CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2009-0053

WASTE DISCHARGE REQUIREMENTS
FOR
SULARA ENTERPRISES, INC.
FOR
POST-CLOSURE MAINTENANCE OF DRILLING MUD DISPOSAL FACILITY
GLENN COUNTY

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

1. Waste Discharge Requirements (WDR) Order No. 98-162, issued to Valley Rock Products, Inc. and adopted by the Central Valley Water Board on 24 July 1998, prescribes requirements for closure and post-closure maintenance of a Drilling Mud Disposal Facility (Facility).

2. On 15 May 2003, Valley Rock Products, Inc. formed a new corporation, Sulara Enterprises, Inc., to manage the Facility. Sulara Enterprises, Inc. (hereafter Discharger) owns and operates the Facility on Assessor's Parcel No. 024-33-0-011. On 10 September 2004, the Central Valley Water Board adopted Order No. R5-2004-0127 amending WDR Order No. 98-162 to reflect the Facility ownership change.

3. The 33.59 acre Facility is located approximately one mile south of Orland, in Section 4, T21N, R3W, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order. Access to the site is from County Road J. Waste disposal activities occurred on approximately 8.4 acres of the Facility.

WASTE MANAGEMENT UNIT DESIGN, OPERATION, AND CLOSURE

4. The Discharger began operating the Drilling Mud Disposal Facility in 1970 and ceased accepting wastes in September 1991. The Facility initially consisted of one waste management unit (Unit), an unlined gravel pit that was used for disposal of drill cuttings and mud from gas well construction. A lined surface impoundment used to evaporate water that was pumped from the Unit was operated over two wet seasons. The Discharger ceased pumping water to the surface impoundment in 1994, and by 1997, the liner had disintegrated and was removed to allow for gravel extraction in the area. The drilling mud disposal Unit and the former surface impoundment area are shown on Attachment B, which is incorporated herein and made part of this Order.

5. Historic operations consisted of transporting drilling mud to the Facility and discharging the waste to the Unit. Drill cuttings were discharged to the east side of the Unit and then periodically pushed and graded inside of the Unit.

6. The Unit was excavated to an elevation of 206 feet above mean sea level (MSL) at the western side of the Facility tapering to an elevation of 220 feet MSL along the eastern side of the Facility. Groundwater elevations fluctuate between 204 and 219 feet MSL. A significant portion of the waste at the bottom of the Unit is in contact with groundwater during high groundwater periods. Wastes at the lowest elevations of the Unit are in continuous contact with groundwater. The waste is estimated to be 22 feet thick at the west end of the Unit and five to 12 feet thick along the eastern side of the Unit.

7. In 1997, review of groundwater monitoring data identified elevated concentrations of Total Dissolved Solids (TDS), Sodium, Chloride, and Sulfate. In response, WDR Order No. 98-162 and Cease and Desist Order No. 99-117 were issued requiring submittal and implementation of Evaluation Monitoring and Corrective Action Monitoring Programs.

8. In 2001, corrective action measures were implemented and the Facility underwent final closure. Final closure was accomplished by consolidating drilling mud waste from the east half of the Unit into the west half of the Unit, construction of an engineered soil embankment along the east side of the Unit to buttress wastes, and construction of a final cover system over the waste. The final cover system consisted of a two-foot thick foundation layer of drilling mud, overlain by a low-permeability layer (1×10^{-6} cm/sec) composed of imported clay, overlain by a one-foot thick vegetative layer. A drainage ditch was also constructed around the perimeter of the Unit to convey storm water away from the Unit.

9. On 24 June 2005, the Central Valley Water Board rescinded Cease and Desist Order No. 99-117. These revised WDRs implement applicable provisions of Title 27 and prescribe requirements for post-closure maintenance of the Facility.

WASTE CHARACTERISTICS AND CLASSIFICATION

10. In 1990, the Discharger estimated that approximately 148,000 cubic yards of waste had been disposed in the Unit. This waste was originally classified as “inert waste” based on data from the 1988 Report of Waste Discharge. However, waste disposal activities caused a release of pollutants in excess of applicable Water Quality Objectives, and the in-place drilling mud waste was reclassified as designated waste in former WDR Order No. 97-032.

11. “Designated waste” is defined in California Water Code, §13173, as a nonhazardous waste that consists of, or contains pollutants which, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality standards, or which could cause degradation of waters of the state.

SITE DESCRIPTION

12. Two significant geologic units underlie the Facility. Pleistocene to recent age alluvium of the Stony Creek fan occurs from the surface down to between 40 and 125 feet below ground surface (bgs). These gravely, sandy loam soils immediately underlying the Unit

are highly permeable. Underlying the Stony Creek alluvial fan is Pliocene to Pleistocene age Tehama Formation. Beneath the Tehama Formation, at depths of several hundred feet, are marine sedimentary deposits.

13. While not expressed at the surface, the closest Holocene fault to the Facility is the Corning Fault. This fault, a groundwater barrier, underlies Orland. It trends north-to-south, dips steeply east, and displaces the Tehama Formation at about 1,000 feet below grade surface. Recently measured, likely related earthquakes (January 2009) are about 2 on the Richter Scale. The nearest Holocene fault with surface expression is the Bartlett Springs Fault, which lies about 50 miles southwest of Orland. Current satellite data indicate a slip rate of about eight millimeters/year. This fault, part of the San Andreas Fault system, has a maximum credible earthquake >7 on the Richter Scale.

14. Land uses surrounding the facility are zoned for agriculture to the north and west, agriculture and industrial to the east, and industrial to the south.

15. The facility receives an average of approximately 19 inches of precipitation per year as measured at the Orland Station. The mean evaporation is 85 inches per year as measured at the Orland Station.

16. The 100-year, 24-hour precipitation event is estimated to be 4.54 inches as reported in Department of Water Resources Bulletin No. 195, “Rainfall Analysis for Drainage Design, Vol. II”, October 1976.

17. The waste management facility is not located within the 100-year flood plain, but is within Flood Zone C designation, based on the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Map, Community-Panel Number 0600570375B.

SURFACE WATER AND GROUNDWATER CONDITIONS

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

19. Surface drainage is toward the southeast in unnamed channels and waterways that are tributary to the Sacramento River approximately 11 miles away in the Orland Hydrologic Subarea (520.22) of the Sacramento Hydrologic Basin.

20. The designated beneficial uses of the Sacramento River apply to its tributaries, including the unnamed channels and waterways southeast of the Facility. The beneficial uses of the Sacramento River, as specified in the Basin Plan, are municipal and domestic supply, agricultural supply, industrial service and process supply, water contact and non-contact water recreation, warm and cold fresh water habitat, preservation of rare, threatened and endangered species, and groundwater recharge.

21. The first encountered groundwater is generally about 22 feet below the native ground surface in the vicinity of the Unit. Groundwater elevations range from approximately 204 feet MSL to 225 feet MSL.

22. Monitoring data indicates background groundwater quality has an electrical conductivity (EC) ranging between 403 and 1304 micromhos/cm, with total dissolved solids (TDS) ranging between 211and 520 mg/l.

23. The direction of groundwater flow is generally toward the southeast. The groundwater gradient on 18 June 2008 was 0.0039 feet per foot.

24. A private domestic water supply well services an occupied residence just north of the landfill Unit.

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

GROUNDWATER MONITORING

26. Five wells (MW-1, MW-2, MW-3, MW-4, and MW-10) make up the current groundwater monitoring system. Seven other monitoring wells (MW-1A, MW-3A, MW-5, MW-6, MW-7, MW-8, and MW-9) have been used in the past to assess groundwater quality, but these wells are no longer in use. Monitoring wells MW-5, MW-6, MW-7, and MW-8 were installed in 1989 as part of a groundwater evaluation study. At the time of installation, these wells were at the edge of the drilling mud. Data from these wells were inconclusive, so monitoring of these wells ceased. In 1999, as part of a corrective action evaluation, a piezometer was installed through the drilling mud in the central portion of the Unit and was designated MW-9. MW-9 was monitored for a short time, showing groundwater levels below the bottom of the drilling mud waste, and monitoring of this well was soon discontinued. Monitoring wells MW-5 and MW-9 were destroyed during Facility closure activities in 2001. Wells MW-6, MW-7, and MW-8 were completely removed in 2001-2002 as gravel was mined east of the consolidated closed Unit. Wells MW-1A and MW-3A were previously monitored because the Discharger suspected that some of the site wells had been tampered with. Well MW-10 was installed in 2000 approximately ½ mile hydraulically downgradient of the Facility because groundwater modeling estimated that the leading edge of a salt plume may have moved that far off-site. The Discharger's consultant suggests that MW-10 is no longer needed for groundwater monitoring at the Facility due to "its considerable distance from the closed disposal cell, its proximity to a dairy, and seven years of consistent, generally improving water-quality data".

27. These revised WDRs will require proper abandonment of wells MW-1A, MW-3A, and MW-10 under permit from Glenn County.

28. The disposal Unit at the Facility is unlined and there is no unsaturated zone monitoring system present.

29. The Discharger's detection monitoring program for groundwater at the Unit satisfies the requirements contained in Title 27.

GROUNDWATER DEGRADATION

30. Review of groundwater monitoring data in 1997 found elevated concentrations of TDS, Sodium, Chloride, and Sulfate. WDR Order No. 98-162 reclassified the drilling mud waste from inert to designated (See Findings 7, 10, and 11 above). Statistical evaluation of groundwater monitoring data for the entire period of record finds concentrations of most constituents decreasing in downgradient wells since monitoring began. The downward trend began once disposal of drilling mud ceased in the early 1990s. Notable exceptions to the general downward trend are increasing trends for pH and Electrical Conductivity in downgradient well MW-4. Overall, statistical trends in downgradient wells indicate that water quality at the Facility has improved since monitoring began.

31. Statistical trends for the post-closure period since 2001 indicate that groundwater quality at the Facility has stabilized, with the exception of Alkalinity. Alkalinity shows increasing trends both up gradient and downgradient of the Facility, which is likely unrelated to disposal activities.

32. Site closure, the Discharger's preferred remedial alternative in response to elevated salinity in groundwater at the Facility, appears to have improved water quality since the post-closure maintenance period began in 2001. Therefore, these revised WDRs shall effectively end the Evaluation Monitoring and Corrective Action Monitoring Programs required by WDR Order No. 98-162, and instead require compliance with the groundwater Detection Monitoring Program requirements of 27 CCR.

FINANCIAL ASSURANCES

33. In July 2004, the Discharger submitted cost estimates in the amount of $184,814.00 for the remaining 28 years of post-closure maintenance of the Unit. The post-closure maintenance cost estimate includes specific activities related to repair and potential corrective action at the Unit. Therefore, separate cost estimates and a demonstration of adequate financial resources for completing corrective action are not currently required.

34. On 13 January 2005, the Discharger submitted an Irrevocable Letter of Credit in the amount of $184,814.00 for post-closure maintenance of the Unit. This amount has not been updated for inflation, so these WDRs require amending the post-closure maintenance cost estimates to reflect inflation since 2005 and submittal of an annual report calculating the increase in the cost estimates for post-closure maintenance due to the inflation factor calculation for the previous calendar year. The Discharger is required to increase the monetary amount of the financial mechanism for post-closure maintenance each year based on the annual inflation factor calculation.

CEQA AND OTHER CONSIDERATIONS

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

36. Effective 18 July 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR) and the solid waste regulations formerly in Title 14, CCR, were consolidated into Chapters 1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27 or 27 CCR).

37. This Order implements:

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

    b. The prescriptive standards and performance goals of Title 27, California Code of Regulations, effective 18 July 1997, and subsequent revisions.

PROCEDURAL REQUIREMENTS

38. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of the Facility for the discharge of waste to land stated herein.

39. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe revised waste discharge requirements for this Facility, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

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

41. 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, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date that the Order is adopted. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/laws_regulations/ and will be provided on request.

IT IS HEREBY ORDERED that WDR Order No. 98-162 is rescinded, and that Sulara Enterprises, Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any liquid, solid, designated, or hazardous waste at this facility is prohibited. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Division 2 of Title 27.

2. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.

3. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.

4. Allowing surface water or precipitation to pond over buried waste within the Unit is prohibited.

B. FACILITY SPECIFICATIONS

1. Wastes from the Facility shall not cause pollution or a nuisance as defined in California Water Code, Section 13050.

2. Wastes from this Facility shall not cause degradation of any water supply.

3. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements. Any repairs to such structures shall be completed **by 31 October of each year**. Descriptions of any necessary repairs or Facility maintenance shall be included with each Annual Monitoring Summary Report, in accordance with Monitoring and Reporting Program No. R5-2009-0053.

4. The Discharger shall complete proper destruction of wells MW-1A, MW-3A, and MW-10 under permit of Glenn County **before 31 December 2009**. A work plan describing the proposed well destruction procedures shall be submitted to the Executive Officer for review and approval at least 30 days prior to commencing well destruction activities. A description of the well destruction activities shall be included with the 2009 Annual Monitoring Summary Report, required pursuant to Monitoring and Reporting Program No. R5-2009-0053.

5. Repairs to the low-hydraulic conductivity layer of the final cover system over the Unit shall be carried out in accordance with an approved construction quality assurance (CQA) plan [27 CCR §21090(b)(1)(E)].

6. The post-closure monitoring period shall continue until the Central Valley Water Board determines that wastes remaining in the Unit no longer pose a threat to water quality [27 CCR §20950(a)(1)].

7. Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover system as necessary and correct the effects of settlement and other adverse factors that may occur, maintain all monitoring systems, and prevent erosion and off-site discharges of sediment.

8. **By 1 July 2009**, the Discharger shall provide proof to Central Valley Water Board staff that the deed to the Drilling Mud Disposal Facility property, or some other instrument that is normally examined during title searches, has been modified to include, in perpetuity, a notation to any potential purchasers of the property stating that:

   a. The parcel has been used for disposal of drilling mud waste; and

   b. Land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the Post-Closure Maintenance Plan and in these WDRs for the Facility.

Protection From Storm Events

9. The Unit shall be maintained to prevent inundation or washout due to flooding events with a 100-year return period. Precipitation and drainage control systems shall be maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

10. Internal site drainage from surface or subsurface sources shall not contact or be allowed to percolate through the Unit. Precipitation and storm water shall not be allowed to pond over the Unit. Surface and subsurface drainage from outside of the Facility shall be diverted from the Unit [27 CCR §20365(e)].

11. The Discharger shall immediately notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste containment facilities or precipitation and drainage control structures.

12. **Annually, prior to the anticipated rainy season and no later than 31 October of each year**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the Facility. Descriptions of any necessary repairs or Facility maintenance shall be included with each Annual Monitoring Summary Report, in accordance with Monitoring and Reporting Program No. R5-2009-0053.

C. FINANCIAL ASSURANCES

1. The Discharger shall maintain financial assurances demonstrating financial responsibility for post-closure maintenance at the Facility. The assurances of financial responsibility shall name the Central Valley Water Board as beneficiary and shall provide that funds for post-closure maintenance shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5.

2. The Discharger shall submit for Executive Officer review and approval **by 1 June of each year**, a report calculating the increase in the cost estimates for corrective action and post-closure maintenance due to the inflation factor for the previous calendar year, in accordance with Title 27, Section 22236. The Discharger shall increase the monetary amounts of the financial mechanism(s) required by Title 27 based upon the inflation factor calculation **by 1 October annually**. Each Annual Monitoring Summary Report required by Monitoring and Reporting Program No. R5-2009-0053 shall include a discussion of the adequacy of the financial assurance mechanisms and provide proof that the financial assurance mechanism(s) have been increased in accordance with the annual inflation factor calculation.

D. MONITORING SPECIFICATIONS

1. The Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern (COC) and for each monitoring parameter [Title 27 §20420(c)].

2. The Discharger shall submit **by 1 July 2009**, for review and approval, a Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:

   a. Information regarding the competency and training of staff or personnel responsible for performing sampling activities

   b. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;

   c. Sample preservation information and shipment procedures;

   d. Sample analytical methods and procedures;

   e. Sample quality assurance/quality control (QA/QC) procedures; and

   f. Chain of Custody control.

3. The Discharger shall submit **by 1 July 2009** an updated Water Quality Protection Standard Report that also proposes a data analysis method and includes a detailed description of the criteria to be used for determining “measurably significant” evidence of a release from the Unit and for determining compliance

with the Water Quality Protection Standard [Title 27 §20415(e)(6) and (7)]. The Water Quality Protection Standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The Water Quality Protection Standard shall apply for the duration of the remaining post-closure maintenance period, and any compliance period under Title 27 §20410 [Title 27 §20390].

4. The Discharger shall comply with the Water Quality Protection Standard, once it is approved by the Executive Officer. The concentrations of the constituents of concern (COC) in waters passing the Point of Compliance shall not exceed the concentration limits established in the Water Quality Protection Standard.

5. Once a data analysis method is approved, the Discharger shall use it after each sampling event required pursuant to Monitoring and Reporting Program No. R5-2009-0053, to evaluate the monitoring data and determine if there is "measurably significant" evidence of a release from the Unit.

6. If the data analysis method described above indicates that a release from the Unit has tentatively been identified, then the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, Sections 20415(e)(8)(E) and 20420(j)(2).

7. **Verification procedure/retest option** - If the Discharger determines that there is preliminary indication of a release, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within seven days of such indication, shall collect at least one new (retest) sample from the monitoring point where the release is preliminarily indicated. Written notification shall be provided to Central Valley Water Board staff by certified mail within seven days of the determination.

8. If, after completing the verification procedure above, the Discharger determines that there is measurably significant or physical evidence of a release from the Unit at any monitoring point, then the Discharger shall comply with requirements of Title 27, Section 20420(k) "Responding to a Release" and immediately implement the following actions:

9. **Physical Evidence of a Release** – If the Discharger determines that there is physical evidence of a release, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail of such a determination. Written notification shall be provided to Central Valley Water Board staff by certified mail within seven days of the determination.

10. **Release has been verified** – If the release verification was made based upon sampling and analysis for the monitoring parameters (or COC) required by Monitoring and Reporting Program No. R5-2009-0053, then the Discharger shall immediately sample all monitoring points in the affected medium at the Unit and determine the concentration of all COC.

11. Within 90 days of verifying measurably significant or physical evidence of a release, the Discharger shall provide an Amended Report of Waste Discharge to make appropriate changes to the detection monitoring program.

12. If the Discharger determines that there is measurably significant evidence of a release from the Unit, then the Discharger may demonstrate that a source other than the Unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in the groundwater, in accordance with Title 27, Section 20420(k)(7).

E. PROVISIONS

1. The Discharger shall comply with Monitoring and Reporting Program No. R5-2009-0053 (MRP), which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities, precipitation and drainage controls, and all monitoring equipment. The MRP also requires groundwater monitoring and documentation of regularly scheduled Standard Observations throughout the remaining post-closure maintenance period. A violation of Monitoring and Reporting Program No. R5-2009-0053 is a violation of these waste discharge requirements.

2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.

3. All reports and transmittal letters shall be signed by persons identified below and include the signatory statement of Provision E.3.e 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; or

   d. A duly authorized representative of a person designated in a, b or c above if;

      1) The authorization is made in writing by a person described in a, b, or c of this provision;

2) 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

3) The written authorization is submitted to the Central Valley Water Board.

e. Any person signing a document in accordance with this Provision 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."

4. Failure to comply with any Waste Discharge Requirement, Monitoring and Reporting Program requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Resources Control Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of these Waste Discharge Requirements and the California Water Code, which can result in the imposition of civil monetary liability [CWC §13350(a)].

5. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [CWC §13381]:

a) Violation of any term or condition contained in this Order;

b) Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

c) A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

d) A material change in the character, location, or volume of discharge.

6. Representatives of the Central Valley Water Board may inspect the Facility to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the Facility or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting public health or safety, an inspection may be made without consent or the issuance of a warrant [CWC §13267(c)].

7. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within 14 days of assuming ownership or operation of this Facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in Provision E.3 above and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

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

9. Technical and monitoring reports required for compliance with this Order are requested pursuant to California Water Code (CWC), Section 13267(b). Failure to furnish reports by specified deadlines or falsifying information in the reports are misdemeanors that may be liable civilly in accordance with Section 13268(b) of the California Water Code [CWC §13268(a)].

10. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. R5-2009-0053 in accordance with the following time schedule:

Task	Compliance Date
a. Complete proper destruction of monitoring wells MW-1A, MW-3A, and MW-10. (See Facility Specification B.4).	**By 31 December 2009**
b. Provide proof of deed notation and land use restriction. (See Facility Specification B.8).	**By 1 July 2009**
c. Submit a Sample Collection and Analysis Plan. (See Monitoring Specification D.2).	**By 1 July 2009**
d. Provide an updated Water Quality Protection Standard Report with proposed data analysis method. (See Monitoring Specification D.3).	**By 1 July 2009**

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 24 April 2009.

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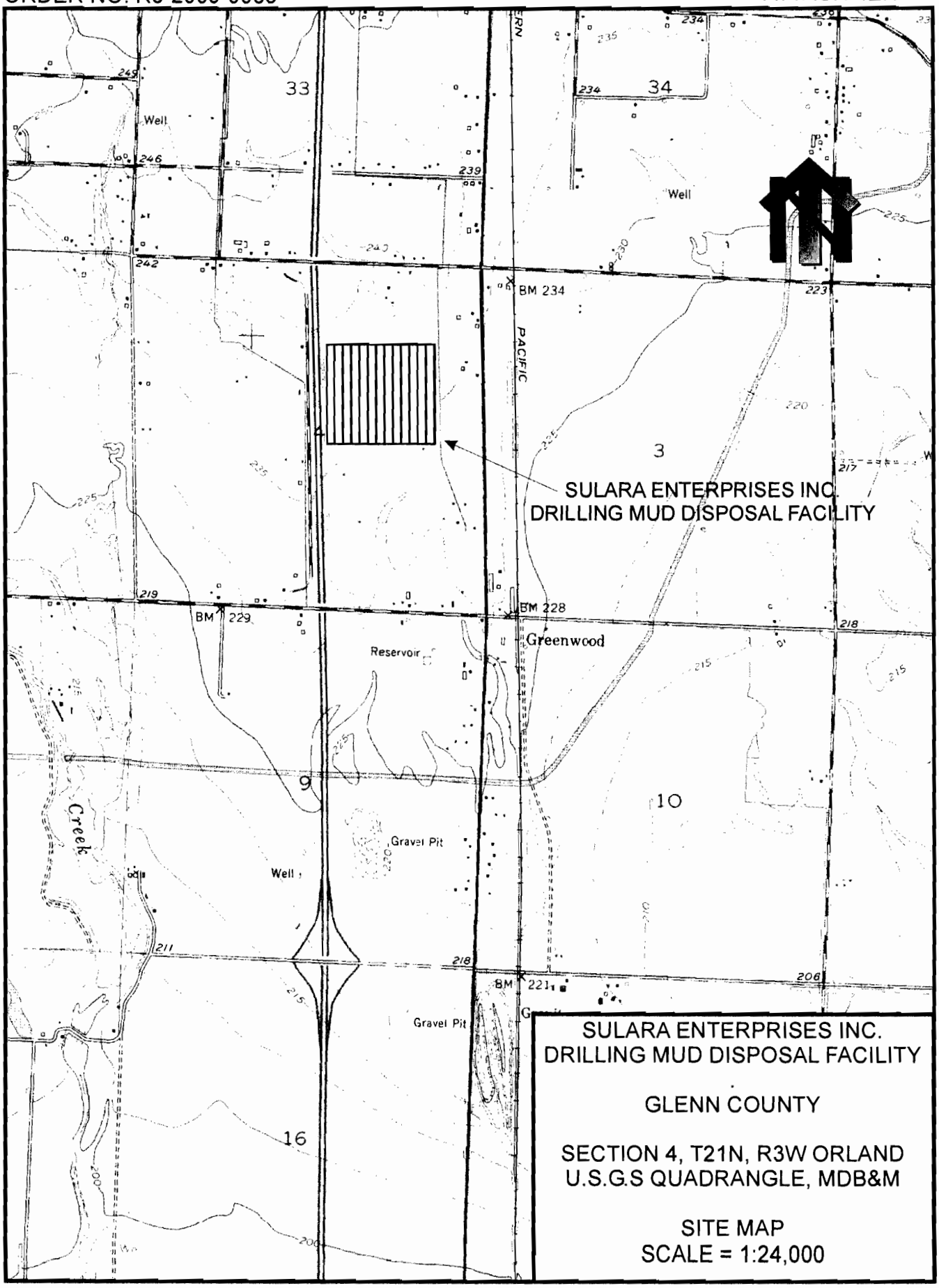
PAMELA C. CREEDON, Executive Officer

DPS: sae
2/26/2009

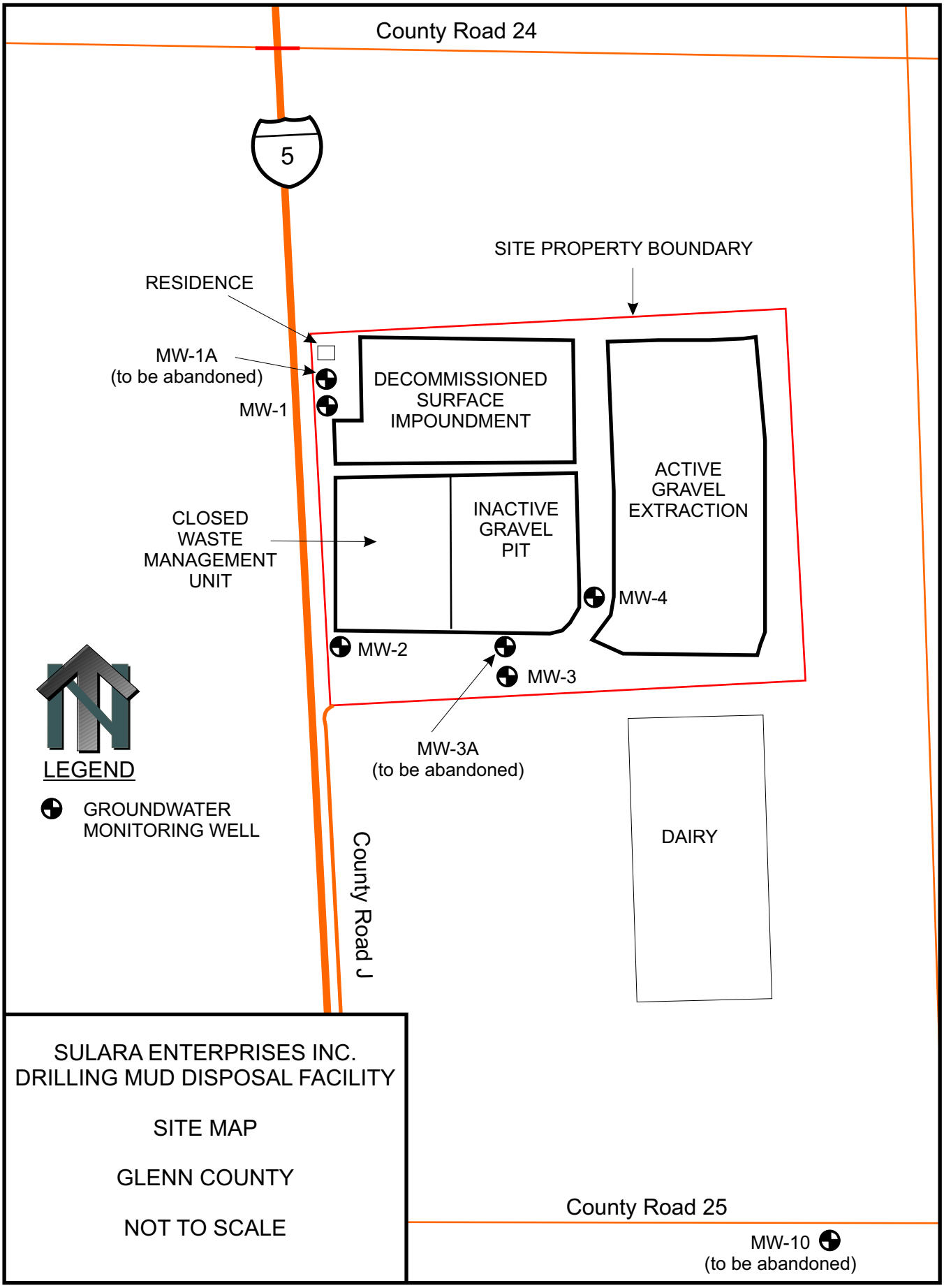


SULARA ENTERPRISES INC.
DRILLING MUD DISPOSAL FACILITY

GLENN COUNTY

SECTION 4, T21N, R3W ORLAND
U.S.G.S QUADRANGLE, MDB&M

SITE MAP
SCALE = 1:24,000


County Road 24
5
SITE PROPERTY BOUNDARY
RESIDENCE
MW-1A
(to be abandoned)
MW-1
DECOMMISSIONED
SURFACE
IMPOUNDMENT
ACTIVE
GRAVEL
EXTRACTION
CLOSED
WASTE
MANAGEMENT
UNIT
INACTIVE
GRAVEL
PIT
MW-4
MW-2
MW-3
MW-3A
(to be abandoned)
LEGEND
GROUNDWATER
MONITORING WELL
DAIRY
County Road J
SULARA ENTERPRISES INC.
DRILLING MUD DISPOSAL FACILITY
SITE MAP
GLENN COUNTY
NOT TO SCALE
County Road 25
MW-10
(to be abandoned)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0053
FOR
SULARA ENTERPRISES, INC.
FOR
POST-CLOSURE MAINTENANCE OF
DRILLING MUD DISPOSAL FACILITY
GLENN COUNTY

The Discharger shall comply with this Monitoring and Reporting Program and with Title 27, California Code of Regulations, Section 20005, et seq. (hereafter Title 27), as ordered by Waste Discharge Requirements Order No. R5-2009-0053.

A. REQUIRED MONITORING REPORTS

REPORT TYPE	FREQUENCY	REPORT DUE DATES
Groundwater and Facility Monitoring Report (Groundwater Monitoring C.1)	Semiannual	**By end of month following semiannual period. 31 July and 31 January each year**
Annual Monitoring Summary (Reporting Requirements B.8)	Annual	**By 31 January each year**

Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the schedule listed above for the calendar period in which samples were taken or observations made.

B. REPORTING REQUIREMENTS

1. The Discharger shall submit semiannual monitoring reports with the data and information required in this Monitoring and Reporting Program and as required in Order No. R5-2009-0053. Reports that do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the Waste Discharge Requirements.

2. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all compliance and background monitoring points [Title 27 §20415(e)(4)].

3. The Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The analytical data from each monitoring point shall also be graphed over time and presented in each semiannual Groundwater Monitoring Report. The data shall be summarized in a manner that clearly demonstrates compliance with the Waste Discharge Requirements, or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

4. The Discharger shall retain records of all monitoring information, including calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure maintenance period.

   Such legible records shall show the following for each sample:

   a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

   b. Date, time, and manner of sampling;

   c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis; and

   d. Results of analyses, and the MDL and PQL for each analysis.

5. A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. Any violations that occurred during the reporting period shall also be discussed **in detail** within the required monitoring report. If no violations have occurred since the last submittal, then this shall be stated in the transmittal letter. Each monitoring report and/or transmittal letter shall include the signature requirements of Provision E.3 in WDR Order No. R5-2009-0053.

6. Each monitoring report shall include a compliance evaluation summary. The summary shall contain at least:

   a. For each monitoring point and background monitoring point addressed by the report, a description of:

      1) The time of water level measurement;

      2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

      3) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, conductivity and turbidity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove all

portions of the water that was in the well bore while the sample was being taken; and

4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging.

b. A map or aerial photograph showing the locations of waste management units, on-site structures, surface or storm water drainages, observation stations, monitoring points, and background monitoring points.

c. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the Unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.

d. Results of field and laboratory tests shall be reported in each monitoring report. This shall include laboratory reports listing analytical methods and results, all QA/QC data, and Chain of Custody documentation.

e. All additional information required under Section C. Monitoring, of this Monitoring and Reporting Program.

f. A summary and certification of completion of all **Standard Observations** for the Unit and for the perimeter of the Unit. Standard observations shall be conducted **monthly** during the wet season (1 October to 30 April) and **quarterly** during the dry season (1 May to 30 September). The Standard Observations shall include:

1) For the Unit:

a) Evidence of ponded water at any point on the facility (show affected area on map);

b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

c) Evidence of erosion and/or of day-lighted waste.

2) Along the perimeter of the Unit:

a) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source; and

c) Evidence of erosion and/or of day-lighted waste.

7. The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:

   a. A map showing the location(s) of seepage;

   b. An estimate of the flow rate;

   c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);

   d. Verification that samples have been submitted for analyses of the Monitoring Parameters and Constituents of Concern listed in Table I of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and

   e. Corrective measures underway or proposed, and the corresponding time schedule for completing the corrective action measures.

8. The Discharger shall submit an **Annual Monitoring Summary Report** to the Central Valley Water Board covering the reporting period of the previous monitoring year. This report shall contain:

   a. All monitoring parameters and constituents of concern shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

   b. All historical monitoring data, including data for the previous year, shall be submitted in tabular form as well as in a digital file format. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by Central Valley Water Board staff.

   c. A comprehensive discussion of the compliance record, and the results of any corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the waste discharge requirements.

d. A map of the Facility.

e. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

f. A comprehensive discussion of maintenance or repairs to any Facility structure, control system, or monitoring device during the previous year's reporting period (see Facility Specification B.3 of WDR Order No. R5-2009-0053).

g. A detailed discussion of the adequacy of the financial assurance mechanisms for corrective action and post-closure maintenance, including proof that the financial assurance mechanisms have been increased in accordance with the annual inflation factor calculation for the previous year (see Financial Assurances C.4 of WDR Order No. R5-2009-0053).

h. Results of the annual inspection required pursuant to Facility Monitoring C.3.a below.

C. MONITORING

All point of compliance monitoring wells established for the groundwater detection monitoring program shall constitute the monitoring points for the Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Table I at the end of this Monitoring and Reporting Program.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program and provided that the new proposed analytical method(s) is/are approved by the Executive Officer prior to use.

1. Groundwater

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with applicable provisions of §20415 and §20420 of Title 27. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The Discharger shall collect, preserve, and transport groundwater samples in accordance with an approved Sample Collection and Analysis Plan.

The Discharger shall determine the groundwater flow rate and direction in the

uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared and submitted with each semiannual Facility and Groundwater Monitoring Report.

Groundwater samples shall be collected from the point-of-compliance wells, background wells, and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters and constituents of concern in accordance with the methods and frequencies specified in Table I.

The monitoring parameters and constituents of concern shall also be evaluated each reporting period with regards to the cation/anion balance, and the results shall be graphically presented using a Stiff diagram, a Piper graph, or a Schoeller plot.

The groundwater monitoring system at the Facility regulated by this Monitoring and Reporting Program consists of four monitoring wells. A description of the current groundwater monitoring system follows:

Well ID	Service Type	Depth	Screen Interval
MW-1	Background	45 feet	35 to 45 feet bgs
MW-2	Compliance	45 feet	35 to 45 feet bgs
MW-3	Compliance	50 feet	40 to 50 feet bgs
MW-4	Compliance	50 feet	40 to 50 feet bgs

bgs = Below Ground Surface

2. Leachate/Seep Monitoring

The waste management unit at the Facility is unlined and has a final cover system in-place, and there is no leachate collection and removal system. However, leachate could seep to the surface and pose a threat to surface and groundwater.

Leachate that seeps to the surface from the Unit shall be sampled and analyzed for the monitoring parameters and constituents of concern listed in Table I upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day).

3. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations described in Reporting Requirements B.6.f above. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. The Discharger shall submit information describing the results of the inspection and the repair measures implemented, including photographs of the problem(s) and the repairs in each Annual Monitoring Summary Report, **due by 31 January each year**.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events. The inspection shall include the Standard Observations described in Reporting Requirements B.6.f above. Major storm events are defined as 1.5 inches or greater of precipitation within a 24-hour period. Necessary repairs shall be completed **within 30 days** of the inspection. Storm event monitoring results shall be included with each corresponding semiannual Facility and Groundwater Monitoring Report in which observations were made. Storm event monitoring shall include the inspection date(s), the name of the person conducting the inspection, and the amount of precipitation received within the 24-hour period. If no precipitation events of 1.5 inches or greater within a 24-hour period occur within the reporting period, then the corresponding Facility and Groundwater Monitoring Report shall state such.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by:

PAMELA C. CREEDON, Executive officer

24 April 2009
(Date)

DPS: sae
02/25/2009

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Groundwater Elevation	Ft. & hundredths, M.S.L.	Semiannual
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters and Constituents of Concern		
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Carbonate	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Calcium	mg/L	Semiannual
Magnesium	mg/L	Semiannual
Potassium	mg/L	Semiannual
Sodium	mg/L	Semiannual
TPH-diesel (EPA Method 8015M)	µg/L	Semiannual

INFORMATION SHEET

ORDER NO. R5-2009-0053
SULARA ENTERPRISES, INC.
POST-CLOSURE MAINTENANCE OF
DRILLING MUD DISPOSAL FACILITY
GLENN COUNTY

Sulara Enterprises, Inc. (Discharger) owns and operates a closed drilling mud disposal facility (Facility) located approximately one mile south of Orland, Glenn County, on Assessor Parcel No. 024-33-0-011, in Section 4, T21N, R3W, MDB&M. Waste disposal activities have occurred on approximately 8.4 acres of the 33.59-acre Facility.

Two significant geologic units underlie the Facility. Pleistocene to recent age alluvium of the Stony Creek fan occurs from the surface down to between 40 and 125 feet below ground surface (bgs). These gravelly, sandy loam soils immediately underlying the Unit are highly permeable. Underlying the Stony Creek alluvial fan is Pliocene to Pleistocene age Tehama Formation. Beneath the Tehama Formation, at depths of several hundred feet, are marine sedimentary deposits.

First encountered groundwater is generally about 22 feet below the native ground surface in the vicinity of the Unit. Groundwater elevations range from approximately 204 feet MSL to 225 feet MSL. Four wells make up the current groundwater monitoring system. Additional monitoring wells have been used in the past to assess groundwater quality, but most of these wells were abandoned during or right after Unit closure activities commenced. Three of the additional wells that still remain on-site will be required to be abandoned under permit from Glenn County in these revised Waste Discharge Requirements.

The land where the Facility is located was originally used as a sand and gravel extraction facility for construction of Interstate 5 during the 1960's. The Discharger began operation of the drilling mud disposal facility in 1970 and ceased accepting wastes in September 1991. Wastes disposed at the Facility consisted of drilling mud and drill cuttings from installation of gas wells and exploratory holes in Northern California. The Discharger estimated that approximately 148,000 cubic yards of waste had been discharged to the unclassified Unit by April 1990.

Wastes at the facility were initially classified as inert. However, routine groundwater monitoring found concentrations of Total Dissolved Solids (TDS), Sodium, Chloride, and Sulfate elevated in downgradient wells. Former Waste Discharge Requirements Order No. 97-032 reclassified the wastes as designated waste in response to the elevated salinity in downgradient groundwater monitoring wells. Statistical evaluation of groundwater monitoring data for the entire period of record finds concentrations of most constituents decreasing in downgradient wells. This downward trend began once disposal of drilling mud ceased in 1991. Notable exceptions to the general downward trend are increasing trends for pH and Electrical Conductivity in downgradient well MW-4. Overall, statistical trends in downgradient wells indicate that water quality at the Facility has improved since monitoring began. Statistical trends for the post-closure period since 2001 indicate that groundwater quality has stabilized,

with the exception of Alkalinity. Alkalinity shows increasing trends both up and downgradient of the Facility, which is likely unrelated to disposal activities.

In 2001, the Discharger constructed a final cover system over the Unit as a corrective action measure in response to the elevated salinity in downgradient wells. The final cover system consisted of a two-foot foundation layer of drilling mud, overlain by a one-foot low-permeability layer (1×10^{-6} cm/sec), which is overlain by a one-foot vegetated erosion resistant layer.

This Order revises Waste Discharge Requirements Order No. 98-162 to prescribe post-closure maintenance requirements for the Facility and additionally implements applicable sections of Title 27, California Code of Regulations.

DPS: sae
02/25/2009