, operation of the Red Bluff Diversion Dam caused the Sacramento River elevation, and in turn the groundwater elevation in the vicinity of the landfill, to rise approximately 10 feet seasonally during periods when the dam gates were lowered. When the dam gates were lifted, groundwater elevations quickly returned to a normal elevation of approximately 242 feet msl. This seasonal rise and fall of the groundwater elevation affected the groundwater flow direction as observed in landfill monitoring wells.

36. Prior to the FPIP, waste material was present in the landfill at elevations as low as approximately 243 feet msl, resulting in some waste being saturated during gates-down operation of the Red Bluff Diversion Dam. Since August 2009, the Red Bluff Diversion Dam has been operated with gates out, keeping surface water elevations around 242 feet msl with groundwater elevations stabilizing at an elevation below the surface water elevation. Following completion of the FPIP, the lowest waste elevation in the landfill is estimated to be approximately 247 to 249 feet msl.

37. Since completion of the FPIP in September 2012, groundwater elevations as observed in landfill monitoring wells range from approximately 248.69 feet msl at the southeast end of the Unit to 244 feet msl at the northern portion of the Unit.

38. Since completion of the FPIP, monitoring data indicates background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 238 and 278 micromhos/cm, with total dissolved solids (TDS) ranging between 139 and 555 milligrams per liter (mg/L).

39. The direction of groundwater flow is generally toward the west and an area of unconsolidated alluvial deposits in the Riverbank Formation. This area directly west of the Unit has hydraulic connection with the deeper Tehama Formation. A downward vertical gradient exists in this area which may be influenced by pumping of production and agricultural wells screened in the deeper Tehama Formation. The estimated average groundwater gradient is approximately 0.0156 feet per foot. The estimated average groundwater velocity is 60.7 feet per year.

40. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

GROUNDWATER, STORM WATER, AND UNSATURATED ZONE MONITORING

41. The existing groundwater monitoring network for the landfill consists of five monitoring wells, MW-1R, MW-2, MW-3R, MW-4, and MW-5. Two additional groundwater monitoring wells, MW-1 and MW-3, were previously included with the groundwater monitoring network. However, wells MW-1 and MW-3 were excavated and removed during construction of the FPIP. Well MW-1 was replaced with new well MW-1R on 30 October 2012 along the northern boundary of the Unit and well MW-3 was replaced with new well MW-3R on 2 October 2013 along the western boundary of the Unit. Wells MW-2 and MW-5 appear to be hydraulically upgradient of the landfill Unit. Wells MW-1R and MW-4 are located hydraulically crossgradient of the Unit. Well MW-3R is hydraulically downgradient of the Unit.

42. Details of the existing groundwater monitoring network are provided below:

Well ID	Installation Date	Total Depth	Screen Interval	Well Type
MW-1R	October 2012	39 ft[1]	29 ft – 39 ft bgs[2]	Compliance
MW-2	January 1989	36.5 ft	24.4 – 34.4 ft bgs	Background
MW-3R	October 2013	55 ft	44.75 – 54.75 ft bgs	Compliance
MW-4	January 1989	31.5 ft	19.4 – 29.4 ft bgs	Compliance
MW-5	January 1989	35 ft	24.7 – 34.7 ft bgs	Background

[1]ft = feet
[2]bgs = below ground surface

43. Storm water from the landfill is directed toward a culvert (sample point SW-3) that discharges to Red Bank Creek. Additionally, a perimeter drainage ditch on the west and south sides of the Unit directs storm water away from the Unit and into another culvert (sample point SW-1) that also discharges to Red Bank Creek. The Discharger is enrolled under the State Water Resources Control Board Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, WDID No. 5R52I019120. Storm water discharges from the site are monitored in accordance with provisions of the General Permit.

44. The existing Unit at this landfill is unlined and there is no unsaturated zone detection monitoring system on-site.

45. VOCs are often detected in a release of waste from a landfill. Since VOCs are not naturally occurring and thus have no background value, they are not amenable to the

statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allows the use of a non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

46. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.

47. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], is a preliminary indication that a release of waste from a Unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false detection. The detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

48. For a naturally occurring constituent of concern, Title 27 requires concentration limits for each constituent of concern be determined as follows:

    a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or

    b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

49. The Discharger has not submitted a Water Quality Protection Standard (WQPS) Report for the landfill. The Discharger is currently assessing groundwater quality and hydrogeologic conditions at the site since completion of the FPIP to determine if significant changes have occurred. Data from this assessment will be used to prepare a WQPS Report. This Order requires the Discharger to prepare and submit a WQPS Report.

GROUNDWATER CONDITIONS

50. As described above, hydrogeologic conditions at the site have been significantly altered with the change in operation of the Red Bluff Diversion Dam and completion of the FPIP. During 2007 and 2008, the Discharger conducted a Preliminary Hydrogeologic Investigation that included sampling landfill groundwater monitoring wells and analyzing for VOCs, SVOCs, PCBs, pentachlorophenol (PCP), TPH, dioxins and furans, metals, cyanide, and general mineral constituents. Sample results found that VOCs, SVOCs, PCBs, PCP, TPH, cyanide, and dioxin/furan concentrations were below laboratory reporting limits. Several metals and general mineral parameters were identified above laboratory reporting limits. Only total Kjeldahl nitrogen and arsenic in monitoring well MW-1 were reported to be statistically elevated when compared to monitoring well MW-4. However, because of the FPIP, MW-1 is no longer a downgradient location for monitoring the landfill. Based on pre-FPIP conditions, the conclusion of the Preliminary Hydrogeologic Investigation was that waste disposal activities have not significantly impacted groundwater quality. The current detection monitoring program will continue to collect groundwater quality data to assess the dynamics of existing hydrogeologic conditions and to provide the earliest possible indication of a release of waste from the landfill.

LANDFILL CLOSURE

51. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:

    a. Two-foot soil foundation layer.
    b. One-foot soil low flow-hydraulic conductivity layer, less than $1x10^{-6}$ cm/s or equal to the hydraulic conductivity of any bottom liner system.
    c. One-foot soil erosion resistant/vegetative layer.

52. Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.

53. The Discharger submitted a 23 September 2013 *Preliminary Closure and Post-Closure Maintenance Plan and Site-Specific Corrective Action Plan* as part of the JTD/ROWD for closure and post-closure maintenance of the landfill Unit at the facility. Based on current waste generation rates, the Discharger estimates that final closure of the landfill Unit will not occur for at least 20 years.

54. The Discharger's Preliminary Closure and Post-Closure Maintenance Plan proposes an engineered alternative final cover consisting of, in ascending order, the following layers:

    a. Two-foot soil foundation layer.

b. Low-hydraulic conductivity layer consisting of a synthetic geomembrane with a hydraulic conductivity of 1×10^{-7} cm/sec, or less.
c. One-foot soil erosion resistant layer, with vegetation.

55. The Discharger will be required to demonstrate in the Final Closure and Post-Closure Maintenance Plan that the proposed engineered alternative final cover meets the performance goals of Title 27 and that it is equivalent to the prescriptive standard.

56. At closure, the final cover slopes for the landfill shall not be steeper than 1.75H:1V. A final cover with proposed slopes steeper than 3H:1V , or having a geosynthetic component, shall have those aspects of their design specifically supported in a slope stability report required under Title 27, section 21750(f)(5).

57. The Discharger has not completed a slope stability analysis for the proposed final cover design. The Discharger will be required to provide a slope stability analysis in the Final Closure and Post-Closure Maintenance Plan in accordance with Title 27, sections 21090(a)(6) and 21750(f)(5).

58. Pursuant to Title 27, section 21090(e)(1), this Order requires a survey of the final cover following closure activities for later comparison with iso-settlement surveys required to be conducted every five years.

59. This Order requires that a Final Closure and Post-Closure Maintenance Plan, design documents, and Construction Quality Assurance (CQA) plan be submitted for review and approval at least 180 days prior to initiating actual closure.

LANDFILL POST-CLOSURE MAINTENANCE

60. The Discharger submitted a 23 September 2013 *Site-Specific Preliminary Closure and Post-Closure Maintenance Plan and Site-Specific Corrective Action Plan* as part of the JTD/ROWD for closure and post-closure maintenance of the landfill Unit. The plan includes inspection, maintenance, and monitoring of the landfill during the post-closure maintenance period, and includes a post-closure maintenance cost estimate for the entire facility. Facility inspections will include assessment of the condition of the final cover, drainage features, groundwater monitoring wells, access roads, landfill gas system, and site security facilities. The plan will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater.

61. Once every five years during the post-closure maintenance period, topographic maps of the closed landfill area will be made to identify and evaluate landfill settlement. Iso-settlement maps will be prepared to determine the amount of differential settlement occurring over the previous five years. Pursuant to Title 27, section 21090(e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.

62. The completed final cover will be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, Title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.

FINANCIAL ASSURANCES

63. Title 27, sections 21820 and 22206 require a cost estimate for landfill closure. The cost estimate must be equal to the cost of closing the landfill at the point in its active life when the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of a landfill open at any time. The Discharger's 23 September 2013 *Preliminary Closure and Post-Closure Maintenance Plan and Site-Specific Corrective Action Plan* includes a cost estimate for landfill closure. The total amount of the closure cost estimate in 2013 dollars is one million ten thousand dollars ($1,010,000). This Order requires that the Discharger maintain financial assurances with the Central Valley Water Board in at least the amount of the closure cost estimate adjusted annually for inflation.

64. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's 23 September 2013 *Preliminary Closure and Post-Closure Maintenance Plan* includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in is two hundred seventy nine thousand and two hundred dollars ($279,200). This Order requires that the Discharger maintain financial assurances with the Central Valley Water Board in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation.

65. Title 27, section 22100(b) requires owners and operators of disposal facilities that are required to be permitted as solid waste landfills to provide cost estimates for initiating and completing corrective action for known or reasonably foreseeable releases of waste. Title 27, section 22101 requires submittal of a *Water Release Corrective Action Estimate* and a *Non-Water Release Corrective Action Cost Estimate*. The *Water Release Corrective Action Estimate* is for scenarios where there is statistically significant evidence of a release of waste to ground or surface water when comparing point-of-compliance analyte concentrations to background concentrations. The *Non-Water Release Corrective Action Cost Estimate* is for complete replacement of the landfill final cover system, however a site-specific corrective action plan pursuant to Title 27, section 22101(b)(2) may be provided in lieu of the final cover replacement cost estimate. Title 27, section 22221 requires establishment of financial assurances in the amount of the approved *Water Release Corrective Action Estimate* or an approved *Non-Water Release Corrective Action Cost Estimate*, whichever is greater.

66. In the 23 September 2013 *Preliminary Closure and Post-Closure Maintenance Plan and Site-Specific Corrective Action Plan*, the Discharger included a *Water Release Corrective Action Estimate* in the amount of one hundred fifty-three thousand one hundred dollars ($153,100) and a site-specific *Non-Water Release Corrective Action Cost Estimate* in the

amount of twenty thousand six hundred dollars ($20,600). The Discharger prepared the *Non-Water Release Corrective Action Cost Estimate* in accordance with the *Technical Guidance and FAQs for the Preparation of Site-Specific Non-Water Release Corrective Action Plans, February 2011* from CalRecycle.

67. This Order requires the Discharger to maintain financial assurances with the Central Valley Water Board in the amount of the *Water Release Corrective Action Estimate*, which is higher than the *Non-Water Release Corrective Action Cost Estimate*. The *Water Release Corrective Action Estimate* is required to be adjusted annually for inflation in accordance with Title 27, section 22236.

CEQA AND OTHER CONSIDERATIONS

68. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with California Code of Regulations, title 14, section 15301.

69. This order implements:

    a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*; and

    b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;

70. Based on the threat and complexity of the discharge, the facility is determined to be classified 2-B, as defined below:

    a. Category 2 threat to water quality, defined as, “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

    b. Category B complexity, defined as, “Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”

71. 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 discharged 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 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.

72. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-201X-XXXX" 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

73. 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.

74. 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.

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

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order No. 91-064 is rescinded except for purposes of enforcement, and that Pactiv LLC, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of ‘hazardous waste’ or ‘designated waste’ is prohibited. For the purposes of this Order, the term ‘hazardous waste’ is as defined in California Code of Regulations, Title 23, section 2510 et seq., and ‘designated waste’ is as defined in Water Code section 13173.

2. Any discharge of waste outside of the Unit is prohibited. This prohibition supersedes Standard Discharge Specification D.5 in the SPRRs.

3. The Discharger shall comply with all applicable Standard Prohibitions listed in section C of the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012 which are attached hereto and made part of this Order by reference.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall only discharge the wastes listed or allowed under the Waste Classification and Unit Classification section in the Findings of this Order.

2. The Discharger may not use any material as alternative daily cover (ADC) that is not listed as approved ADC in the Findings of these WDRs unless and until the Discharger demonstrates it meets the requirements in Title 27, section 20705, and the Discharger has received approval that it may begin using the material as ADC.

3. If the Discharger receives approval to use ADC, then the ADC shall only be used in internal areas of the landfill that do not drain outside of the limits of the Unit unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality and the demonstration has been approved.

4. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at the landfill in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.

5. The Discharger shall comply with all applicable Standard Discharge Specifications listed in section D of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

C. FACILITY SPECIFICATIONS

1. The Discharger shall comply with all applicable Standard Facility Specifications listed in section E of the SPRRs dated January 2012 which are part of this Order.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall comply with all applicable Standard Construction Specifications listed in section F of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

2. The Discharger shall comply with all applicable Storm Water Provisions listed in section L of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall submit a Final Closure and Post-Closure Maintenance Plan at least two years prior to proposed closure of any portion of the landfill in accordance with requirements in section G of the Standard Closure and Post-Closure Specifications in the SPRRs. The Final Closure and Post-Closure Maintenance Plan shall include a slope stability analysis as required under Title 27, section 21750(f)(5).

2. The Discharger shall close the landfill Unit with a final cover as proposed in a Final Closure and Post-Closure Maintenance Plan that is approved by the Executive Officer.

3. The Discharger shall obtain revised WDRs prior to initiating final closure construction.

4. The Discharger shall test the critical interfaces of the final cover in a laboratory to ensure minimum design shear strengths are achieved and include the results in the final documentation report.

5. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Discharger shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period the vegetation is being established.

6. Following closure of the landfill Unit, the Discharger shall notify the Executive Officer that the deed to the landfill property, or some other instrument that is normally examined during a title search, has been recorded with a copy placed in the operating record and uploaded to the State Geotracker database. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to the planned use described in the Post-Closure Maintenance Plan. This specification supersedes Standard Closure and Post-Closure Specification G.19 in the SPRRs.

7. The Discharger shall comply with all applicable Standard Closure and Post-Closure Specifications listed in section G of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure and post-closure maintenance to ensure closure and post-closure maintenance of the Unit in accordance with an approved closure and post-closure maintenance plan. This specification supersedes Standard Financial Assurance Provision H.1 in the SPRRs.

2. The Discharger shall obtain and maintain assurances of financial responsibility with the Central Valley Water Board for closure and post-closure maintenance of the landfill in at least the amounts described in Findings 63 and 64, adjusted for inflation annually. The initial financial assurance demonstration for closure and post-closure maintenance in the amounts of the approved cost estimates is due **by 1 October 2014**. A report calculating adjustment of the closure and/or post-closure maintenance cost estimate due to the inflation factor for the previous calendar year shall be submitted to the Central Valley Water Board by **1 June of each subsequent year**, in accordance with Title 27, section 22236. If it's determined that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable

mechanism to the Central Valley Water Board for at least the amount of the approved cost estimate.

3. The Discharger may update the preliminary closure and post-closure maintenance plan (PCPCMP) at any time that material costs or available technologies alter previously approved plans. The updated PCPCMP shall include updated cost estimates and shall be submitted to the Central Valley Water Board for approval. The PCPCMP shall meet the requirements of Title 27, section 21769(b), and include a lump sum estimate of the cost of carrying out all actions necessary to close each Unit, to prepare detailed design specifications, to develop the final closure and post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance. Reports regarding financial assurances required in F.1 above shall reflect the updated cost estimate(s).

4. The Discharger shall obtain and maintain assurances of financial responsibility with the Central Valley Water Board for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the annual inflation-adjusted cost estimate described in Finding 66. The initial financial assurance demonstration for corrective action in the amount of the approved cost estimate is due **by 1 October 2014**. A report calculating the change in the corrective action cost estimate due to the inflation factor for the previous calendar year shall be submitted to the Central Valley Water Board by **1 June of each subsequent year**, in accordance with Title 27, section 22236. If it's determined that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to the Central Valley Water Board for at least the amount of the approved cost estimate.

5. The Discharger shall comply with all applicable Standard Financial Assurance Specifications listed in section H of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater in accordance with Monitoring and Reporting Program (MRP) No. R5-201X-XXXX, and the Standard Monitoring Specifications listed in section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

2. **By 1 July 2014**, the Discharger shall prepare and submit a Water Quality Protection Standard Report in accordance with Title 27, sections 20390 through 20415 for Executive Officer review and approval. Once approved, the Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-201X-XXXX, and the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

3. **By 1 July 2014**, the Discharger shall submit for Executive Officer review and approval a Sample Collection and Analysis Plan, as specified in the Standard Monitoring Specifications in section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

4. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill Unit that extends through the uppermost aquifer underlying the Unit) shall not exceed the concentration limits established in an approved Water Quality Protection Standard Report.

5. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures allowed under Title 27, section 20415 and/or as specified in the Standard Monitoring Specifications in section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

6. The Discharger shall comply with all applicable Standard Monitoring Specifications and Response to a Release specifications listed in sections I and J of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

H. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP No. R5-201X-XXXX and the SPRRs dated January 2012 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.

2. The Discharger shall upload all necessary data and technical reports to the State Water Resources Control Board's Geotracker database in accordance with requirements for electronic submittal of information prescribed in California Code of Regulations, Title 23, Division 3, Chapter 30 and Title 27, Division 3, Subdivisions 1 and 2.

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 MRP No. R5-201X-XXXX, which is incorporated into and made part of this Order by reference.

5. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27, dated January 2012, which are attached hereto and made part of this Order by reference.

6. 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.

7. All reports required by this Order shall be submitted pursuant to Water Code section 13267.

8. The Discharger shall comply with all applicable General Provisions listed in section K of the SPRRs dated January 2012 which are part of this Order.

9. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

Task	Compliance Date
A. Facility Monitoring	
1. Submit a Water Quality Protection Standard Report for review and approval. (see Monitoring Specifications G.2 above).	**By 1 July 2014**
2. Submit a Sample Collection and Analysis Plan for review and approval. (see Monitoring Specification G.3 above).	**By 1 July 2014**
B. Financial Assurances	
1, Submit the initial financial assurance demonstration for closure, post-closure maintenance, and corrective action in the amounts of the approved cost estimates (see all Financial Assurance Specifications in section F above, and section H of the SPRRs).	**By 1 October 2014**
2. Submit the Annual Report calculating the inflation factor for the previous year and adjust the monetary amount of the financial assurances for closure, post-closure maintenance, and corrective action based upon the inflation factor. (see all Financial Assurance Specifications in section F above, and section H of the SPRRs).	**By 1 June annually**

C. Final Closure and Post-Closure Maintenance Plans

1. Submit a Final Closure and Post-Closure Maintenance Plan, design plans, specifications, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in section E above, and section G of the SPRRs).	**Two years prior to closure**

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 that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

_____
PAMELA C. CREEDON, Executive Officer

DPS