

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2009-XXXX  
WASTE DISCHARGE REQUIREMENTS  
FOR  
SIERRA PACIFIC INDUSTRIES—MARTELL DIVISION FACILITY  
CLOSURE, AND POST CLOSURE OPERATION AND  
MAINTENANCE  
AMADOR COUNTY

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

1. Sierra Pacific Industries—Martell Division (hereafter Discharger) owns, or owned, 242 acres of property that includes: a former lumber mill, wood manufacturing operations, a wood waste landfill, an unlined leachate basin, an ash disposal area, and undeveloped land located at the northwest corner of the intersection of Highway 49 and Highway 88 in the town of Martell. The property is located in the North half of Section 19, Township 6 North, Range 11 East Mount Diablo Baseline and Meridian (MDB&M). The facility location is shown on Attachment A, which is attached hereto and made part of this Order by reference.
2. The property was operated as a sawmill from 1941 to 1997. Between 1941 and 1987, the facility was owned and operated by American Forest Products Company, and the wood waste landfill was regulated under Waste Discharge Requirements (WDRs) Order No. 76 212. Georgia-Pacific Corporation purchased the property in 1987, and was regulated under WDRs Order No. 87-120 for the wood waste landfill. Georgia-Pacific informed the Central Valley Water Board in a 13 June 1997 letter that it had sold the property to the Discharger.
3. Presently, the facility consists of: an unlined wood waste landfill covering 25.5 acres, an unlined ash disposal area covering 5.3 acres, an unlined leachate collection basin covering approximately 2 acres, and surface water drainage courses, as shown on Attachment B, which is incorporated herein and made part of this Order by reference. The facility is comprised of Assessor's Parcel Nos. 44-010-123-00 and 44-010-125-00.
4. On 12 December 2008, the Discharger submitted a Report of Waste Discharge (ROWD) for the facility. The information in the ROWD and case file information have been used in writing these WDRs.
5. American Forest Products began lumber milling operations at the facility in 1941. Georgia-Pacific continued milling from 1987 through 1997. In 1972, when burning of excess wood waste was outlawed due to air pollution concerns, American Forest Products began its wood waste landfill operations by filling in a drainage swale with its wood waste. By 1976 American Forest Products was operating an on-site cogeneration facility that consumed most of the wood waste, but still discharged unsuitable wood waste to its wood waste landfill. In 1976, the Central Valley Water Board required American

Forest Products to submit a ROWD for the wood waste landfill and the Board adopted WDR Order 76-212. Subsequently, based on a ROWD submitted by American Forest Products on 24 March 1987, the Central Valley Water Board adopted WDR Order 87-120 that permitted disposal of wood waste into the originally permitted area, and the disposal of ash into cells at a higher elevation than cells containing wood waste.

6. In 1987, the wood waste landfill and the adjacent lumber operations were purchased by Georgia-Pacific from American Forest Products. In its 22 March 1993 Clean Closure Plan, Georgia-Pacific stated that it stopped accepting wood waste in 1987, and intended to clean close the wood waste landfill. Georgia-Pacific implemented clean closure of the wood waste landfill between 1993 and 1997. Subsequently, in March 1997 Georgia-Pacific notified the Central Valley Water Board that ownership had changed to the Discharger, Sierra Pacific Industries. On 1 October 1997, the Discharger submitted a ROWD for the facility. The Central Valley Water Board adopted WDRs Order No. 98-094 on 17 April 1998.
7. The Discharger ceased closure activities in 1997 to evaluate analytical results of samples collected from the ash disposal area.
8. In 2002, the Discharger restarted closure of the wood waste landfill. Between 2002 and 2008, the Discharger reported that it had clean closed 5.3 acres of the 27-acre wood waste landfill. The Discharger states that current closure operations include excavation, sorting, and recycling most of the material as useable products (mulch, cogeneration fuel, gravel, and rock products).
9. Title 27 of the California Code of Regulations (CCR; Title 27) defines leachate as any liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. It includes any constituents extracted from the waste and dissolved or suspended in the fluid. During the Discharger's clean closure operations, the working face of the wood waste landfill is open to the environment, and stormwater contacts and leaches through the wood waste. The resulting leachate discharges to an unlined basin. The Discharger has conducted water quality sampling of the leachate and liquids in the leachate basin and some constituents are in concentrations that potentially classify the material as a designated waste, as further described in findings 31 through 38. This Order prohibits designated waste in the unlined leachate basin after 9 October 2011.
10. As stipulated in this Order, the Discharger must complete the closure activities, corrective actions, and must submit reports according to this Order's sections titled "Construction Specifications," "Provisions," and "Time Schedule."

#### **SITE DESCRIPTION**

11. The facility is situated on fractured and weathered rocks of the Logtown Ridge geological formation in Martell, Amador County, California.

12. There are 21 municipal, domestic, industrial, or agricultural supply wells within one mile of the site, as stated in the Discharger's 10 December 2008 *Engineering and Feasibility Study*. A surface spring has been observed adjacent to the southeast side of the ash disposal area. The presence of a seep from the wood waste landfill was confirmed on 3 April 2009 by Amador County's local enforcement agency.
13. Annual average precipitation in the Martell area is approximately 29 inches per year, and the 100-year, 24-hour precipitation event is estimated to be 6.5 inches, as reported by the Discharger in its 12 December 2008 conceptual *Closure Plan—Ash Disposal Area*.
14. Land within 1,000 feet of the site is used for limited residential, agricultural, commercial, and industrial purposes.

### ASH DISPOSAL AREA

15. The ash disposal area, located northeast of the wood waste landfill and in the central area of the facility, was used as a disposal area for ash generated from Georgia-Pacific's Wellons boiler located at its on-site cogeneration plant, and from a suspension burner located within Sierra Pine Limited's particleboard plant. In Georgia-Pacific's 21 June 1990 Report of Disposal Site Information, it stated that ash from the Wellons boiler and the suspension burner was transported and deposited into a dedicated ash monofill consisting of three to five feet deep, 10 feet wide, and 50 feet long (2,500 cubic feet) adjacent piles, which were each covered with one foot of soil. In Table 1 of its Report of Disposal Site Information, Georgia-Pacific stated that the 1990 rate of ash discharge was 620 tons per year (1,000 cubic yards), and that after 1990 the rate was expected to drop to 25 tons per year. The Discharger stated in its 30 September 1997 Report of Waste Discharge that Georgia Pacific had stopped placing ash into the ash disposal area in 1990 when the Wellons boiler was converted to natural gas.
16. In association with the 1997 land transfer to the Discharger, three composite samples of the ash material were obtained at depths of one to ten feet below the top of the ash pile. The samples were analyzed for dioxins/furans and polynuclear aromatic hydrocarbons (PAHs). A weighted value, called a Toxicity Equivalence (TEQ), was calculated for each dioxin sample result. In order to calculate a TEQ, a toxic equivalent factor (TEF) is assigned to each member of the dioxin and dioxin-like compound. The TEF is the ratio of the toxicity of one of the compounds in this category to the toxicity of the two most toxic compounds in the category, which are each assigned a TEF of 1. The most toxic compounds are 2,3,7,8-tetrachlorodibenzo-p-dioxin and 1,2,3,7,8-pentachlorodibenzo-p-dioxin. TEFs that have been established through international agreements currently range from 1 to 0.0001. The TEQ of each sample is calculated by multiplying the actual weight of each dioxin and dioxin-like compound by its corresponding TEF and then summing the results to obtain the TEQ. In its 18 May 1999 Waste Characterization Report, the Discharger reported that dioxins/furans were detected in three ash samples at concentrations of 0.16, 0.28, and 0.4 ug/kg TEQ, each exceeding the EPA Regional Screening Levels (RSL) criteria of 0.018 ug/kg TEQ for industrial soils. In addition, all three ash samples contained concentrations of PAHs.

17. In March 2000, Central Valley Water Board staff reviewed the Discharger's first waste characterization report of the ash waste (submitted on 18 May 1999), determined it incomplete, and directed the Discharger to address staff's comments and resubmit a revised waste characterization report. The Discharger submitted the revised waste characterization report on 1 February 2008. The revised report stated that concentrations of dioxins were detected in all 11 samples of the ash material, all samples were above the RSL for industrial soils, and PAHs were reported in the ash material. The Discharger states that on 10 July 2000, they submitted a conceptual work plan for removal of ash from the ash disposal area. However, the ash was not removed and the ash disposal area is not closed.
18. Based on the analytical results presented in the Discharger's second waste characterization report, historical groundwater monitoring data, and the Discharger's *Evaluation Monitoring Program Report*, the Central Valley Water Board staff concluded that the ash material was appropriately classified as a designated waste. All samples of the ash material (from 1997 and from 2007) exceed the RSLs of 0.018 ug/kg TEQ for industrial soils. The TEQ concentrations in ash ranged from 0.044 to 0.683 ug/kg. Further, dioxins and inorganics in the ash material have impacted groundwater. Groundwater monitoring well B-5, located downgradient of the ash disposal area, has a TEQ concentration that exceeds the water quality objective of 0.27 picograms per liter (pg/l). The TEQ concentration was 0.746 pg/l in January 2007.
19. In its *Evaluation Monitoring Report*, the Discharger provided data that show groundwater downgradient of the ash disposal area has been impacted by elevated concentrations of calcium, magnesium, bicarbonate, and total dissolved solids. According to Section §13173 of the Porter-Cologne Water Quality Control Act and in Title 23 of the California Code of Regulations, Subchapter 15, Section 2522, a designated waste is defined as a "*Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.*" Based on the elevated groundwater analytical results for TEQ, calcium, magnesium, bicarbonate, and total dissolved solids (TDS) in groundwater downgradient of the ash disposal area, the ash disposal area has released TEQ and inorganic constituent concentrations to groundwater that exceed the water quality criteria. Therefore, the ash material is appropriately classified as a designated waste.
20. In 2007 at the request of Amador County's Local Enforcement Agency, portions of the ash disposal area were covered with soil obtained from an on-site borrow source located at the former cogeneration fuel stockpile area. The Discharger placed and compacted at least 1 foot of material along the southeast edge of the ash disposal area, and reseeded this soil to mitigate erosion.

21. This Order requires the Discharger to provide, and document, that a separation is maintained at all times between the bottom of the ash material and the high groundwater elevation.
22. On 12 December 2008, the Discharger submitted a conceptual closure plan for the ash disposal area. On 7 February 2009 the Discharger submitted additional draft engineering drawings. The closure plan includes capping the area with an engineered alternative; diverting, repairing, and upgrading the drainage courses; and installing interceptor drains to maintain the minimum clearance between the bottom of the waste and the top of the shallow groundwater. This Order requires that the Discharger submit a one hundred percent final closure plan, a construction quality assurance plan for closure, a final post-closure operation and maintenance plan for the ash disposal area, and a construction quality assurance report. These plans and reports must incorporate the closure requirements in Title 27 and this Order.
23. A natural surface water drainage course originated at the ash disposal area, and formerly discharged into the leachate basin. Sediment samples were obtained from this drainage course in November 2007. These samples had concentrations of dioxin/furans and PAHs. The Discharger proposed to leave the sediments in place, as presented in its 29 April 2009 Final Corrective Action Plan, but did not address the risk to human health and the environment in its proposal. Also, the Discharger's proposed plan to leave the sediments in place has not been reviewed by the California Department of Fish and Game (CDFG). This Order requires that the Discharger submit its proposed plan and analytical results to the CDFG. Upon the review of the proposed plan and analytical results by the CDFG, this Order requires that the Discharger submit and complete any site investigation and remediation work required by the CDFG. The Discharger must submit its plans and reports to the CDFG according to section **F., Provisions, time schedule**, of this Order..
24. A second unlined surface water drainage course adjoins the northern, eastern, and western edges of the ash disposal area. Surface water from this unlined ditch may be infiltrating into the ash disposal area. The Discharger reports that drainage from this course was rerouted to the south of the ash disposal area on 19 June 2009.
25. A spring is located adjacent to the southeastern edge of the ash disposal area. Water from this spring may be infiltrating into the ash disposal area.

#### **WOOD WASTE LANDFILL**

26. The wood waste landfill, located along the southern boundary of the site, was used by the former operators to dispose of wood waste, bark, and slash from the log decks that contained too much dirt and debris to be used as fuel in the on-site cogeneration plant. Additionally, wood waste generated off-site, consisting of pallets, scrap lumber, and residential yard waste, was accepted from the general public for disposal in the wood waste landfill.

27. After the Discharger restarted closure operations in 2002, the average rate of wood waste extraction and removal has been 53,800 cubic yards per year. In 2007 and 2008, the Discharger clean closed approximately 3.8 acres and 1.5 acres, respectively, and performed confirmation sampling and inspections to document that the wood waste was removed down to native soil. During 2008, approximately 25,109 tons of material was excavated and shipped off-site from the wood waste landfill.
28. The Discharger is presently performing clean closure of the wood waste landfill under WDR 98-094, the 22 March 1993 Clean Closure Plan, and the addendum to the 1993 Clean Closure Plan.
29. The Discharger submitted a second addendum to the 1993 clean closure plan on 30 April 2009.
30. The completion date for clean closure of the wood waste landfill must be as required in the time schedule of **Section F. Provisions** of this Order.
31. This Order requires that the Discharger submit its 2007 topographic map (obtained via aerial photogrammetry) of the site as a baseline for the volume of wood waste remaining at the site in 2007. The map must be stamped and signed by a California Licensed Land Surveyor or Civil Engineer licensed to perform land surveying. The topographic map must be submitted according to the time schedule of **Section F. Provisions** of this Order.

#### **UNLINED LEACHATE BASIN**

32. The leachate basin is located adjacent to the northwest toe of the wood waste landfill and downgradient of the ash disposal area. At its deepest point, the leachate basin is approximately 12 feet deep. Historically, but not currently, the Discharger pumped the leachate basin liquids to a Sierra Pacific Industries' subsidiary, Sierra Pine Limited.
33. A seep is located along the northwestern toe of the wood waste landfill and near groundwater monitoring well B-3.
34. Leachate from the wood waste landfill, run-off from the ash disposal area, and sediment from the ash disposal area have discharged into the leachate basin. The Discharger states that currently only leachate, seeps, and runoff from the wood waste landfill discharge into the leachate basin.
35. Groundwater monitoring well B-14, a Point of Compliance well for the leachate basin, is hydraulically downgradient of the leachate basin, and extends through the uppermost aquifer. Well B-14 may be in hydraulic communication with the leachate basin.
36. When rainwater contacts the open face of the wood waste landfill, a solution (leachate) is formed that contains soluble materials extracted from the wood waste. In June 2007, the leachate contained concentrations of arsenic (4.97 ug/l), and manganese (2,510 ug/l), well above the California Public Health Goal of 0.004 ug/l for arsenic and above the

California Secondary Maximum Contaminant Level (MCL) of 50 ug/l for manganese. In January 2008, samples from monitoring well B-14 contained concentrations of arsenic at 7.9 ug/l (an estimated concentration as reported by the laboratory) and manganese at 3,100 ug/l.

37. The liquids in the leachate basin may have impacted groundwater at the Point of Compliance, monitoring well B-14. Sampling results from well B-14 obtained on 23 January and 10 April 2008 demonstrate that the groundwater monitored by this well has been impacted, and the probable sources are the ash disposal area and the leachate basin. In particular, the following concentrations were reported for well B-14:
- a. **PAHs** are reported at the following concentrations, as detected above the laboratory method detection limit and below its practical quantitation limit:
    - i. Acenaphthene 0.0041 ug/l
    - ii. Acenaphthylene 0.010 ug/l
    - iii. Anthracene 0.077 ug/l
    - iv. Fluoranthene 0.017 ug/l
    - v. Fluorene 0.0061 ug/l
- These PAHs constituents are also components of the ash disposal area.
- b. **Manganese** concentration at well B-14 is reported at 3.1 milligrams per liter (mg/l). Manganese concentrations in water samples from the leachate basin were 2.51 mg/l. Both samples are above the California Secondary MCL of 0.050 mg/l. In addition, both samples are an order of magnitude above historical background concentrations, and may indicate hydraulic connectivity between the leachate basin and the B-14 aquifer.
  - c. **TDS** concentration from well B-14 is reported as 869 mg/l, above the California and USEPA Secondary MCL of 500 mg/l.
  - d. **Electrical Conductivity** at well B-14 is reported as 1,060 umhos/cm, above the Agricultural Water Quality goal of 700 umhos/cm.
  - e. **Iron** concentration at well B-14 is 9.5 mg/l, above the California Secondary MCL of 0.3 mg/l.
  - f. **Arsenic** concentration at well B-14 of 0.0079 mg/l, is similar to the leachate basin arsenic concentration of 0.00497 mg/l. Both levels exceed the California Public Health goal of  $4.1 \times 10^{-6}$  mg/l.
38. Sediment samples obtained on 29 November 2007, and analyzed for leachate extracted with a citrate buffer had concentrations of dioxin/furans ranging from  $2.9 \times 10^{-5}$  ug/l to 0.0023 ug/l, however the TEQ for TCDD was less than the water quality criteria of 0.000001 ug/l.

39. In its 30 April 2009 Final Corrective Action Plan, the Discharger compared the dioxin contaminant concentrations in the leachate basin sediments to several criteria. This Order requires that the Discharger submit its analytical results and its proposed plan to leave the leachate sediments in-place to the CDFG. If required by the CDFG, this Order will require that the Discharger provide site investigation and cleanup plans to the CDFG and the Regional Water Board. The Discharger must submit its analytical results, its proposed plan to leave the leachate sediments in-place, and any additionally CDFG-required plans and reports according to the time schedule in section **F., Provisions**, of this Order.

### **SURFACE WATER AND GROUNDWATER CONDITIONS**

40. The *Water Quality Control Plan for 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.
41. The facility lies at the head of the drainage basin to Rock Creek, a tributary of the Sacramento-San Joaquin Delta. Surface drainage from the wood waste landfill, the ash disposal area, and the leachate basin is toward Rock Creek. The beneficial uses for the Sacramento-San Joaquin Delta are municipal and domestic supply, agricultural supply, industrial process supply, hydropower generation, water contact recreation, non-contact water recreation, cold freshwater habitat, spawning, reproduction and/or early development, and wildlife habitat.
42. The first encountered groundwater ranges from 3 to 58 feet below the native ground surface, with the shallowest groundwater near the ash disposal area and the deepest first groundwater located to the southwest of the wood waste landfill. Groundwater elevations range from 1,344 to 1,522 feet above mean sea level (MSL). The depth to groundwater fluctuates seasonally as much as five feet.
43. According to the 2009 First Quarter Monitoring Report, the direction of shallow groundwater flow is generally to the southwest at an average gradient of 2.5 to 6.3 percent and a velocity of 155–380 feet per year. According to the October 1986 Initiation of Groundwater Monitoring Program, southeast of the landfill, the groundwater surface dips to the south at an average gradient of 9 percent and a southerly groundwater velocity ranging from 60–540 feet per year.

### **GROUNDWATER AND UNSATURATED ZONE MONITORING**

44. The groundwater monitoring system includes wells: B-1, B-2, B-3, B-5, B-6R, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, B-16, and LD-2A, as shown on Attachment B. In addition, groundwater elevations are monitored at five piezometers installed through the ash material at the ash disposal area.
45. The leachate basin may be in hydraulic communication with the uppermost shallow aquifer at monitoring well B-14, as described in finding 35.

46. The Discharger's detection monitoring systems at the ash disposal area, leachate basin, and wood waste landfill meet the requirements contained in Title 27.
47. There are no unsaturated zone monitoring wells at the facility. In April 2009, the Discharger installed five temporary piezometers at the ash disposal area to obtain and evaluate the depth to groundwater within the waste. This was done in order to design interceptor drains associated with closure of the ash disposal area. This Order requires the Discharger to design and install interceptor drains or other Central Valley Water Board-approved engineering mechanisms, and/or provide physical separation or removal of the waste material, in order to maintain separation between groundwater and the bottom of the waste.
48. Volatile organic compounds (VOCs), PAHs and dioxin/furans are organic waste constituents that may be detected in groundwater at this site. Since most of these organic compounds 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 evaluation of a release of wastes from the ash disposal area, wood waste landfill, and the leachate collection basin.
49. Title 27 Sections 20415(e)(8) and (9) provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with Title 27 Section 20415(b)(1)(B)2-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
50. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27 Section 20080(a)(1). Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify requirements to protect underground 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.
51. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.
52. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for evaluating if there has been a release of non-naturally occurring waste constituents from a 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), indicates that a release of waste from a Unit has occurred. Specifically and limited to dioxins and furans, the specified non-statistical method for evaluation of dioxin and furan monitoring data is the presence of two or more dioxin or furan constituents above its respective minimum level as described in EPA Method 1613B. Following an indication of a release, verification testing will be conducted to assess whether there has been a release from the Unit, or if there is a source of the detected constituents other than the landfill, or if the detection

was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, 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.

### **GROUNDWATER DEGRADATION AND CORRECTIVE ACTION**

53. Groundwater has been degraded by inorganic and organic waste constituents at this site, including elevated concentrations of TDS, arsenic, bicarbonate, calcium, chemical oxygen demand (COD), iron, manganese, magnesium, bicarbonate, tannins and lignins. Concentrations of PAHs and dioxin/furans have also been detected sporadically in groundwater.
54. The Discharger's Evaluation Monitoring Program report submitted on 2 June 2009 identified pollutant releases to groundwater from the ash disposal area, wood waste landfill, and leachate basin. The Central Valley Water Board has identified the following constituents as part of these releases:
  - a. Total dissolved solids,
  - b. Arsenic,
  - c. Calcium,
  - d. Manganese,
  - e. Magnesium,
  - f. Bicarbonate,
  - h. Tannins and lignins,
  - j. Chemical oxygen demand,
  - k. Electrical conductivity, and
  - m. Iron

### **WASTE CLASSIFICATION**

55. The material within the ash disposal area has been classified as a designated waste as described in findings 16 through 18.
56. The liquids in the leachate basin have been classified as a designated waste due to concentrations of arsenic, manganese, TDS, electrical conductivity, and iron detected in the leachate basin and in its Point of Compliance groundwater monitoring well B-14.
57. Because the ash disposal area, wood waste landfill, and leachate basin pose a significant threat to water quality, the Discharger must close these units in accordance with Title 27.

## PROPOSED CLOSURE OF ASH DISPOSAL AREA

58. The Discharger states that the unlined northern stormwater ditch on the northeastern and northwestern boundaries of the ash disposal area has been rerouted to prevent infiltration of surface water into the ash disposal area.
59. The Discharger proposes a detection monitoring network of piezometers and groundwater monitoring wells to be installed within and around the perimeter of the ash disposal area in order to monitor the effectiveness of the ash disposal area cover and to monitor the depth to groundwater beneath the landfill.
60. The Discharger states that the objectives of its proposed corrective action are to:
  - a. Isolate buried wastes,
  - b. Prevent accumulation of standing water,
  - c. Provide proper drainage to direct surface runoff away from the disposal area,
  - d. Limit surface water infiltration into the waste, and
  - e. Limit surface erosion of the waste due to rainfall or wind.

The Discharger's proposed corrective action method for the ash disposal area does not include groundwater containment or ex-situ water treatment.

61. The Discharger proposes deed restrictions at the ash disposal area property to preclude actions that would cause or contribute to negative water quality impacts.
62. On 12 December 2008, the Discharger submitted a conceptual *Closure Plan—Former Ash Disposal Area* requesting approval of an engineered alternative to the prescriptive standard requirements.

The Discharger's proposed engineered alternative for the top deck consists of, from the top down:

- a. 3 inches of asphalt;
- b. 1 foot of base rock;
- c. 10-ounce non-woven geotextile filter fabric or equivalent;
- d. A textured 50-mil linear low density polyethylene (LLDPE) Super Gripnet membrane liner with an integral drainage layer; and
- e. 2-foot compacted earth layer, with uppermost 6 inches screened to a 1-inch maximum particle size.

The Discharger's proposed engineered alternative for the side-slopes includes a vegetative cover with slopes not to exceed a 3:1 grade, consisting from top to bottom:

- a. Vegetative cover of native grasses seeded at a rate of 34.5 pounds per acre;
- b. 1-foot cover soil;
- c. 10-ounce non-woven geotextile filter fabric or equivalent;

- d. A textured 50-mil LLDPE Super Gripnet geomembrane liner with integral drainage layer, or equivalent; and
  - e. 2-foot compacted earth layer, with uppermost 6 inches screened to a 1-inch maximum particle size.
63. Section 20080(b) of Title 27 allows the Regional 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.
64. 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.
65. Section 13360(a)(1) of the California Water Code allows the Regional 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.
66. The Discharger proposes a cover system which will be designed, constructed, and operated to minimize the migration of stormwater through the waste in accordance with the criteria set forth in Title 27 for a Class II waste management unit.
67. The Discharger has adequately demonstrated that construction of the cover according to the prescriptive standard for Class II landfill, as described in Title 27 would be unreasonable and unnecessarily burdensome, when compared to the proposed engineered alternative design. The Discharger has demonstrated that the proposed engineered alternative is consistent with the performance goals of the containment structures for a Class II waste management unit, and affords equivalent protection against water quality impairment.
68. Construction must proceed only after all applicable construction quality assurance plans and final post-closure maintenance plans have been approved by the Executive Officer.

#### **DISCHARGER'S PROPOSED CLOSURE OF THE WOOD WASTE LANDFILL**

69. The ROWD from the Discharger has identified the continuation of the clean closure as the proposed corrective action for the wood waste landfill. This is consistent with the mandatory clean-closure per Title 27 section 21410(a)(1) and WDRs 98-094. The Discharger proposes multiple years of clean closure to excavate and process the

remaining wood waste and associated soils. Each year, prior to the rainy season an additional portion of landfill may or may not be verified clean closed.

70. The Discharger proposes for the wood waste now remaining in the landfill to be excavated and processed for reuse. At the end of each dry season, all or some of the area from which wood waste has been removed that year will be clean closed, graded and hydroseeded to prepare the surface for winter rains. Storm water that contacts the remaining wood waste area will be collected in unlined drainage ditches and routed to the unlined leachate basin. Storm water runoff from the clean closed area will be routed to a drainage ditch that traverses around the leachate basin and dischargers directly into the tributary to Rock Creek. Water collected in the leachate basin will be used for on-site dust control, in wood waste processing, and/or site irrigation. At the completion of clean closure of the wood waste landfill, the Discharger will sample and leave in place the leachate basin sediments, if appropriate, pending the Discharger's evaluation of and the Central Valley Water Board's concurrence with the sediment analytical results.

### **CEQA AND OTHER CONSIDERATIONS**

71. 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 Title 14, CCR, Section 15301.
72. Section 13267(b) of the California Water Code 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 domiciliary, or political agency or entity of this state who has 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. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”*
73. Technical reports required by this Order and the attached MRP are necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that discharges the waste subject to this Order.
74. 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 Title 27, effective 18 July 1997, and subsequent revisions;
- c. The attainment of water quality per State Water Board Resolution 92-49, the *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Section 13304 of the California Water Code*; and
- d. State Water Board Resolution 68-16, the *Policy with Respect to Maintaining High Quality Waters of the State*.

### PROCEDURAL REQUIREMENTS

- 75. All of the above and the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
- 76. 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.
- 77. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for post closure maintenance of the former surface impoundments, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
- 78. The Central Valley Water Board, in a public meeting, has heard and considered all comments pertaining to the discharge.
- 79. Any Person affected by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, CCR. The petition must be received by the State Water Resources Control Board at:

Office of Chief Counsel,  
P.O. Box 100  
Sacramento, California  
95812,

within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at [http://www.waterboards.ca.gov/water\\_laws/index.html](http://www.waterboards.ca.gov/water_laws/index.html) and will be provided on request.

**IT IS HEREBY ORDERED** that pursuant to Sections 13263 and 13267 of the California Water Code that Sierra Pacific Industries—Martel Division, their 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 transfer of liquids from the landfill leachate basin to Sierra Pine Limited is prohibited.
2. After 9 October 2011 designated waste in the leachate basin is prohibited. Designated waste in the leachate basin after 9 October 2011 may result in an enforcement action.
3. The discharge of designated waste to the wood waste landfill is prohibited.
4. The discharge of waste from the landfill leachate basin to surface water is prohibited.
5. The discharge of 'hazardous waste' at this facility is prohibited. The discharge of "designated waste" at this facility is prohibited, except as allowed by Section A.2, Prohibitions, of this Order. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Division 2 of Title 27 of the CCR.
6. The discharge of solid waste, leachate, or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited. Untreated leachate is allowed only at a location upstream of the Best Management Practices in the unlined drainage channel that discharges to the leachate basin.
7. The discharge of waste to the ash disposal area or wood waste landfill is prohibited.
8. The discharge of liquid or semi-solid wastes, or solid wastes containing free liquid or moisture in excess of the moisture holding capacity of the waste is prohibited.
9. The clean closure operation footprint at the wood waste landfill must not exceed seven acres during the yearly rainy season from 30 October to 15 April.

## B. DISCHARGE SPECIFICATIONS

1. The waste management units (wood waste landfill, ash disposal area, and leachate basin) shall be maintained to prevent inundation or washout due to flooding events with a 100-year return period.
2. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.
3. Annually, prior to **15 October**, any necessary erosion control measures shall be implemented. Any depressions, potholes, tire tracks, rills, or other blemishes in the wood waste landfill and ash disposal area covers that may retain water must be

repaired. If necessary, these area covers must be re-graded and the vegetation reestablished in order to shed storm water. Any other construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site.

### C. RECEIVING WATER LIMITATIONS

#### Water Quality Protection Standards

The concentrations of Constituents of Concern in waters passing through each unit's Point of Compliance shall not exceed the Concentration Limits established for each constituent of concern at each monitoring point (i.e., for each monitoring point/constituent of concern pair) pursuant to Monitoring and Reporting Program Order R5-2009-XXXX, which is attached to and made part of this Order by reference.

### D. FINANCIAL ASSURANCE

1. The Discharger shall demonstrate financial responsibility for initiating and completing corrective action of all known or reasonably foreseeable releases, and shall submit a report for financial assurances by **April 30th each year** to the Executive Officer for review and approval. The assurances of financial responsibility shall name the Central Valley Water Board as beneficiary and shall provide that funds for corrective action shall be made available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation as well as any changes in facility design, construction, or operation
2. The Discharger shall demonstrate financial responsibility for closure and post-closure maintenance, and shall submit a report of financial assurances by **April 30th each year** to the Executive Officer for review and approval. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. Financial assurance must also include provisions for the cost of closure in-place, as an option, as stated in **Section E.20 Construction Specifications**. The Discharger shall adjust the cost annually to account for inflation as well as any changes in facility design, construction, or operation.
3. The Discharger shall, by **30 April of each year**, submit for approval by the Executive Officer, plans with detailed cost estimates for corrective action for all known or reasonably foreseeable releases, closure, and post-closure maintenance of each waste management unit in accordance with its approved closure and post-closure maintenance plans. The cost estimate must include closure in place as an option as stated in Section E.20 Construction Specifications. The Discharger must

adjust the cost estimate annually to account for inflation as well as any changes in facility design, construction, or operation.

## **E. CONSTRUCTION SPECIFICATIONS**

### **Closure of the Ash Disposal Area**

1. **Prior to construction**, the Discharger must submit to the Central Valley Water Board staff for review and approval the 100 percent design plans and specifications for closure of the ash disposal area. Construction may proceed only after all applicable construction quality assurance plans have been approved. The 100 percent design plans and specifications must include the following:
  - a. A complete Construction Quality Assurance Plan meeting the requirements of Title 27 Section 20324; and
  - b. A Final Post-Closure Maintenance and Monitoring Plan meeting the requirements of Title 27.
2. An electronic leak detection test must be performed on the cover of the ash disposal area, and a report documenting the results must be submitted in the Discharger's Construction Quality Assurance Report.
3. A third party independent of both the Discharger and the construction contractor must perform all of the construction quality assurance monitoring and testing during the construction of any cover system.
4. The cover of the ash disposal area top deck must consist of from the top down:
  - a. 3 inches of asphalt;
  - b. 1 foot of base rock;
  - c. 10-ounce non-woven geotextile filter fabric or equivalent;
  - d. A textured 50-mil LLDPE Super Gripnet membrane liner with an integral drainage layer or equivalent; and
  - e. 2-foot compacted earth layer, with uppermost 6 inches screened to a 1-inch maximum particle size.
5. The ash disposal area side slopes must consist of from the top down:
  - a. Vegetative cover of native grasses seeded at a rate of 34.5 pounds per acre;
  - b. 1 foot of cover soil;
  - c. 10-ounce non-woven geotextile filter fabric or equivalent;
  - d. A texture 50 ml LLDPE Super Gripnet geomembrane liner with integral drainage layer or equivalent; and
  - e. 2-foot compacted earth layer, with uppermost 6 inches screened to a 1-inch maximum particle size.

6. The unlined surface water drainage channel on the north, east, and western boundaries of the ash disposal area must be lined and/or rerouted to prevent infiltration of surface water into the ash disposal area.
7. The Discharger must install and maintain a detection monitoring network of piezometers and groundwater monitoring wells within and around the perimeter of the ash disposal area in order to monitor the effectiveness of the cap and to monitor the depth to groundwater beneath the cap.
8. The groundwater elevation must be monitored and maintained to provide a separation between the bottom of the ash material and the high groundwater elevation. Maintaining this separation includes, but is not limited to, properly draining the spring located adjacent to the ash disposal area, controlling intrusion of surface water, controlling intrusion of groundwater into the ash disposal area, transferring the waste out of the groundwater intrusion zone, and/or other mechanical means to physically separate the waste from the groundwater.
9. In order to prevent infiltration of stormwater, the existing stormwater diversion ditch located to the north-northwest (up gradient) of the ash disposal area shall be backfilled and covered with the engineered cover described in **Section E.4, Construction Specifications**.
10. A new drainage system shall be installed to the east-southeast (down gradient) of the ash disposal area. This drainage shall receive the inflow from runoff entering from offsite, and shall be routed to the south of the ash disposal area.
11. A groundwater interception drains shall be installed around the northern, eastern, and southern boundaries of the ash disposal area, pending review and approval of the June 2010 report. The drain shall extend vertically to a depth that will drain groundwater below the level of the bottom of the waste.
12. Prior to construction, five piezometers shall be installed within the ash disposal area to monitor groundwater levels.
13. Storm water runoff from the asphalt surface of the cover described in **Section E.4, Construction Specifications** shall be routed to the southwest corner of the site. Storm water will enter a dissipation structure or sump before discharging through a flume downdrain into the remnant of the existing drainage ditch beginning at the southwest corner of the site, and will flow around (north) of the leachate basin.
14. The closure of the ash disposal area shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.
15. The Discharger must provide evidence of deed restrictions for the ash disposal area property to preclude actions that would cause or contribute to negative water quality impacts.

### **Closure of the Wood Waste Landfill and Leachate Basin**

16. The wood waste landfill and the leachate basin must be clean closed according to the time schedule in **Section F., Provisions** of this Order.
17. The Discharger must perform and submit the results of an initial survey that documents the remaining volume of wood waste in the wood waste landfill. Submittal of the initial survey results must be reported as shown in the time schedule of **Section F., Provisions** of this Order.
18. The Discharger must extract and transport off-site a minimum of 40,000-cubic yards of wood waste each calendar year. A three-year moving average of extraction and off-site transport of wood waste must be a minimum of 55,000 cubic yards per year.
19. Beginning in 2010, the Discharger must perform a topographic survey of the wood waste landfill every three years that documents the volume of wood waste remaining in the landfill. The 2007 topographic map may be used as a baseline. The topographic maps must be stamped and signed by a California licensed Land Surveyor or Civil Engineer licensed to perform land surveying.
20. At final closure of the wood waste landfill and leachate basin, all residual wastes, including liquids, sludge, 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 that the removal of all remaining contamination is infeasible, the wood waste landfill shall be closed as a landfill no later than 31 December 2020.
21. From 9 October 2009 to 9 October 2011, the total dissolved solids (TDS) in the leachate basin shall not exceed a monthly average of 650 mg/L, and no individual TDS sample shall exceed 750 mg/L, the monthly average for iron concentration shall not exceed 300 mg/L, and the monthly average for manganese concentration shall not exceed 50 mg/L. For field testing of the TDS, the conversion factor from EC to TDS must be submitted to and approved by the Regional Water Board. After 9 October 2011, the TDS must not exceed 500 mg/L or the background value as determined from monitoring well B-9, whichever is higher, and as approved by the Regional Water Board.
22. The closure of the wood waste landfill and leachate basin shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

23. A final verification of clean closure report for the wood waste landfill and the leachate basin must be submitted according to the time schedule in **Section F., Provisions** of this Order.

## **F. PROVISIONS**

1. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory personnel.
2. The Discharger shall comply with the Standard Provisions and Reporting Requirements, 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 WDRs.
3. The Discharger must comply with Monitoring and Reporting Program Order R5-2009-XXXX, 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 throughout the post-closure maintenance period. A violation of Monitoring and Reporting Program Order R5-2009-XXXX is a violation of these WDRs.
4. The Discharger has the continuing responsibility to assure protection of waters of the state from discharged wastes, seeps, gases, and leachate generated by discharged waste during the closure and postclosure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.
5. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.
6. The Discharger must comply with all local permitting requirements.
7. The Discharger must comply with all conditions of this Order including timely submittal of technical and monitoring reports as directed by the Central Valley Water Board's Executive Officer. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action, imposition of civil monetary liability, or revision or rescission of this Order.
8. 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 Unit, 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 Central Valley Water Board.
- e. 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.”*

- 9. In accordance with the California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain the professional's signature and stamp of the seal.
- 10. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name; the state of incorporation (if a corporation); the name, address, and telephone number of the persons responsible for contact with the Central Valley Water Board; and a signatory statement. The signatory statement shall comply with the signatory paragraph of the Standard Provisions, and shall state that the new owner or

operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

11. The Discharger shall complete the tasks contained in these WDRs in accordance with the following **Time Schedule**.

#### **TIME SCHEDULE**

- a. By **30 November 2009**, the Discharger must submit a water balance report that includes the wood waste landfill, the ash disposal area, and the leachate basin.
- b. By **30 March 2010**, the Discharger must submit to the CDFG and Regional Water Board its analytical results and plan to leave dioxin and PAH-impacted sediments in-place along the drainage channel to the leachate basin and within the leachate basin. Within 90-days of any directive from the CDFG to submit a site investigation work plan, report, remediation work plan, and remediation report, the Discharger must submit the required report(s) and plan(s) to the CDFG and the Regional Water Board.
- c. By **30 June 2010**, based on data obtained from the five piezometers installed into the ash disposal area, the Discharger must submit an evaluation of the causes and solutions for high groundwater levels beneath the ash disposal area. The evaluation must provide recommendations and a design basis for a system to lower and maintain groundwater levels beneath the ash disposal area, such that Discharger maintains a separation between groundwater and waste.
- d. By **30 November 2010**, the Discharger must submit a final construction design and Construction Quality Assurance/Quality Control Plan for the ash disposal area, and a final post-closure operation and maintenance plan for the ash disposal area.
- e. **In the annual 2010 monitoring report due by 31 January 2011**, the Discharger must submit a topographic survey that documents the volume of wood waste remaining in the wood waste landfill. The survey must be performed, signed, and stamped by a California licensed land surveyor. Thereafter, a topographic map documenting the volume of remaining wood waste must be submitted every third year in the annual monitoring report.
- f. By **31 December 2011**, the Discharger must submit a Construction Quality Assurance Report documenting completion of the Title 27 closure in place of the ash disposal area, including specified cover, drainage system, and monitoring wells for the ash disposal system.
- h. By **31 December 2014**, the Discharger must submit a report evaluating the effectiveness of the ash disposal area closure in achieving reduction of TDS, calcium, magnesium, and other constituent concentrations in groundwater. If the report demonstrates that closure has been effective in reducing

concentrations, and that water quality goals will be reached in a reasonable length of time, the Central Valley Water Board may revise or rescind WDRs for this site. Alternatively, if the report demonstrates that closure has not been effective, further corrective actions will be required.

- j. By **31 January 2022**, the Discharger must submit the Verification of Clean Closure Report for the wood waste landfill and the leachate basin.

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 8/9 October 2009.

---

PAMELA C. CREEDON, Executive Officer

Attachments:

Attachment A, Site Location Map

Attachment B, Facility Map and Features