

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2011-0710

FOR
SIERRA PACIFIC INDUSTRIES
MARTELL DIVISION
ASH DISPOSAL AREA WASTE MANAGEMENT UNIT
AMADOR COUNTY

This Order is issued to the Sierra Pacific Industries (hereafter Discharger or SPI) pursuant to California Water Code (CWC) section 13304, which authorizes the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board or Water Board) to issue a Cleanup and Abatement Order (Order or CAO) and CWC section 13267, which authorizes the Central Valley Water Board to require the submittal of technical and monitoring reports.

The Executive Officer of the Central Valley Water Board finds that:

1. The Discharger owns, or owned, 242 acres of property known as the Martell Division Facility that includes, in part, a five acre ash disposal area (ADA). The property is located at the northwest corner of the intersection of Highway 49 and Highway 88 in the town of Martell in the north half of Section 19, Township 6 North, Range 11 East Mount Diablo Baseline and Meridian (MDB&M).
2. The Discharger's waste management units on the property are regulated under Waste Discharge Requirements (WDRs) R5-2009-0110. The WDRs implement the prescriptive standards and performance goals of Title 27 of the California Code of Regulations.
3. This Order only pertains to one of the waste management units, the 5.3 acre Ash Disposal Area (ADA).
4. The material in the ADA came from a co-generation plant and a particle board plant. According to the WDRs, material was discharged into the ADA from approximately 1976 through 1990. The ash material contains dioxins, furans, inorganics, and polynucleated aromatic hydrocarbons (PAHs). The ADA has impacted the underlying groundwater with dioxins, calcium, magnesium, bicarbonate, and total dissolved solids. Based on analytical data, the 2009 WDRs classified the material within the ADA as designated waste.
5. Title 27 requires that units which hold designated waste be constructed with a bottom liner and be elevated at least five feet above the highest anticipated elevation of underlying ground water. However, because the ADA began accepting waste before Title 27 was enacted in 1984, it is not subject to these requirements. The ADA does not have a bottom liner and, at times, groundwater rises within the waste.

6. Section 200809d) of Title 27 states that “existing units” such as the ADA must be closed according to Title 27 regulations¹. In its 2008 and 2009 submittals, the Discharger proposed to construct a closure cap that is an engineered alternative to the prescriptive design contained in Title 27. The WDRs incorporate the conceptual design and require that the Discharger submit a final design for the ADA closure by 30 November 2010 and submit a Construction Quality Assurance Report by 31 December 2011. The 31 December 2011 report is to document that the ADA has been appropriately closed per the WDRs and Title 27.
7. Prior to the summer of 2011, the ash waste was contained in a 5.3 acre waste management unit with an interim cover consisting of up to 12 inches of soil and an erosion resistant layer of vegetation. The purpose of this interim cover was to protect the ash pile during rainstorms, and prevented any designated waste from commingling with storm water and running off the unit.
8. Prior to the summer of 2011, there were five piezometers within the ADA, which the WDRs require be monitored quarterly to determine the height of groundwater within the ash waste.

Meetings, Inspections, and Site Conditions Prior to Construction Work in Summer 2011

9. The WDRs classify the ash waste contained within the ADA as a designated waste subject to Title 27, and require that the Discharger close the unit in accordance with Title 27. Findings 58 through 68 of the WDRs describe how the ADA will be closed, based on the Discharger’s conceptual design. Specifications E.1 through E.15 contain the requirements for closure. Prior to any construction, the Discharger must submit 100% design plans for review and approval. The ADA must be closed with a specific type of cap, and drainage systems must be installed to ensure that groundwater does not rise within the waste².
10. The WDRs require that a Final Construction Design and Construction Quality Assurance Plan be submitted by 30 November 2010. As of the date of this Order, the Discharger has not submitted a document that complies with the WDRs.
11. In a 14 April 2011 meeting with Water Board staff, the Discharger discussed a new concept for closing the ADA. As verbally proposed by SPI, the new closure concept was intended to provide a separation between the ash and high groundwater, and included: removal of ash from the thalweg³ of the ADA; temporary storage of the removed ash on

¹ Section 20080(d) also states that if an existing unit is “reconstructed” then it becomes subject to all of the Title 27 regulations. This Order requires the Discharger to evaluate whether or not the 2011 construction activity constitutes reconstruction.

² Although the waste management unit is not subject to the five foot separation from groundwater found in Title 27, the WDRs require that the waste be above the highest level of groundwater.

³ The low point of the stream channel which was buried by the ash disposal area.

plastic; confirmation sampling along the thalweg; placing and compacting borrow source soil along the thalweg to provide separation of ash from groundwater; moving the stored ash onto the compacted soil; and then installing a final cover according to the WDRs specifications. During the meeting, Board staff verbally stated that this new concept might be acceptable, but that it would need to be reviewed as part of the closure plan. Board staff also questioned why the Discharger didn't propose to line the bottom of the unit after removing the ash; the Discharger responded that this concept would be discussed in the closure plan.

12. In a written 3 May 2011 summary of the 14 April 2011 meeting, Board staff stated that the final closure design for the ADA was 155 days late, and that the closure design must incorporate the requirements of the WDRs and Title 27. Staff reminded the Discharger that in order to minimize any potential civil liabilities, the closure design must be submitted immediately.
13. On 26 August 2011, the Discharger submitted a document titled *Revised Closure Plan and Post Closure Maintenance Plan* for the ash disposal area, which included a closure plan, a post-closure maintenance and monitoring plan, and a CQA plan. Board staff provided a written review of the documents in a 15 September 2011 letter. The review found that a number of items were missing, and the documents did not contain the information required by WDRs Construction Specifications E.1 through E.15.
14. In a 16 September 2011 phone call, an SPI representative stated that construction work was under way at the ADA, including excavating the ash, installing up to 12 feet of soil where ash was removed, and then replacing ash on top of the newly-installed soil. Water Board staff later learned that construction began in June 2011, but the Discharger did not notify the Board about the construction until three months later, during the phone call. In addition, SPI has not submitted any workplans or documents to describe the construction.
15. In a follow-up e-mail, Water Board staff reminded SPI that initiating closure activities prior to approval of the closure plans is a violation of the WDRs and that the most recently submitted closure plans were incomplete. Staff also asked the Discharger to describe how it would come into compliance in the shortest time possible. In response, SPI scheduled a meeting.
16. On 22 September 2011, Water Board staff performed a site inspection and observed that SPI had removed the interim cover, excavated some of the ash waste, and had piled that waste on other portions of the ADA. Staff also observed that fill material had been placed at the bottom of the ADA. Interim cover was not placed over the redistributed ash or any of the stockpiled ash.
17. In a 29 September 2011 meeting with Water Board staff, the Discharger described its recent construction work, which includes excavating 150,000 cubic yards of ash from the entire ADA (not just the thalweg); stockpiling ash within and outside the ADA; and installing backfill and ash material back into the excavation to raise the ash above groundwater. The Discharger stated that it may take eight to twelve weeks to raise the

ash out of the groundwater, and that work may stop if the rainy season starts early. Water Board staff noted that the WDRs do not contain any description of raising the ash out of the groundwater, and if the work was being completed to comply with the WDR requirement to lower groundwater below the level of the ash, then the Discharger should have submitted the Final Construction Design Plan with the description of this work, including confirmation sampling, as discussed during the 14 April 2011 meeting. The Discharger also submitted revised Construction Plans during the meeting. However, they do not contain a description of the activities underway to raise the ash, and therefore Water Board staff stated that it would not be possible to fully review and approve the document until they are amended to include information showing how the Discharger proposes to comply with WDR Specifications E.1 through E.15.

18. On 4 October 2011, Water Board staff called the Amador County Department of Environmental Health, and learned that on 4 July 2011, the Discharger submitted a request to abandon four piezometers associated with the ADA. The request was approved by the County. The Discharger did not notify the Water Board about its intent to remove these required monitoring points.
19. During a 5 October 2011 inspection, Water Board staff observed that the:
 - a. Interim cover had been completely removed from the entire waste management unit;
 - b. Piezometers had been removed;
 - c. Designated waste (ash) was stockpiled outside the designated area (the ADA) to the northeast of monitoring well B-16. The stockpile is approximately 40 feet high and occupies approximately one third of an acre. The type of surface underlying this stockpile is unknown. It is also unknown how or if the Discharger avoided tracking ash out of the ADA during the process of moving waste to this stockpile area.
 - d. Water was ponded at the base of ash stockpiles which were located within the ADA;
 - e. Storm water BMPs had been installed prior to the 1.4" of rain that fell on 4-5 October 2011. These BMPs appeared effective in preventing contaminated runoff from leaving both the ADA and unpermitted ash pile.
20. The Discharger has not submitted any workplan or other document to describe the recent construction activities. The Discharger is undertaking construction activities at its own risk and in violation of the WDRs because it has not yet submitted a complete Closure Plan for review and approval by Water Board staff. If the Discharger intends that this construction work will take the place of the groundwater drainage systems required by the WDRs, then it will need to show (i.e., through confirmation sampling) that all of the ash has been removed from the base of the ADA and that the imported fill is appropriate for its intended use. In addition, because the rainy season has already begun, the open excavation and ash stockpile discharged outside the permitted area have the potential to cause surface

water and groundwater impacts. This Order requires the Discharger to mitigate these potential impacts.

Requirements of the WDRs and Title 27

21. Provision F.11.d required that the final construction design, construction quality assurance plan, and final post closure maintenance plan be submitted by 30 November 2010. Provision F.11.f requires that a construction quality assurance report, documenting closure of the ADA, be submitted by 31 December 2011.
22. WDRs Specification E.1 states, in part: "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..."
23. Attachment B of the WDRs is a map showing the extent of each waste management unit, including the ADA, which is identified as the "interim covered former ash disposal area".
24. The WDRs include by reference the Standard Provisions, dated September 2003, with which the Discharger must comply. Standard Provisions Section XI.B.4. states in part, "The discharge shall remain within the designated disposal area at all times."
25. Prohibition A.5. of the WDRs states in part, "...The discharge of "designated waste" at this facility is prohibited, except as allowed by Section A.2, Prohibitions, of this Order.⁴..."
26. Prohibition A.6 of the WDRs states, in part: "The discharge of solid waste, leachate, or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited...."
27. Construction Specification E.7 of the WDRs states, "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." These piezometers are identified in the Monitoring and Reporting Program (MRP) as monitoring points P-1, P-2, P-3, P-4, and P-5. The MRP requires that they be sampled quarterly beginning in October 2009.
28. The Standard Provisions, Section B.1 Operations, requires that the Discharger maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
29. Title 27 §20705(b) states: "Standards for Daily and Intermediate (Interim) cover: Minimize Percolation — Interim cover over wastes discharged to a landfill shall be designed and

⁴ Section A.2 relates to the leachate basin and has no bearing on this CAO.

constructed to minimize percolation of liquids through wastes.”

30. Discharge Specification B.3 states, in part: “Annually, prior to 15 October, any necessary erosion control measures shall be implemented. Any depressions, pot holes, 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 covers must be re-graded and the vegetation reestablished in order to shed storm water...”
31. Title 27 §20210 states, in part: “Designated waste....shall be discharged only at Class I waste management units....or at Class II waste management units which comply with the applicable SWRCB-promulgated provisions of this subdivision and have been approved by the RWQCB for containment of the particular kind of waste to be discharged...”

Violations and Potential Violations of the WDRs and Title 27

32. As of 5 October 2011, Water Board staff have determined that the entire interim cover has been removed from the ADA, piezometers have been abandoned, rainwater is able to contact large surface areas of ash waste, storm water/leachate has ponded at the base of ash stockpiles, and designated waste has been moved to an area not authorized or designed for its containment.
33. The excavation of designated waste from a permitted unit and the stockpiling in an unpermitted area that is not designed for its containment is a violation of WDRs Prohibition A.5, Standard Provisions Section XI.B.4, and Title 27 §20210.
34. The ash stockpile, which is located in an unpermitted area, does not contain a Title 27 compliant liner, in violation of Section 20210 of Title 27. If groundwater is impacted, then the Discharger will have violated WDRs Prohibition A.6. If leachate is generated as a result of rains, then the Discharger also has the potential to violate WDRs Prohibition A.6.
35. The lack of interim cover on both the ADA and the unpermitted ash stockpile is a violation of Title 27 §20705(b) and WDR Discharge Specification B.3.
36. The removal of the piezometers is a violation of Standard Provisions Section B.1, the Monitoring and Reporting Program, and Construction Specification E.7.
37. The Discharger started construction before it submitted the final closure plan, and before Water Board staff approved the document. This action was a violation of WDRs Specification E.1.
38. The failure to submit the final closure plan by 30 November 2010 is a violation of WDRs Provision F.11.d.
39. The ponded storm water/leachate within the open excavation in the ADA is either currently in contact with groundwater or has the potential to contact groundwater, in violation of WDRs Prohibition A.6.

40. Although the 5 October 2011 inspection found that the storm water BMPs were sufficient to prevent the discharge of storm water/leachate to surface waters at that time, Board staff is concerned that if work continues during the rainy season, then ash will be tracked outside of the ADA and may be transported into the stream channel immediately downgradient of the ADA. If this occurs, then the Discharger will be in violation of Prohibition A.6 for a discharge to surface water.

Regulatory Considerations

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.

42. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board.

43. 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.

44. The beneficial uses of the underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

45. CWC section 13304(a) states, in part:

“Any person who has discharged or discharges waste into waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but limited to, overseeing cleanup and abatement efforts..”

46. Cleanup and abatement of the ADA and unpermitted designated waste disposal area is necessary to prevent the discharge of waste in a manner that causes or threatens to cause a condition of pollution or nuisance and to comply with the Waste Discharge Requirements and Title 27 of the California Code of Regulations.

47. Pursuant to CWC section 13304(c)(1), the Central Valley Regional Water Board is entitled to, and may seek reimbursement for, all reasonable costs it actually incurs to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abating the effects thereof, or taking other remedial action, required by this Order.
48. CWC section 13267(b)(1) states, in relevant part, that:
- “ ... the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste 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 report and the benefits to be obtained from the reports.”
49. The technical reports required by this Order are necessary to ensure compliance with this Order, the WDRs, and Title 27, and are necessary to protect the waters of the state. The Discharger named in this Order owns and operates the site from which waste was discharged, and thus is appropriately responsible for the reports.
50. Issuance of this Cleanup and Abatement Order to enforce CWC Division 7, Chapter 5.5 is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code §§ 21000 et seq.), in accordance with California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED THAT, pursuant to CWC sections 13267 and 13304, Sierra Pacific Industries shall complete the following actions to prevent the release of waste that contains pollutants that could enter the environment and affect the beneficial uses of waters of the state. The Discharger shall complete the following actions by the specified dates:

1. The Discharger shall immediately take all actions necessary to prevent the discharge of ash, or pollutants contained within the ash, into surface water, surface water drainage courses, or groundwater.
2. The Discharger shall submit weekly storm water inspection reports to the Board. The first report is due **24 October 2011** and is for the preceding week (**16-22 October**). These reports shall either be e-mailed to Mary Boyd (mboyd@waterboards.ca.gov) or faxed to 916-464-4676, attention Mary Boyd. The reports shall be submitted each week until 1 May 2012. Each report shall describe observations from routine weekly site inspection plus site inspections before and after each storm event. Each report shall include photographs of BMPs taken during the site inspections and describe the conditions of BMPs, any maintenance required, any BMP maintenance or new BMP installation performed since the last inspection report, any discharges to surface water, and the results of any storm water monitoring.

3. By **18 October 2011**, the Discharger shall submit a technical report documenting how it will prevent ash waste at the Martell Division Facility from impacting groundwater and surface water. In the technical report, the Discharger shall describe whether it elects to (i) stop construction work for the rainy season, or (ii) continue working through the rainy season. If the Discharger will stop work for the rainy season, the technical report shall contain the information described in Item 4. If the Discharger will continue closure work through the rainy season, then the technical report will contain the information described in Item 5.
4. If the Discharger chooses to stop work for the rainy season, the technical report required by Item 3 shall include:
 - a. A description of the actions that will be taken to comply with Item 1 until construction ceases for the winter.
 - b. A description of how the ADA and the ash stockpiles located outside the permitted ADA will be covered for the rainy season (interim cover).
 - c. A technical description of the material used for the interim cover.
 - d. A description of the sequence of how the interim cover will be placed, anchored, or keyed.
 - e. A map and description of the proposed extent of the interim cover.
 - f. A description of the methods for collection, removal, storage and disposal of any water and leachate which has ponded or collected within the ADA and the ash stockpiles outside the ADA.
 - g. A copy of the most recent SWPPP showing the storm water BMPs and associated monitoring that will be put into place to ensure that no storm water containing pollutants will leave the ADA or the ash stockpiles outside the permitted ADA.
 - h. A plan for site inspections and environmental monitoring to assess the effectiveness of BMPs, drainage controls, and interim cover at protecting surface and groundwater quality throughout the rainy season and to confirm cleanup of any areas where ash was removed.
5. If the Discharger chooses to continue working in the rainy season, then the technical report required by Item 3 shall include:
 - a. A description of the actions that will be immediately taken to comply with Item 1 until the other actions required under this task are implemented.
 - b. An acknowledgement that continuing the construction work is undertaken at SPI's own risk and in violation of Construction Specification E.1 of the WDRs because construction is taking place before "all applicable construction quality assurance plans have been approved."
 - c. A description of the work planned for the rainy season, how surface water and groundwater quality will be protected during this period, and whether full or partial clean closure of the ADA or any ash stockpile is anticipated.

- d. A description how the open face of the work area will be managed to reduce and/or eliminate the area of waste exposed to the environment.
 - e. A map and description showing the sequential progress of the working face, including any clean closure activities at any ash stockpiles.
 - f. Technical description of the material used for any interim cover and how it will be placed, anchored, or keyed.
 - g. A map and description of the aerial extent and placement of the interim cover.
 - h. A description of the methods for collection, removal, storage and disposal of any water and leachate which has ponded or collected within the ADA and the ash stockpiles outside the ADA.
 - i. A copy of the most recent SWPPP showing the storm water BMPs and associated monitoring that will be put into place to ensure that no storm water containing ash will leave the ADA or the ash stockpiles outside the permitted ADA.
 - j. A plan for site inspections and environmental monitoring to assess the effectiveness of BMPs, drainage controls, and interim cover at protecting surface and groundwater quality throughout the rainy season and to confirm cleanup of any areas where ash was removed.
6. By **7 November 2011**, the Discharger shall submit a technical report describing either (a) how it has implemented Item 4 or (b) the progress it has made toward implementing Item 5.
7. By **30 November 2011**, the Discharger shall submit the following technical report:
- a. The plans, drawings, and specifications which were used for bidding purposes to construct, reconstruct, redirect, and/or install drain pipe and drainage features at the ADA.
 - b. The plans, drawings, and specifications which were used to direct all activities related to excavation, stockpiling, and redistribution of ash, including grading the excavation and placing and compacting rock, borrow source material, and ash at back into the ADA.
 - c. A Piezometer Abandonment report documenting the abandonment of the piezometers at the ash disposal area. The report contents shall include the information in Attachment A.
8. Provision F.11.d of the WDRs required that a Final Construction Design and Construction Quality Assurance/Quality Control Plan (Final Closure Plan) be submitted by 30 November 2010. As described in the Findings, a final document has not yet been submitted. The Discharger must submit a Final Closure Plan⁵ containing the information required by the WDRs as well as that listed below:

⁵ This Order does not contain a due date for this technical report because the Final Closure Plan is already overdue per the WDRs. It is expected that the Discharger will submit this document forthwith.

- a. The information contained in Attachment B of this Order. If the Discharger intends that the excavation work will take the place of the groundwater drainage systems required by the WDRs, then the Final Closure Plan will need to show that all of the ash has been removed from the base of the ADA (i.e., through confirmation sampling) and that the imported fill is appropriate for its intended use.
 - b. A discussion of whether the summer 2011 construction activities meets the definition of "reconstruction" found in Section 20080(d) and 20164 of Title 27, and whether the unit is now subject to all Title 27 regulations, including the need for a bottom liner and five feet of separation between groundwater and waste.
9. By **31 December 2011**, the Discharger shall submit a *Piezometer Installation Work Plan* for the replacement of the piezometers that were removed from the ash disposal area. The plan shall contain the information listed in the first section of Attachment C and a proposed schedule for installation, not to extend beyond 30 June 2012.
10. By **31 December 2011**, the Discharger shall submit a work plan for clean closure of the ash stockpile in the unpermitted area. The work plan must include the following: (a) a characterization of the site conditions to define the extent, concentration, and character of any soil contamination; (b) a description of the excavation and material management procedures to be followed, including the method to completely remove waste and underlying contaminated soils or asphaltic materials; and (c) a Sample Collection and Laboratory Analysis Plan to be followed in order to verify that all contamination has been removed.
11. By **30 July 2012**, the Discharger shall submit a *Piezometer Installation Report of Results* that includes the information listed in the second section of Attachment C.

Reporting Requirements

12. The following signed certification must be included with all reports submitted pursuant to this Order:
- "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 knowledge and 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."*
13. In accordance with 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 for, 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/or stamp of the seal.

Notifications

14. The Central Valley Water Board reserves its right to take any enforcement action authorized by law. 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.
15. Requirements established pursuant to CWC sections 13267 and 13304 are enforceable when signed by the Executive Officer of the Water Board.
16. Pursuant to CWC section 13350, any person who violates a cleanup and abatement order issued by a regional board may be subject to administrative civil liability in an amount that shall not exceed five thousand dollars (\$5,000), but shall not be less than five hundred dollars (\$500), for each day in which the cleanup and abatement order is violated.
17. Pursuant to CWC section 13268, any person failing or refusing to furnish technical or monitoring program reports as required by CWC section 13267 or falsifying any information provided therein, is guilty of a misdemeanor, and may be subject to administrative civil liability in an amount that shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.
18. Any person aggrieved by this action of the Board may petition the State Water Board to review the action in accordance with CWC 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.

This Order is effective upon the date of signature.

Original signed by

PAMELA C. CREEDON, Executive Officer

11 October 2011

Date

Attachment A-Requirements for Piezometer Abandonment Reports
Attachment B-Required Contents for Ash Excavation Technical Report
Attachment C-Piezometer Installation Workplans and Piezometer Installation Reports

MLB/SER/WSW: 11-Oct-11

CLEANUP AND ABATEMENT ORDER R5-2011-0710
ATTACHMENT A
REQUIREMENTS FOR
PIEZOMETER ABANDONMENT REPORTS

After abandonment of any groundwater monitoring well and/or piezometer, the Discharger shall submit a report containing, at a minimum, the information listed in below. All reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

A. General Information

1. Purpose of the well/piezometer abandonment project.
2. Brief description of local geologic and hydrogeologic conditions.
3. Identification and number of monitoring wells/ piezometers abandoned.
4. Topographic map showing facility location, roads, and surface water bodies.
5. Scaled site map showing existing wells, newly abandoned wells, surface water bodies, and direction of groundwater flow.

B. Original Well Construction Details

1. Well/ piezometer numbers and dates installed.
2. Diagram with well/ piezometer construction details and copy of original boring logs.

C. Water Well Standards, Section 23

The California Department of Water Resources *Water Well Standards*, Section 23 is available at

http://www.water.ca.gov/groundwater/well_info_and_other/california_well_standards/www/www_combined_sec23.html

1. Results of investigation to determine the wells/ piezometers condition, construction details, and whether there are obstructions that will interfere with the process of filling and sealing, as required in Section 23 of the Water Well Standards.
2. Discussion of filling and sealing conditions, as required in Section 23 of the Water Well Standards.
3. A discussion of the abandonment and materials, including the distance between the top of the cement grout and the subgrade of the waste management unit.
4. Diagram with placement, distance between top of cement grout and bottom of subgrade elevation at the waste management unit, depths of placed materials, and types of material placed for abandonment.

D. County Requirements

1. Copy of the Discharger's application and county-issued permit.
2. Signed copy of County's observations during the abandonment.

E. Properties of Cement Grout

1. A discussion of the properties of the cement grout compared to the structural considerations of the overlying unit, as provided by a California registered structural engineer.

F. Procedure Used to Bring Abandoned Well to Grade

Technical and engineering procedures which were used to bring the abandoned well to grade during the construction work, including the results of inspections.

G. Table with Well Survey Data

1. Coordinate system, epochs, and northing, easting, and elevations
2. Date survey performed.



Matthew Rodriguez
Secretary for
Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
(916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>



Edmund G. Brown Jr.
Governor

CLEANUP AND ABATEMENT ORDER R5-2011-0710 -
Attachment B – Required Contents for Ash Excavation Technical Report

- 1. Site Information**
 - a. Street address or intersection, city, county, and parcel numbers
 - b. Waste Discharge Requirements Order No. associated with the site

- 2. Predesign Considerations**
 - a. Geology
 - b. Hydrogeology and Surface Water
 - i. Cross sections of the site with groundwater elevations, screen intervals, spring water elevations, lithology, waste management unit, and surface topography
 - ii. Discussion of hydraulic connection between waste management unit, groundwater, and surface water drainage channels.
 - iii. Groundwater flow rates, directions, recharge, discharge

- 3. Design**
 - a. Description of the engineering and hydrogeologic analysis used to select the design approach
 - b. Technical and Engineering Considerations
 - i. Technical rationale and justification for design of installed drainage elements.
 - ii. Calculations supporting the assumptions for volumes and flow rates (e.g., dimensions of excavation, waste volumes, backfill material volumes, groundwater and surface water infiltration rates [e.g., gallons per minute])
 - iii. Calculations for sizing the drainage pipes based on expected flow rates.
 - iv. Manufacturer's data sheets that show pipe perforation size and spacing will meet the expected flow rates.
 - v. Engineering and geotechnical properties and compaction characteristics of the borrow source material to support the calculated loads and to provide the required drainage and to prevent capillary action up into the ash waste.
 - vi. Calculations supporting the engineering properties, slope stability, and compaction characteristics of rock and borrow source material.
 - vii. All technical data used to develop the design or included in the contract documents, including the source of the data.
 - c. Verification and Confirmation Testing Plan
 - i. Field sampling and testing to verify and confirm that ash will be removed from the base of the ADA

- ii. Sampling and laboratory analysis verify and confirm that ash will be removed from the base of the ADA
- d. Geotechnical Testing Plan
 - i. Field sampling and geotechnical analysis that imported rock and borrow source material will be appropriate for the intended purpose.
- e. Design Drawings
 - i. A complete set of design drawings and details, including but not limited to a list of all drawings, site layout and boundaries, existing site conditions and utilities, demolition and excavation plan, excavation grading plan with cross sections, piping plan with sections and details, stockpile placement, material placement/backfill, waste placement/backfill, final grading plan with cross sections and details, and storm water best management practices.
- f. Specifications
 - i. A complete set of specifications for each aspect of work and material, including:
 - a) Size and material of perforated pipe, solid wall pipe, pipe access/cleanout ports to support the calculated volume and flow rate,
 - b) Filter fabric,
 - c) Engineering properties of borrow source material, including properties to support the load and to inhibit capillary action,
 - d) Geotechnical tests required for the rock and borrow source materials,
 - e) Geotechnical and laboratory analytical tests.
- g. CQA Plan
- h. Organization chart with CQA team, samplers, field CQC monitors, contractors, testing labs, and surveyor
- i. Health and safety concerns
- j. Schedule and weather concerns
- k. Cost estimate

4. Construction Report

- a. Complete set of as-built drawings
- b. CQA report
 - i. Field test results with map of test locations cross-referenced to test data
 - ii. Chemical analytical test results with map of sample locations cross-referenced to test data
 - iii. Geotechnical test results with map of test locations cross-referenced to test data.
- c. Discrepancies between the constructed work versus design drawings, design specifications
- d. Copies of all applications to the county for permits
- e. Copies of all county permits obtained as part of the work
- f. Copies of all Water Board staff approval/concurrence letters obtained as part of the work

**CLEANUP AND ABATEMENT ORDER R5-2011-0710
ATTACHMENT C
REQUIREMENTS FOR
PIEZOMETER INSTALLATION WORK PLAN AND
PIEZOMETER INSTALLATION REPORT OF RESULTS**

Prior to installation of any piezometer, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Piezometers may be installed after staff approves the workplan. Upon installation, the Discharger shall submit a piezometer installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 -Piezometer Installation Workplan

The piezometer installation workplan shall contain the following minimum information:

A. General Information

1. Purpose of the piezometer installation project,
2. Brief description of local geologic and hydrogeologic conditions,
3. Proposed piezometer locations and rationale for locations,
4. Topographic map showing facility location, roads, and surface water bodies,
5. Large scaled site map showing all existing on-site wells/piezometer, proposed wells/piezometer, abandoned wells/piezometers, surface drainage courses, surface water bodies, buildings, utilities, and major physical and man-made features.

B. Drilling Details

1. On-site supervision of drilling and piezometer installation activities,
2. Description of drilling equipment and techniques,
3. Equipment decontamination procedures,
4. Soil sampling intervals (if appropriate),
5. Logging methods, which shall comply with ASTM D2488-93 *Method for Visual Classification, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)* for field work.

C. Piezometer Design – Diagram and Narrative

1. Proposed piezometer construction details:
 - a. Borehole diameter,
 - b. Casing and screen material, diameter, and centralizer spacing (if needed),
 - c. Type of caps (bottom cap either screw on or secured with stainless steel screws),
 - d. Anticipated depth of piezometer, length of piezometer casing, and length and position of perforated interval,
 - e. Thickness, position and composition of surface seal, sanitary seal, and sand pack,
 - f. Anticipated screen slot size and filter pack.

D. Piezometer Development (at least 48 hours after sanitary seal placement)

1. Method of development to be used (i.e., surge, bail, pump, etc.),
2. Parameters to be monitored during development and record keeping technique,
3. Method of determining when development is complete,
4. Disposal of development water.

E. Piezometer Survey - Horizontal and Vertical Coordinates

1. Name of the Licensed Land Surveyor or Civil Engineer,
2. Datum for survey measurements,
3. List of piezometer features to be surveyed: top of casing, horizontal and vertical coordinates, etc.,
4. Accuracy: Horizontal within 0.1 foot and Vertical within 0.01-foot.

F. Water Level Measurement

1. The elevation reference point at each /piezometer must be within 0.01-foot,
2. Ground surface elevation at each piezometer must be within 0.01-foot,
3. Method and time of water level measurement must be specified.

G. Proposed Schedule for Completion of Work

SECTION 2 - Piezometer Installation Report

The piezometer installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:

1. Purpose of the piezometer installation project,
2. Brief description of local geologic and hydrogeologic conditions encountered during installation of the piezometers,
3. Number of piezometers installed, copies of applications to the county, and copies of County Well Construction Permits,
4. Topographic map showing facility location, roads, surface water bodies,
5. Scaled site map showing all existing wells and piezometers, historical wells and piezometer, abandoned wells and piezometer, newly installed wells and piezometers, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details – Narrative and Graphic

1. On-site supervision of drilling and piezometer installation activities,
2. Drilling contractor and driller's name,
3. Description of drilling equipment and techniques,
4. Equipment decontamination procedures,
5. Soil sampling intervals and logging methods,
6. Piezometer boring log:
 - a. Piezometer boring number and date drilled
 - b. Borehole diameter and total depth

- c. Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- d. Depth to first encountered groundwater and stabilized groundwater depth
- e. Detailed description of soils encountered, using ASTM D2488-93 *Method for Visual Classification, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for Field Work*.

C. Piezometer Construction Details – Diagram and Narrative

- 1. Piezometer construction details
 - a. Piezometer number, date started, date completed, geologist's name
 - b. Total depth drilled
 - c. Drilling Contractor and driller name and address
 - d. Depth of open hole (same as total depth drilled if no caving occurs)
 - e. Method and materials of grouting excess borehole
 - f. Footage of hole collapsed
 - g. Length of slotted casing installed
 - h. Depth of bottom of casing
 - i. Depth to top of sand pack
 - j. Thickness of sand pack
 - k. Depth to top of bentonite seal
 - l. Thickness of bentonite seal
 - m. Thickness of concrete grout
 - n. Boring diameter and casing diameter
 - o. Casing material
 - p. Size of perforations
 - q. Piezometer elevation at top of casing
 - r. Initial and stabilized depth to groundwater
 - s. Date of water level measurement
 - t. Piezometer number
 - u. Date drilled

E. Piezometer Development

- 1. Date(s) and method of development of each piezometer,
- 2. Method of development,
- 3. How the completion of piezometer development was determined,
- 4. Volume of water purged from piezometer and method of development water disposal,
- 5. Field notes from piezometer development.

F. Piezometer Survey (survey the top rim of the casing with the cap removed)

- 1. Coordinate system, epochs, bench marks, horizontal controls, accuracy, and precision,
- 2. Survey results of casing elevation with the cap removed (vertical to 1/100th foot),
- 3. California Registered Civil Engineer or Licensed Surveyor's report, field notes, and stamp/signature in an appendix,
- 4. Description of the measuring points (i.e. ground surface, top of casing, etc.),
- 5. Tabulated survey data with piezometer numbers and horizontal and vertical coordinates.