

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2019-0057

WASTE DISCHARGE REQUIREMENTS
FOR
CAROL FULTON AND THE FULTON FAMILY TRUST
FULTON RECLAMATION FACILITY, INC.
GLENN COUNTY

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

1. Waste Discharge Requirements Order R5-2008-0045 (2008 WDRs Order), adopted by the Central Valley Water Board on 14 March 2008, prescribes waste discharge requirements (WDRs) for the Fulton Reclamation Facility (Facility) in the City of Orland.
2. Carol Fulton and the Fulton Family Trust (collectively, Discharger) own and operate a drilling mud recycling/soil amendment facility. The Discharger is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The Facility address is 3507 County Road M near the City of Orland (Section 15, T21N, R3W, MDB&M). The facility occupies Assessor's Parcel Number (APN) 024-100-020, as shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. On 15 March 2017, the Discharger submitted a Partial Update to the Report of Waste Discharge (ROWD) that describes a reduction in the land application area where drilling muds are applied as a soil amendment. Additional information under the title, Response to Comments on the Updated ROWD was submitted on 30 June 2017.
5. The 2008 WDRs Order prescribes requirements for the land application of drilling mud up to 16 percent by dry weight (416 dry tons per acre) to a total land application area of 232 acres. In 2017 the Discharger sold a portion of the property which resulted in a reduction of the land application area to 65 acres. Therefore, the 2008 WDRs Order will be rescinded and replaced with this Order.

Drilling Mud Characteristics

6. The Facility receives non-hazardous spent drilling mud generated from natural gas, geothermal, and water well exploration activities in the Northern Sacramento Valley. Drilling fluids for natural gas and oil exploration follow the American Petroleum Institute specifications.
7. The basic components of drilling mud are water and bentonite clay. Drilling mud is used in well drilling operations, primarily to cool and lubricate the drill bit as well as

provide temporary stabilization and sealing of the borehole sidewalls until the well is fully developed. The drilling fluid also carries rock and soil cuttings to the surface.

8. The process of deep gas exploration by drilling uses bentonite clay to help control viscosity and fluid loss. Barite may also be added to increase drilling fluid density. The bentonite component creates an alkaline mixture of material.
9. The pH of drilling mud typically ranges from 8 to 9.5 units. Particles passing a number 200 mesh sieve range from 75 to 80 percent, and the percent solids in the drilling mud range from 10 to 56 percent with a mean of 30 percent. According to the Dischargers' recent self-monitoring reports, the electrical conductivity (EC) of the mud is typically 2,000 to 3,000 $\mu\text{mhos/cm}$, and total dissolved solids (TDS) ranges from 1,200 to 1,800 mg/L. Compared to native soil at the Facility, samples of drilling mud are higher in EC, TDS, alkalinity, bicarbonates, chloride, barium, boron, copper, sodium, vanadium, and zinc.
10. The drilling mud is classified as a 'designated waste' per Water Code section 13173, subdivision (b), due to the relatively high concentration of TDS in fluid derived in a Waste Extraction Test performed on dried drilling mud.

Agronomic Analysis

11. The Discharger began applying drilling muds as a soil amendment in 1985, with half a percent by dry weight added over 18 acres. Historically, the dry weight of drilling mud was calculated as the dry weight in one cubic foot of amended soil to the weight of a cubic foot volume of the unamended predominant Cortina Very Gravelly Sandy Loam Soil. Benefits from applying drilling mud include improvement of the soil's water holding capacity, augmentation of nutrient deficiencies in the natural soil, and improvement of soil texture.
12. In September 2004 analyses of the native soil and native soil mixed with drilling mud, at the 12 percent and 16 percent application areas, showed that the addition of drilling mud increases TDS, EC, alkalinity, bicarbonate, chloride, barium, boron, copper, sodium, vanadium, and zinc in soil. The deionized water extraction testing for the 16 percent application showed the same elevated parameters plus calcium, chromium, iron, and manganese.
13. In 2004, the Discharger submitted a Drilling Mud Assimilative Capacity Report, which included a 2003 Cropping Plan and Water Quality Protection Standards Report. The reports, required by previous WDR Order R5-2002-0141, provided upper tolerance limits for water quality parameters and provided crop yield results that showed application of spent drilling muds at 16 percent by dry weight to be beneficial to crops grown on designated land application areas (LAAs).
14. The Cropping Plan identified Kanota Oats to be grown on the LAAs, analyzed nitrogen and TDS removal rates, and recommended harvesting procedures.

According to the Cropping Plan, the crop is planted and fertilized in the fall and harvested in late spring. According to the Cropping Plan, the calculated removal rate for nitrogen is approximately 40 percent and plant utilization of metals in drilling mud is limited. Soil data show that vanadium, barium, cadmium, and other heavy metals are bound up in the root zone by various microbiological processes; migration appears to be limited to 3 to 5 feet below ground surface (bgs).

Existing Operations

15. The Facility has received non-hazardous drilling mud since the mid-1970s and uses the material as a soil amendment by discing the dried mud into the upper three feet of soil to improve soil texture, nutrient deficiencies, and water holding capacity. Studies have reported the mixture is agriculturally more productive than the native soil. The total land application area (LAA) is 65 acres of a 100-acre parcel.
16. The Facility currently has five LAAs, as well as a gravel pit, a wash-out area, and a reserve area. The Discharger provided experimental results for crop yields showing that application rates of 16 percent by dry weight of drilling muds to native soils to provide the greatest yield.
17. Drilling mud is delivered to the site by appropriately licensed haulers in either 100-barrel capacity vacuum trucks or 14-cubic yard capacity dump trucks. The loads are checked for temperature, pH, EC, TDS using field-testing instruments, and visually inspected for petroleum hydrocarbons. If the mud is acceptable, it is then discharged directly to an unlined bermed area. Following discharge, the trucks proceed to a concrete-lined washout area where they are cleaned with a high-pressure washer. Truck wash water is collected in a sloped concrete-lined basin and channeled to portable tanks, then spread at a rate of 0.25 gallons per square foot over a zone previously treated with drilling mud.

The bermed area can receive 10 to 20 truckloads. After the mud dries to a workable moisture content, the Discharger spreads and discs the mud into the application field soils to a depth of approximately three feet. The fields are seeded in early winter with a dryland hay crop such as Kanota Oats and fertilized with ammonium sulfate as needed. The fields are not manually irrigated; therefore, winter precipitation is the only water source. The hay is harvested the following spring.

18. The Discharger submitted an Updated Report of Waste Discharge on 15 March 2017 and additional information on 30 June 2017. Further inquiry regarding the calculation of dry weight of drilling mud received and percent application prompted the Discharger to conduct additional bench scale testing in January 2018. Dry weight of drilling muds is calculated based on the consistency of the material received and the bench scale testing results.
19. The total dry weight of muds applied for the year is divided by the acreage to which the drilling muds are applied to a depth of three feet. The dry weight applied per

cubic foot (cu.ft.) of soil is divided by the average dry weight of the native soil (118.5 lb/cu.ft., Anderson, John M. May 1986. "Report of Technical Information for the Rehse Brothers Drilling-Mud Disposal Site and Soil Reclamation Operations, Orland, California.") to provide the drilling mud application rate as a percentage. If drilling muds are applied to areas which have received drilling mud soil amendments, two amended soil samples are collected and composited from the planned application area to determine a starting dry weight per cubic foot. The amended area weight is then added to the additional drilling muds applied and subsequently compared to the unamended soil dry weight to determine the percent application rate.

20. According to the Discharger's Second Half 2018 self-monitoring report, the Facility received 20 truckloads of drilling mud, or approximately 159 dry tons from February to August 2018, and land-applied this material in the 12 percent Test Plot.

Site-Specific Conditions

21. The Facility is approximately 210 feet above mean sea level (MSL), located on the Stony Creek Alluvial Fan, a deposit of Pleistocene-Holocene alluvium. Surface topography is relatively flat, but slopes to the south at a grade of approximately 0.5 percent.
22. The soils underlying the Facility belong predominantly to the Cortina Very Gravelly Sandy Loam classification. This soil generally supports sparse grasses and forbs. Approximately 20 percent of the Facility's total area, on the west side, is underlain by Tehama Silt Loam soil. This area is marked as the Reserve Area. Both Tehama soils are agriculturally productive and do not require soil amendments to improve moisture retention.
23. The Cortina Very Gravelly Sandy Loam soils are moderately to highly permeable and have poor moisture holding capacity. According to information provided by the Discharger, average percolation rates for the untreated soils is 3.2 minutes per inch. The addition of drilling mud likely decreases percolation rates; however the Discharger claims infiltration rates exceed precipitation rates and storm water runoff does not occur.
24. The average annual rainfall at the Facility is 23 inches (National Weather Service, Orland Station). The 100-year, 24-hour precipitation event is 4.9 inches (NOAA).
25. The Facility is not located within the 100-year floodplain as shown on FEMA Map No. 0600570375B.
26. Land use within 1,000 feet of the site is mainly agricultural. The Greenwood Dairy, located on the Discharger's northern and western property boundaries, operates five unlined wastewater storage and disposal ponds immediately west and northwest of the Reserve Area. Wastewater discharges for Greenwood Dairy are regulated under Regional Water Board General WDR Order R5-2008-0122 for Existing Milk Cow

Dairies (WDID #5S111015863) and storm water discharges for the Greenwood Dairy are regulated under State Water Resources Control Board Industrial Storm Water General Permit Order 2014-0057-DWQ (WDID #5R111019861).

Gravel mining has also been conducted within 1,000 feet of the Facility's western boundary, but gravel is currently not being removed. Staff research found no historic or active Regional Water Board regulatory actions for the gravel mine operation.

- 27. Several domestic supply and agricultural production wells are located within 2,000 feet of the Facility. The Department of Water Resources may be contacted for further information.

Groundwater Conditions

- 28. Local shallow groundwater data show groundwater was encountered at 26 feet below ground surface (bgs). Shallow groundwater elevations fluctuate between 10 and 15 feet seasonally.
- 29. Historic groundwater data for onsite and offsite wells show that average shallow groundwater elevations have decreased approximately 20 feet since 2008. This change in groundwater elevations has resulted in dry onsite monitoring wells.
- 30. Historic data from onsite monitoring wells indicate the shallow groundwater gradient was to the southeast at approximately 0.0028 feet/foot prior to the decreasing regional water table. The Department of Water Resources online data center shows regional groundwater flow to the south-southwest with depths to water ranging from 70 to 100 feet bgs. Regional recharge is likely to occur from Stony Creek, located about seven miles north of the Facility.
- 31. The previous Facility owner installed the first four shallow groundwater monitoring wells in 1982. The Discharger installed wells MW-5 through MW-9 in 1991 after the storage and disposal ponds were closed and land application loading rates increased. Wells MW-10, MW-11, and MW-12 were added to monitor the north portion of the site where 42 acres of land application area was added. Well logs for the original wells and the 2002 wells indicate 20-foot screened intervals ranging from 30 to 60 feet bgs. Well logs for MW-5 through MW-9 do not specify a screened interval but have similar depths and diameter with unspecific references to screened intervals. Well construction details are summarized in the table below:

Table 1. Well Construction

| Monitoring Well ID | Type | Top of Casing (ft MSL) | Total Depth (ft below top of casing) | Screen Interval (ft below top of casing) |
|--------------------|------------|------------------------|--------------------------------------|--|
| MW-1 | compliance | 205.26 | 49.74 | 29-49 |
| MW-2 | compliance | 202.72 | 47.2 | 30-47 |

| | | | | |
|-------|------------|--------|-------|---------|
| MW-3 | compliance | 207.84 | 47.17 | 30-47 |
| MW-4 | compliance | 208.56 | 48.23 | 30-48 |
| MW-6 | compliance | 209.14 | 54.96 | unknown |
| MW-7 | compliance | 208.83 | 62.55 | unknown |
| MW-8 | compliance | 209.02 | 52.25 | unknown |
| MW-9 | compliance | 205.99 | 60.26 | unknown |
| MW-11 | background | 217.42 | 51.3 | 30-50 |
| MW-12 | background | 213.04 | 52.51 | 30-50 |

32. The vadose zone monitoring network was first installed in 2002 and consisted of fourteen 30-inch deep vacuum lysimeters, three 5-foot deep lysimeters and two gypsum block arrays to measure soil moisture content at depths of 3 feet, 5 feet and 10 feet. Most lysimeters were damaged or destroyed by 2008 during agricultural activities. After the 2018 property sale, only one 5-foot lysimeter and one gypsum block array remained; both are located in the untreated soils at the southeast portion of the property.
33. A 2017 Consumer Confidence Report for the City of Orland's drinking water shows nitrate as nitrogen concentrations below the maximum contaminant level (MCL) between 0.9 and 4.5 mg/L and EC between 333 and 581 μ mhos/cm. The Department of Water Resources online water data library shows variable concentrations of nitrate in regional groundwater, typically resulting from fertilizer use and dairy operations.
34. Upgradient monitoring wells MW-11 and MW-12 indicate elevated levels of TDS and nitrate in shallow groundwater. These monitoring parameters may be elevated due to off-site agricultural activities and/or local groundwater recharge from the neighboring dairy facility's storage and disposal ponds.

Basin Plan Considerations

35. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, revised May 2018* (Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), WDRs are required to implement the Basin Plan.
36. Locally, surface water drainage flows to ephemeral streams which are tributary to the Colusa Basin Drain. The Colusa Basin Drain typically infiltrates to groundwater, but in wet weather conditions may discharge to the Sacramento River. The Basin Plan designates the beneficial uses of the Colusa Basin Drain as agricultural supply (AGR); recreation (REC-1, REC-2); aesthetic enjoyment; groundwater recharge (GWR); warm water freshwater habitat (WARM); and wildlife habitat (WILD). The

Basin Plan designates the beneficial uses of the Sacramento River as municipal and domestic supply (MUN); agricultural supply (AGR); industrial supply (IND); hydropower generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); spawning reproduction and/or early development (SPAWN); wildlife habitat (WILD); and navigation (NAV).

37. The Basin Plan designates the beneficial uses of the underlying groundwater as MUN, AGR, IND, and industrial process supply (PRO).
38. The Basin Plan establishes narrative WQOs for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric WQO for total coliform organisms.
39. The Basin Plan's narrative WQOs for chemical constituents, at a minimum, require MUN-designated waters meet California Code of Regulations, title 22 (Title 22) maximum contaminant levels (MCLs). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
40. The narrative toxicity WQO requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
41. Quantifying a narrative WQO requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative WQO is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative WQO.
42. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture*, by Ayers and Westcot, and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops; appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

CV-SALTS Reopener

43. The Board is developing Basin Plan amendments to incorporate new programs for addressing ongoing salt and nitrate accumulation in the Central Valley. These programs would change how the Board issues permits for discharges of salt and

nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. Should the Board adopt amendments to the Basin Plan, this Order may be amended or modified to incorporate any newly-applicable requirements.

44. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has been coordinating efforts to implement new salt and nitrate management strategies. The Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.

Antidegradation Analysis

45. The State Water Board Policy with Respect to Maintaining High Quality Waters of the State, Resolution No. 68-16 (Antidegradation Policy) prohibits degradation of groundwater unless it is demonstrated that such degradation:
 - a. Will not unreasonably affect present and anticipated beneficial uses;
 - b. Will not result in water quality less than that prescribed in state and regional policies, (including violation of one or more WQOs);
 - c. Will be minimized by the discharger through best practicable treatment or control (BPTC) to minimize degradation; and
 - d. Will be consistent with the maximum benefit to the people of the State.
46. Degradation of groundwater by some of the typical waste constituents associated with discharges from spent drilling muds, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The application of drilling muds has demonstrated an increase in crop yield and provides a regional economic resource, rather than adding load to a Class II landfill.
47. The Discharger has been monitoring groundwater quality at the site since 2002, although most of the groundwater monitoring wells have been dry since 2008. Based on the data available, pre-1968 groundwater quality shows good groundwater quality. Local shallow groundwater quality shows some degradation from neighboring dairy and irrigation practices. Therefore, determination of

compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

48. Constituents of concern identified in drilling muds that have the potential to degrade groundwater include salts and heavy metals (primarily EC, TDS, chloride, sodium, barium, boron, copper, iron, manganese, and zinc), as shown in the following table. Note that nitrate as nitrogen is not typically present in spent drilling muds, but has exceeded WQOs in background wells, possibly suggesting an offsite origin. Additionally, WQOs for EC, TDS, and nitrate have had historical exceedances reported in groundwater compliance well MW-4.

Table 2. Average Constituent Concentrations in Groundwater (mg/L)

| Constituent | Regional Shallow Groundwater ¹ | Background Shallow Groundwater ² | Compliance Shallow Groundwater ³ | Potential WQO |
|------------------|---|---|---|--|
| pH ⁴ | 7.5 | 6.6 ⁴ | 6.9 ⁴ | 6.5 – 8.5 |
| EC | 613 | 741 | 665 | 900 ⁷ – 1,600 ⁸ |
| TDS | 356 | 467 | 392 | 450 ⁵ to 1,000 ⁸ |
| Nitrate-Nitrogen | 6.8 | 8.9 | 8.5 | 10 ⁶ |
| Sulfate | 33 | 48.1 | 49.1 | 250 ⁸ - 500 ⁹ |
| Sodium | 20 | 26.1 | 25.3 | 69 ⁵ |
| Chloride | 30 | 37.0 | 29.4 | 106 ⁵ - 500 ⁸ |
| Arsenic, diss. | <0.001 | 0.002 | 0.003 | 0.010 ⁶ |
| Barium, diss. | NT | 0.3 | 0.238 | 1 ⁶ |
| Boron, diss. | <0.001 | 0.154 | 0.033 | -- |
| Iron, diss. | 0.0015 | 7.8 | 4.9 | 0.300 ⁷ |
| Manganese, diss. | 0.0172 | 0.266 | 0.070 | 0.050 ⁷ |
| Zinc, diss. | <0.001 | 0.036 | 0.031 | 5.0 ⁷ |

NT = Not tested

¹ DWR Online Water Data Library, Glenn County Well 21N03W23D001M; screened interval 55-75 ft bgs, sampled 9/11/2008. http://wdl.water.ca.gov/waterdatalibrary/waterquality/station_county/gst_report.cfm

² Compiled from MW-11 and MW-12 except for pH; mean of data collected 2002-2008.

³ Compiled from MW-1 through MW-10 except for pH; mean of data collected 2002-2008.

⁴ Average pH values based on 2008 field data for MW-5, MW-7, MW-9, MW-10, and MW-12.

⁵ Lowest agricultural water quality goal.

⁶ Primary Maximum Contaminant Level.

⁷ Secondary Maximum Contaminant Level, Recommended.

⁸ Secondary Maximum Contaminant Level range, Upper.

49. This Order establishes soil and groundwater limitations for the facility that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds WQOs set forth in the Basin Plan as follows:
- a. For pH, sulfate, sodium, chloride, arsenic, barium, boron, and zinc, historic groundwater monitoring data indicates that the discharge does not pose a threat of degradation in the future. The requirements of this Order do not allow any degradation to occur above applicable water quality standards.

- b. For EC, TDS, nitrate as nitrogen, iron and manganese, historic groundwater monitoring data indicates that groundwater has been degraded by offsite activities, and the degradation has caused exceedances of WQOs. The requirements of this Order do not allow any additional degradation to occur beyond existing background conditions.
50. The Discharger provides treatment and control of the discharge that incorporates:
- a. Prescreening and monitoring of spent drilling muds prior to receiving for final disposal by land application.
 - b. Planting crops to minimize the potential of salts or metals to infiltrate to groundwater.
 - c. This permit requires annual soil sampling to monitor for potential salt and metals loading.
 - d. Groundwater monitoring when feasible. The compliance wells have been dry for more than ten years.

Other Regulatory Considerations

51. Pursuant to Water Code section 106.3, subdivision (a), it is “the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.” Although this Order is not necessarily subject to Water Code section 106.3 because it does not revise, adopt or establish a policy, regulation or grant criterion (see § 106.3, subd. (b)), it nevertheless promotes that policy by requiring discharges to meet MCLs designed to protect human health and ensure that water is safe for domestic use.
52. Based on the threat and complexity of the discharge, the facility is classified as 2C as defined below:
- a. **Water Quality Threat—Category 2:** “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”
 - b. **Complexity—Category C:** “Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included in Category A or Category B. Included are dischargers having no waste treatment systems or that must comply with best management practices, dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal.”

53. The spent drilling mud discharges authorized under this Order, and the associated land application (as described herein), are exempt from the prescriptive requirements set forth in California Code of Regulations, title 27, section 20000 et seq. (See Cal. Code Regs., tit. 27, § 20090, subd. (f).)
54. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:
- a. Discharges of wastewater to the LAAs are further exempt pursuant to Title 27, section 20090(b) because they are discharges of spent drilling muds to land and:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The drilling muds discharged to LAAs do not need to be managed as hazardous waste.
55. The statistical data analysis methods specified in the U.S. Environmental Protection Agency's (USEPA) 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance) are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.
56. The State Water Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities and requiring submittal of a Notice of Intent by all affected industrial dischargers. This facility does not include operations requiring storm water coverage and is considered exempt from this requirement.
57. Water Code section 13267, subdivision (b)(1) provides as follows:
- [T]he regional board may require that any person who has discharged, discharges, or... proposes to discharge ... shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.

58. The technical reports required by this Order and the separately-issued **Monitoring and Reporting Program R5-2019-0057**(MRP) are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.
59. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 74-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of spent drilling mud storage or disposal governed by this Order.
60. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.
61. Pursuant to Water Code section 13263, subdivision (g), the ability to discharge waste is a privilege, not a right, and adoption of this Order shall not be interpreted as creating a vested right in the continuance of such discharges.

Public Notice

62. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
63. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
64. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that Order R5-2008-0045 is rescinded (except for enforcement purposes); and that the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations promulgated thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous', as defined in Title 22, section 66261.1 et seq., is prohibited.

3. Discharge of waste classified as 'designated', as defined in Water Code section 13173, in a manner that causes violation of groundwater limitations, is prohibited.
4. Discharge of drilling muds at a location or in a manner different from that described in the Findings is prohibited.
5. Discharge of toxic substances into any land application area is prohibited.
6. Discharge of anything other than domestic wastewater to the onsite septic tank and leach field system is prohibited.

B. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order.
2. Spent drilling mud storage and disposal shall not cause pollution or a nuisance as defined by Water Code Section 13050.
3. The drilling mud discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
4. The Discharger shall discharge spent drilling muds and implement best practices and treatment controls to minimize water quality impacts from the discharge.
5. All treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
6. Objectionable odors shall not be perceivable beyond the limits of the property where the drilling mud is received and/or discharged at an intensity that creates or threatens to create nuisance conditions.
7. Temporary bermed drilling mud storage areas shall have sufficient capacity to accommodate spent drilling muds and seasonal precipitation during the winter while ensuring continuous compliance with all requirements of this Order.
8. All open containment structures shall be managed to limit areas with standing water for extended periods of time and prevent breeding of mosquitoes. Specifically:
 - a. A visual inspection routine shall be implemented to monitor for mosquito presence.

- b. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed.
- 9. Truck wash water application to land shall be performed in a manner that will not cause discharge of eroded sediment in storm water runoff to areas not controlled by the Discharger.
- 10. Drilling muds applied to land have the potential to contain high concentrations of salts and elevated concentrations of heavy metals. Based on historical studies and technical reports, drilling muds shall not be applied to land at a rate greater than 16 percent by dry weight per year or in amounts which cause the following cumulative loadings to be exceeded.

The soils concentrations shown below are obtained from the 40 C.F.R. section 503.13 for Biosolids Disposal and from the EPA Regional Screening Levels for Industrial Soils. These limits serve as general guidelines for monitoring potential metals accumulation in soils and will serve as trigger levels for requiring additional evaluation of onsite disposal practices and potential impacts to groundwater quality.

| Constituent | Annual Cumulative Loading (lb/ac) | Ceiling Concentration (mg/Kg) |
|-------------|-----------------------------------|-------------------------------|
| Arsenic | 37 | 75 ¹ |
| Cadmium | 35 | 85 ¹ |
| Copper | 1,336 | 4,300 ¹ |
| Lead | 267 | 840 ¹ |
| Mercury | 15 | 57 ¹ |
| Nickel | 374 | 420 ¹ |
| Selenium | 89 | 100 ¹ |
| Zinc | 2,494 | 7,500 ¹ |
| Barium | NC | 22,000 ² |
| Chromium | NC | 180,000 ² |
| Manganese | NC | 2,600 ² |

NC = Not calculated

¹ Code of Federal Regulations Title 40 Section 503.13

² EPA Regional Screening Level for Industrial Soils:
<https://semspub.epa.gov/work/HQ/197444.pdf>

- 11. If soils concentration limits are exceeded in a land application area, or the 16 percent dry weight application rate is reached, the Central Valley Water Board will require further evaluation to demonstrate that continued application of spent drilling muds will not pose a threat to water quality beneath the site.

C. Groundwater Limitations

Release of drilling mud constituents from any portion of the facility shall not cause groundwater to:

1. Contain constituents in concentrations statistically greater than current background water quality or that exceed the Primary or Secondary MCLs established in Title 22, whichever is greater.
2. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.
3. Compliance with these limitations shall be determined annually as specified in the Monitoring and Reporting Program using approved intrawell statistical methods.

D. Land Application Area Specifications

1. Crops or other vegetation (which may include pasture grasses, native grasses and trees, and/or ornamental landscaping) shall be grown in the LAAs.
2. Land application of drilling muds shall be managed to minimize erosion.
3. The LAAs shall be managed to prevent breeding of mosquitoes or other vectors.
4. LAAs shall be designed, maintained, and operated to comply with the following setback requirements:

| Setback Definition | Min. Irrigation Setback (feet) |
|---|---------------------------------------|
| Edge of LAA to manmade or natural surface water drainage course | 25 |
| Edge of LAA to domestic water supply well | 100 |

5. LAAs shall be inspected periodically to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with this Order, the Discharger shall temporarily stop spent drilling mud application to the LAAs immediately and implement corrective actions to ensure compliance with this Order.
6. When LAAs and temporary bermed storage areas are not accessible, spent drilling muds are temporarily stored in the rainy day area.

7. Discharge of storm water runoff from temporary drilling mud storage areas and/or the LAAs to off-site land or surface water drainage courses is prohibited. Any potential runoff from the use areas shall be captured and land applied within the use areas.

E. **Solids Disposal Specifications (Not applicable)**

F. **Provisions**

1. If soil monitoring results reach the concentration limits specified under Discharge Specifications, Section B.10 or show the 16 percent application rate has been reached, the Discharger shall prepare a Technical Report within **120 days** of the reported exceedances. This Report shall evaluate onsite disposal practices and the potential for salts and/or metals constituents in the treated soils to impair groundwater quality and make recommendations for additional actions based on best professional judgment.
2. If groundwater monitoring results indicate that the discharge of drilling mud is causing groundwater to contain waste constituents (see Finding 48) in concentrations statistically greater than the Groundwater Limitations of this Order, within **120 days** of the request of the Executive Officer, the Discharger shall submit a *Best Practical Treatment & Control (BPTC) Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's land application and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitations. The workplan shall contain a preliminary evaluation of each component of drilling mud receiving operations, the land application process, and the groundwater monitoring well network and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable and shall not exceed one year. If the discharger's groundwater monitoring wells remain dry, Central Valley Water Board may require additional groundwater monitoring wells in the future.
3. A discharger whose spent drilling mud application has been increasing, or is projected to increase, shall estimate when spent drilling mud disposal will reach treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average drilling mud receiving, as appropriate.
4. In accordance with 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 investigations and studies, 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 bear the professional's signature and stamp.
5. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.
 6. The Discharger shall comply with the operative MRP (i.e., the attached **Monitoring and Reporting Program R5-2019-0057** and any subsequent revisions thereto). The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.
 7. The Discharger shall comply with the attached Standard Provisions and Reporting Requirements for Waste Discharge Requirements dated 1 March 1991 (Standard Provisions or SPRRs), which are incorporated herein.
 8. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
 9. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.
 10. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

11. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
12. In the event that the Discharger reports toxic chemical release data to the State Emergency Response Commission (SERC) pursuant to section 313 of the Emergency Planning and Community Right to Know Act (42 U.S.C. § 11023), the Discharger shall also report the same information to the Central Valley Water Board within 15 days of the report to the SERC.
13. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or land application areas used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
14. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
15. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name 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 paragraph of Standard Provision B.3 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 CWC. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
16. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
17. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial

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

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day 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 are available on the Internet (at the address below), and will be provided upon request.

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 7 June 2019.



PATRICK PULUPA, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2019-0057
FOR
CAROL FULTON AND THE FULTON FAMILY TRUST
FULTON RECLAMATION FACILITY
GLENN COUNTY

This Order, which establishes a Monitoring and Reporting Program (MRP) for Carol Fulton and the Fulton Family Trust (collectively, Discharger) for the Fulton Reclamation Facility (Facility), is issued pursuant to Water Code section 13267, subdivision (b)(1), which provides in pertinent part as follows:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters 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. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.

Subdivisions (a) and (b)(1) of Water Code section 13268 provide as follows:

- (a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of Section 13399.2, or falsifying and information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).
- (b)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with section 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.

The Discharger owns and operates the Facility subject to Waste Discharge Requirements Order R5-2019-0057 (WDRs or WDRs Order) WDRs cited herein, and the monitoring reports are necessary to determine compliance with the WDRs.

Pursuant to Section 13267, the Discharger shall implement this MRP and shall submit the monitoring reports described herein. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP.

A glossary of terms used in this MRP is included on the last page.

I. General Monitoring Requirements

A. Flow Monitoring

Only nonhazardous drilling mud products transported by appropriately licensed haulers are received at the Facility. Prior to acceptance, the drilling mud products will be field-screened and logged by the Discharger.

B. Monitoring and Sampling Locations

Samples shall be obtained at the monitoring points specified in this MRP and depicted on Attachment B. Central Valley Water Board staff shall approve any proposed changes to monitoring and sampling locations prior to implementation of the change.

The Discharger shall monitor the following groundwater monitoring wells to demonstrate compliance with the requirements of this Order: MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, MW-11, MW-12.

C. Sampling and Sample Analysis

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of soil, drilling mud solids and groundwater.

The time, date, and location of each sample shall be recorded on the sample chain-of-custody form. All analyses shall be performed in accordance with the Standard Provisions and Reporting Requirements for WDRs dated 1 March 1991 (Standard Provisions or SPRRs).

Field test instruments (such as those used to measure pH, electrical conductivity, total dissolved solids, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field-calibrated at the frequency recommended by the manufacturer;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency and appropriate range of values for screening spent drilling muds (pH 7-11 Standard Units and EC 1,000-10,000 $\mu\text{mhos/cm}$), and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA);
- *Test Methods for Evaluating Solid Waste* (EPA);
- *Methods for Chemical Analysis of Water and Wastes* (EPA);
- *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA);
- *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and
- *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125).

Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the State Water Resources Control Board, Division of Drinking Water (DDW) Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives (WQOs) for the constituents to be analyzed.

If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least four consecutive monitoring events, the Discharger may request this MRP be revised to reduce

monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

II. Specific Monitoring Requirements

A. Drilling Mud Monitoring

The Discharger shall visually inspect and, using a bailer or similar device, collect representative samples of each drilling mud load from a point near the top of the load and near the bottom for the parameters described in the table below. Loads containing brines (EC greater than 7,000 $\mu\text{mhos/cm}$ or a TDS concentration greater than 4,200 mg/L), or petroleum hydrocarbons shall be rejected and documented accordingly on the daily receiving log.

| Parameter | Units | Sampling Frequency | Reporting Frequency |
|-----------------------------------|--|--------------------|---------------------|
| Quantity accepted | Gal/Cubic Yards/ Truck loads | Each Truckload | Semiannual |
| Description of material | Consistency, color, abnormalities, etc. | Each Truckload | Semiannual |
| Source(s) and/or place of origin | N/A | Each Truckload | Semiannual |
| pH | Standard Units | Each Truckload | Semiannual |
| Electrical Conductivity (EC) | $\mu\text{mhos/cm}$ | Each Truckload | Semiannual |
| Total Dissolved Solids (TDS) | mg/L | Each Truckload | Semiannual |
| Petroleum Hydrocarbons and Brines | Visual (presence or absence) | Each Truckload | Semiannual |

Annually, a representative sample of spent drilling mud material to be applied to land shall be analyzed for the following:

| Parameter | Units | Analysis | Sampling Freq. | Reporting Freq. |
|-------------------------------|-------------|----------------------|----------------|-----------------|
| Percent Moisture | % | Solid | Annual | Annual |
| Chloride | mg/kg | Solid | Annual | Annual |
| Nitrate | mg/kg | Solid | Annual | Annual |
| Sulfate | mg/kg | Solid | Annual | Annual |
| pH | Std Units | DI extract | Annual | Annual |
| Electrical Conductivity (EC) | µmhos/cm | DI extract | Annual | Annual |
| Total Dissolved Solids (TDS) | mg/L | DI extract | Annual | Annual |
| Chemical Oxygen Demand | mg/L | DI extract | Annual | Annual |
| General Minerals ^A | mg/L | DI extract | Annual | Annual |
| Heavy Metals ^B | mg/kg, µg/L | Solid and DI extract | Annual | Annual |

^A. General Minerals shall include, at a minimum, the following: calcium, chloride, iron, magnesium, potassium, sodium, sulfate, total alkalinity (including alkalinity series).
^B. Heavy Metals shall include, at a minimum, the following: arsenic, barium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, vanadium, and zinc.

B. Land Application Area Monitoring

1. Weekly Visual Inspections

LAA's shall be clearly marked and delineated with devices that are compatible with cultivation equipment. The Discharger shall visually inspect the LAA's at least once weekly during periods of high precipitation, and observations from those inspections shall be documented for inclusion in the semiannual monitoring reports. The following items shall be documented for each LAA:

- a. Evidence of erosion;
- b. Containment berm condition;

- c. Soil saturation;
- d. Ponding;
- e. Tailwater ditch condition, if present, and potential for runoff to off-site areas;
- f. Potential and actual discharge of contact storm water from LAA to surface water;
- g. Odors that have the potential to be objectionable at or beyond the property boundary; and
- h. Insects (e.g., flies, mosquitoes).
- i. Any corrective actions taken based on observations made.

A copy of entries made in the log during each monitoring period shall be submitted as part of the Semiannual Monitoring Report.

2. Land Application Monitoring

The Discharger shall perform the following routine monitoring and loading calculations for each discrete LAA each month when drilling mud is applied. When drilling mud application is planned for a new LAA which has previously-amended soils, two soil samples will be collected per acre of the planned area from a depth of 18-24 inches. The soil samples will be combined to form two composite samples that are representative of the area to be used in the LAA. The dry weight of the composite samples will be averaged and used to determine the percent soil amendment applied to native soils.

| Constituent/Parameter | Units | Sample Type | Monitoring Frequency | Reporting Frequency |
|--|----------|---------------------------------|----------------------|---------------------|
| Precipitation | inches | Rain Gauge Reading ¹ | Daily or Monthly | Semiannual |
| Acreage of drilling mud application | acres | Calculated | Monthly | Semiannual |
| Dry weight of soil for the LAA planned for future application ² | lb/cu ft | Soil | Annual | Annual |
| Percent dry weight applied to LAA | % | Calculated ³ | Annual | Annual |

¹ Data obtained from the nearest National Weather Service rain gauge is acceptable.

² Annually prior to application of drilling mud wastes, two locations per acre to which drilling muds will be applied shall be sampled from a depth of 18 to 24 inches and combined to form two composite samples for the LAA.

³ The annual loading rates shall be calculated for each LAA.

C. Soil Sampling

Annually, following the spring harvest, soil samples shall be collected at controlled depths of 6-12 inches, 18-24 inches and 30-36 inches from at least three locations in each LAA where drilling mud material was applied during the previous year. Sample locations must be logged using a Global Positioning System device. The three locations shall be mixed to form a composite sample for each depth at each LAA for laboratory analysis. Soil sampling data will be used to assess the potential for cumulative loading of metals and/or salts from the spent drilling mud applied.

These soil samples shall be tested for clay content, moisture content, general chemistry, and leachable constituents of concern as follows:

- a. Clay content was added per sieve analysis, test method ASTM D1140.
- b. Soil pH, electrical conductivity, cation exchange capacity (CEC), and oxidation-reduction potential (ORP). CEC and ORP are factors to assess metals attenuation in soils.
- c. Metals and other inorganics: DI WET extraction and Total Threshold Limit Concentration (TTLC) for Arsenic, Barium, Boron, Chromium, Copper, Iron, Lead, Manganese, Vanadium, and Zinc.

D. Groundwater Monitoring

The Discharger shall maintain the groundwater monitoring well network and continue to monitor the wells for the presence of groundwater. If a groundwater monitoring well is dry for more than four consecutive sampling events or until additional groundwater monitoring is required, the Central Valley Water Board may require the submittal of a work plan and proposed time schedule to replace the well(s).

If additional groundwater monitoring wells are required, the Discharger shall submit plans and specifications for approval prior to installation. Once installed, all new wells shall be added to the groundwater monitoring network.

1. Applicability of Groundwater Limitations

The following table lists all existing groundwater monitoring wells and designates the purpose of each well:

| | |
|---|------------------|
| Background Wells (Not Used for Compliance) | Compliance Wells |
|---|------------------|

| | |
|--------------|--|
| Monitoring) | |
| MW-11, MW-12 | MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9 |

2. Groundwater Sampling and Analysis

Prior to purging or sampling, the groundwater depth shall be measured in each well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

Low or no-purge sampling methods are acceptable, if described in EPA protocol or an approved Sampling and Analysis Plan. Otherwise, each monitoring well shall be purged of at least 3 to 5 casing volumes until pH, electrical conductivity and turbidity have stabilized prior to sampling. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

| Constituent/ Parameter | Units | Sample Type | Monitoring Frequency | Reporting Frequency |
|------------------------------------|-----------|-------------|-------------------------|------------------------|
| Depth to Groundwater | 0.01 feet | Measurement | Semiannually | Semiannually |
| Groundwater Elevation ¹ | 0.01 feet | Calculation | Semiannually | Semiannually |
| Gradient ¹ | feet/feet | Calculation | Semiannually | Semiannually |
| Gradient Direction ¹ | degrees | Calculation | Semiannually | Semiannually |
| pH | standard | Grab | Semiannually | Semiannually |
| EC | µmhos/cm/ | Grab | Semiannually | Semiannually |
| TDS | mg/L | Grab | Semiannually | Semiannually |
| COD | mg/L | Grab | Semiannually | Semiannually |
| Nitrate-nitrogen | mg/L | Grab | Semiannually | Semiannually |
| Total nitrogen | mg/L | Grab | Semiannually | Semiannually |
| General Minerals ² | mg/L | Grab | Annually ⁴ | Annually ⁴ |

| Constituent/ Parameter | Units | Sample Type | Monitoring Frequency | Reporting Frequency |
|---------------------------|-------|-------------|-------------------------|------------------------|
| Metals ³ | µg/L | Grab | Annually ⁴ | Annually ⁴ |

- ¹ Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing.
- ² General Minerals shall include, at a minimum, the following dissolved constituents to provide a cation/anion balance: aluminum, calcium, chloride, iron, magnesium, potassium, sodium, sulfate, and total alkalinity (including alkalinity series).
- ² Dissolved metals samples shall be filtered prior to preservation and digestion using a 0.45-micron filter. (arsenic, barium, cadmium, chromium, copper, lead, manganese, selenium, vanadium, zinc).
- ³ Annual samples shall be collected in the first half semiannual period when groundwater is most accessible.

III. Reporting Requirements

All monitoring reports should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: centralvalleyredding@waterboards.ca.gov.

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
 ECM Mailroom
 364 Knollcrest Drive, Suite 205
 Redding, California 96002

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the body of the email or transmittal sheet:

Attention: Compliance/Enforcement Section
 Fulton Reclamation Facility
 Glenn County
 WDID: 5A110303001

A transmittal letter shall accompany each monitoring report. The letter shall include a discussion of all violations of the WDRs and this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to Section B.3 of the Standard Provisions and General Reporting Requirements, the transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent

certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

Reports shall contain a facility map depicting the land application areas, receiving and temporary storage areas, and the acreage to which drilling muds were land-applied during the reporting period.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., discrete/composite soil, monitoring well, etc.), location, depth, and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

Laboratory analysis reports must be included in the monitoring reports; all laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

In addition to the requirements of Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

All reports that involve planning, investigation, evaluation or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to Business and Professions Code sections 6735, 7835, and 7835.1.

In the future, the State Water Board or Central Valley Regional Water Board may require electronic submittal of monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>) or similar system. Electronic submittal to CIWQS, when implemented, will meet the requirements of our Paperless Office System.

A. Semiannual Monitoring Reports

Semiannual monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-June semiannual report is due by **July 1st**). Each Semiannual Monitoring Report shall include the following:

1. Results of Drilling Mud Monitoring, including:
 - a. Tabulated total spent drilling muds received during the monitoring period and dry weight equivalent. Include description of methodology and/or calculations for review.
 - b. Daily receiving log with origin of drilling muds and field screening measurements
 - c. Laboratory reports and chain of custody documentation, if applicable.
 - d. Identification of field screening instruments used and a copy of relevant calibration log sheet(s) verifying calibration of any field monitoring instruments used to obtain data.
2. Results of Land Application Area Monitoring, including:
 - a. Description of soil sampling conducted to determine dry weight of amended soils in LAAs planned for drilling mud application, if applicable.
 - b. Reference map showing LAA delineations and specifying LAA areas to which drilling muds were applied. Include receiving areas, temporary storage areas and sample locations with GPS coordinates.
 - c. Laboratory reports and chain of custody documentation, if applicable.
 - d. Results of Soil Monitoring, if applicable.
 - e. A narrative description of soil sampling procedures and monitoring events.
 - f. GPS coordinates and a reference map showing sample locations.

- a. Total annual drilling muds received in dry tons, total acreage applied, identification of LAAs where muds were applied.
 - b. Reference map showing LAA delineations, receiving areas, temporary storage areas, drilling mud application areas, and active crop areas.
2. Land Application Area Monitoring
 - a. Summary table showing historic and current calculated average loading rates (in dry tons and percent application) for each LAA.
 - b. A narrative evaluation of percent application status of each LAA, fertilizer application and crop yield. If 16 percent application rate is reached, provide recommendation for future management of the LAA with regard to further characterization of soils and groundwater and continued drilling mud application to soils.
 - c. Description of runoff control operations.
3. Soil Monitoring
 - a. Summary tables of historic soil sampling results by LAA including percent clay content, cation exchange capacity, sodium adsorption ratio, and leachability data for salts for each LAA where soils were sampled.
 - b. A narrative evaluation of soils concentrations with regard to trigger levels provided in Section B of the WDRs (Discharge Specifications). Narrative should also discuss cation exchange capacity, oxidation reduction potential data, and the potential for metals attenuation.
4. Groundwater Monitoring
 - a. Concentration v. time graphs for each monitored constituent using all historic groundwater monitoring data.
 - b. A narrative evaluation of the groundwater quality beneath the site and determination of whether background concentrations were exceeded in any compliance well at any time during the calendar year. This shall be determined by comparing the annual average concentration for each well

during the calendar year to the corresponding background concentration.

- c. Monitoring equipment maintenance and calibration records, as described in Standard Provision C.4.
- d. A discussion of statistical trends, data gaps, anomalies, and/or potential deficiencies or redundancies in the monitoring system and reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provision B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 7 June 2019.



PATRICK PULUPA, Executive Officer

GLOSSARY

| | |
|--------------|--|
| EC | Electrical conductivity at 25° C |
| TDS | Total dissolved solids |
| Daily | Every day except weekends or holidays. |
| Weekly | Once per week. |
| Monthly | Once per calendar month. |
| Quarterly | Once per calendar quarter. |
| Semiannually | Once every six calendar months (i.e., two times per year) during non-consecutive quarters. |
| Annually | Once per year. |
| mg/L | Milligrams per liter |
| µg/L | Micrograms per liter |
| µmhos/cm | Micromhos per centimeter |
| gpd | Gallons per day |

INFORMATION SHEET

BACKGROUND

Spent drilling muds have been received at this location (Assessor's Parcel Number 024-100-020) in Glenn County, approximately five miles south of the City of Orland, since the mid-1970s. Initially five ponds were used to store drilling mud discharges, covering approximately 80 acres. The facility was equipped with four shallow groundwater monitoring wells, installed in 1982 and water quality degradation was documented at MW-3 in 1983. At that time the mud receiving area was located 200 feet north of the well. Moving the receiving area to 1,000 feet north of the well improved water quality at well MW-3 within one year. Elevated electrical conductivity in groundwater occurred again at this location the following year, presumably from mixing washout pond water with groundwater, and improved when washout operations were changed.

The pond in the southeast corner closest to monitoring well MW-3 was removed in 1985 and the three elevated ponds located to the west were used until August 1987. In 1985 the Discharger conducted an experimental land spreading operation on 18 acres with drilling mud application directly to land at approximately half a percent by dry weight. The spent drilling muds were dried in bermed areas and then disked into the native soil, classified as Cortina Very Gravelly Sandy Loam, as a soil amendment. Historically, the dry weight of drilling mud was calculated as the dry weight of a cubic foot of amended soil to the weight of a cubic foot volume of the predominant unamended Cortina Very Gravelly Sandy Loam.

In 1987, Regional Board staff requested that operations cease pending completion of a Report of Waste Discharge and the issuance of WDRs. The Regional Water Board initially adopted WDRs for this Facility on 28 October 1988 (WDR Order 88-192), under the Dischargers, Harry and Alvin Rehse, who operated the Rehse Drilling Mud Site and Soil Reclamation Facility.

WDR Order 88-192 specified a drilling mud application rate of 8 percent by dry weight, or 208 tons per acre to a depth of 12 inches based upon the experiment results for Sudan grass growth using augmented soils. WDRs 88-192 also proposed continued experimentation with variations of drilling mud application rate and the depth of application and required installation of a vadose zone monitoring network. Additional monitoring wells MW-5 and MW-6 through MW-9 were installed in 1989 and 1991, respectively.

The Regional Water Board issued a revised WDR Order 95-124 on 26 May 1995, naming Charles and Carol Fulton and the Fulton Family Trust as Discharger. WDR Order 95-124 specified an increase in drilling mud application rate to 12 percent, or 312 dry tons per acre, again required installation of a vadose zone monitoring network with monitoring requirements and added annual soil sampling requirements for areas receiving drilling mud as soil amendments.

In 2001 the Discharger submitted a Report of Waste Discharge proposing land application to 42 acres located north of the existing land application areas and the installation of three new monitoring wells (MW-10 through MW-12) and an increase in application rate to 16 percent. Case file correspondence shows the facility was scheduled to reach capacity for 12 percent loading in February 2002. WDR Order R5-2002-0141 continued the 12 percent drilling mud application rate and documented installation of the vadose zone monitoring network in 2002. The monitoring and reporting program required soil and vadose zone testing including soil horizon data, agronomic data, and vadose zone data using lysimeters, in addition to groundwater and drilling mud testing and monitoring.

On 9 August 2006, the Discharger submitted a Report of Waste Discharge and technical information requesting to increase drilling mud application rate from 12 to 16 percent. Soil data collected in 2003 and 2004 indicate elevated salts in soils but reports concluded using drilling muds as soil amendments increased crop yield. In a 10 September 2007 letter, the Discharger requested to increase the application to 24 percent, but the Water Board received no supporting technical information for the 24 percent application rate. WDR Order R5-2008-0045 specified a drilling mud application rate at 16 percent by dry weight and dropped soil monitoring requirements; the Discharger has discontinued experimental studies of application rates.

EXISTING OPERATIONS

Facility operations follow these steps: The Discharger records the volume, origin, description of the material (density), pH, electrical conductivity, and total dissolved solids concentrations for each truck load logged on a Daily Load Sheet. A surface sample and a deep sample of the drilling mud material is field tested for pH, EC, and TDS using an appropriate field instrument calibrated per manufacturer's recommendations. If the Discharger observes a sheen at the surface indicating the presence of petroleum product, the Discharger does not accept the material for final disposal at the Facility.

Once accepted, the haulers discharge the drilling mud material into unlined bermed areas, approximately 100 feet long by 60 feet wide. The unloaded truck then proceeds to a concrete lined washout area where any residual drilling mud and settled solids are washed off with a high-pressure washer onto a sloped concrete lined washout area that channels the washout water into a portable containment tank. The contents of the portable containment tank are spread over previously amended soil areas at a rate of approximately 0.25 gallons per square foot.

After the material in the bermed areas dries to a workable moisture content, the Discharger spreads and turns the berm material and dried drilling mud to accommodate agricultural operations. The material is tilled into the native soil to a maximum depth of three feet. The land application areas are seeded in early winter with a dryland hay crop, typically Kanota Oats or a mixed forage seed (rye, oat, wheat), and naturally irrigated by rainfall. If needed, ammonium sulfate fertilizer is applied to the crop in late fall, usually November. Fertilizer need is determined by annual agronomic testing for soil nutrients. In the spring the hay is harvested and sold as animal fodder. In 2004 the Discharger provided a Facility Cropping Plan which calculated the nitrogen removal rate to be approximately 40 percent with minimal plant utilization of heavy metals present in drilling muds.

On 23 September 2016 the Discharger requested to amend Waste Discharge Requirements Order R5-2008-0045 (WDRs) to reflect a property sale and continue the Facility's operations on the remaining 100 acres. The Central Valley Water Board requested an Updated Report of Waste Discharge and the Discharger submitted the required documentation on 15 March and 30 June 2017.

Further inquiry regarding the determination of the percent dry weight of materials added to the land prompted the Discharger to conduct bench scale testing in January 2018 to determine dry weights for various consistencies of drilling muds received. Using these data, the total dry weight of drilling mud is calculated for the year and divided by the acreage to which the material is applied to a three-foot depth. The pounds per cubic foot are then divided by the dry weight of a cubic foot volume of the unamended Cortina Very Gravelly Sandy Loam (118.5 lb/cu.ft. - Anderson, John M. May 1986. "Report of Technical Information for the Rehse Brothers Drilling-Mud Site and Soil Reclamation Operations, Orland, California."). Additionally, when drilling muds are applied to land application areas with previously-amended soils, two soil samples are collected per acre in the area planned for application and composited for a dry weight analysis applicable to that land application area. The amended soil dry

weight is then added to the dry weight of the additional drilling muds received dry and compared to the unamended soil dry weight to determine the percent application rate.

This Order also establishes trigger concentrations for constituents of concern in soils to monitor potential cumulative loading effects from continued application of spent drilling muds. If one of the trigger soil concentrations is detected and/or the 16 percent application rate is reached for a particular land application area, the Central Valley Water Board will require further evaluation to demonstrate that continued application of spent drilling muds will not pose a threat to water quality beneath the site.

GROUNDWATER CONDITIONS

The Facility is located on flat terrain sloping gently to the south at an elevation of approximately 210 feet above mean sea level. Neighboring land uses are agricultural including a dairy located to the west, nut orchard to the north, and farms to the east and south. Surface water drainage is to ephemeral streams which are tributary to the Colusa Basin Drain and then to the Sacramento River.

According to the Department of Water Resources Water Management Planning Tool the Facility is in the Sacramento Valley-Colusa groundwater basin (No.5-021.52) of the Sacramento River Hydrologic Unit HUC-12 180201 040400. The National Weather Service, Orland Station, reports mean annual precipitation for Orland, California for the years to be 23 inches and the National Oceanic and Atmospheric Administration reports the 100-year, 24-hour precipitation event is 4.9 inches.

During drilling activities, regional groundwater underlying the area was first-encountered at about 26 feet below ground surface (bgs) and historical groundwater monitoring data for 2000 to 2008 show static depths to water ranging from 27 to 50 feet bgs. Historic water table elevations indicate that local groundwater flows to the southeast. More recent groundwater data provided by the DWR Groundwater Information Center (GIC) Interactive map shows depths to regional groundwater are 70 to 90 feet bgs and with groundwater flow to the south. Nearby wells show a 20-foot decline in average groundwater elevations between 2008 and 2012.

The Facility has ten shallow groundwater monitoring wells, however most of the wells have been dry since 2008. Background wells MW-11 and MW-12 were dry from spring 2014 through fall 2016 but again provide water level and water quality data; these are located northwest of the Facility near the dairy farm.

Well construction information is summarized in the table below. Wells MW-5 and MW-10 were abandoned in 2017 at the time of the property sale.

Groundwater Monitoring Well Construction Details

| Monitoring Well ID | Type | Top of Casing (ft MSL) | Total Depth (ft below top of casing) | Screen Interval (ft below top of casing) |
|--------------------|------------|------------------------|--------------------------------------|--|
| MW-1 | compliance | 205.26 | 49.74 | 29-49 |
| MW-2 | compliance | 202.72 | 47.2 | 30-47 |
| MW-3 | compliance | 207.84 | 47.17 | 30-47 |
| MW-4 | compliance | 208.56 | 48.23 | 30-48 |
| MW-6 | compliance | 209.14 | 54.96 | unknown |

| | | | | |
|-------|------------|--------|-------|---------|
| MW-7 | compliance | 208.83 | 62.55 | unknown |
| MW-8 | compliance | 209.02 | 52.25 | unknown |
| MW-9 | compliance | 205.99 | 60.26 | unknown |
| MW-11 | background | 217.42 | 51.3 | 30-50 |
| MW-12 | background | 213.04 | 52.51 | 30-50 |

In 2004 Kleinfelder developed Water Quality Protection Standards in accordance with Title 27, Section 20415(e)(7-9) using an intra-well analysis procedure defined by U.S. EPA's guidance document: Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities-Interim Final Guidance (EPA, 1989). The standard deviation and mean of pool results for upgradient wells MW-5, MW-10, MW-11, and MW-12 were used to calculate Upper Tolerance Limits (UTLs) for each parameter tested. With the 42-acre land application addition in 2002, wells MW-5 and MW-10 were re-designated as compliance wells. Kleinfelder argued that compliance wells showing exceedances of a single UTL did not indicate water quality degradation, and based on this argument, concluded that only compliance well MW-4 showed water quality degradation. Data for well MW-4 showed UTL exceedances for six parameters, among them sodium, chloride, sulfate and conductivity. Kleinfelder recommended consideration of MW-4 removal from the monitoring network and/or abandonment, arguing that water levels were unusual in this well; however, review of historical data does not indicate irregular water level data.

VADOSE ZONE

WDR Order R5-2002-0141 documented a vadose zone monitoring network which included 30 shallow lysimeters (30 inches), and three deep lysimeters (60 inches). WDR Order R5-2008-0045 reported 12 functional lysimeters at the 30-inch depth and two lysimeters at 60-inches. Only one 60-inch lysimeter, DL-U, and one gypsum block, G-U, remain at the southwest corner of the property.

Vadose-zone water-quality sampling is often limited by insufficient sample volumes and data have proven inconclusive. This Order does not require continued vadose zone monitoring.

Proposed Order Terms and Conditions

DISCHARGE PROHIBITIONS, SPECIFICATIONS AND PROVISIONS

The proposed Order prohibits discharge of drilling muds to surface waters or surface water drainage courses.

The proposed Order's provisions regarding storm water reporting requirements, evaluation of land application capacity, and plans for closure are consistent with Central Valley Water Board policies for the prevention of nuisance conditions and are applied to all similarly-situated facilities.

The proposed Order prescribes effluent and groundwater limitations that ensure the discharge does not affect present and anticipated beneficial uses of groundwater.

MONITORING REQUIREMENTS

Section 13267 of the California Water Code authorizes the Central Valley Water Board to require the Discharger to submit monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State.

The proposed Order includes drilling mud receiving, land application area, soils and groundwater monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance as

prescribed by this Order, and evaluate groundwater quality and the extent of degradation, if any, caused by the discharge.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, revised May 2018* (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 Board. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial supply, hydropower generation, water contact recreation, non-contact water recreation, warm freshwater habitat, cold freshwater habitat, spawning reproduction and/or early development, wildlife habitat and navigation.

ANTIDegradation

Based on the data available, pre-1968 groundwater quality is similar to current groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

The discharge and the potential for groundwater degradation allowed in this Order for the treatment and disposal of spent drilling muds is consistent with the Antidegradation Policy because; (a) the limited degradation allowed by this Order for treatment and disposal of drilling muds will not result in water quality less than the water quality objectives, or unreasonably affect present and anticipated beneficial uses, (b) the Discharger has implemented best practicable treatment or control (BPTC) to minimize degradation, and (c) the limited degradation is of the maximum benefit to the people of the State.

However, the groundwater data submitted for the Facility are incomplete. Therefore, these WDRs include a Monitoring and Reporting Program which will provide an evaluation of land application capacity and planning for closure the first year following permit adoption and allows the Central Valley Water Board to request additional groundwater monitoring in the future.

CEQA

It has been previously determined that the operation of this facility does not require the County to undertake a discretionary approval under the California Environmental Quality Act ("CEQA")(Pub. Resources Code, § 21000 et seq.). All spent drilling mud disposal operations at the facility are currently in use. This Order places additional requirements on the continued operation of the facility in order to ensure the protection of waters of the state. The issuance of this Order is therefore exempt from the provisions of CEQA in accordance with California Code of Regulations, title 14, section 15301, which exempts the "operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features" from environmental review.

LEGAL EFFECT OF RESCISSION OF PRIOR WDRS OR ORDERS OF EXISTING VIOLATIONS

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

CV-SALTS REGULATORY CONSIDERATIONS

The Central Valley Water Board is developing amendments to the Basin Plan to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the waters and soils of the Central Valley as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative. The Salinity Control Program currently being developed would subject dischargers that do not meet stringent salinity numeric values (700 $\mu\text{S}/\text{cm}$ EC as a monthly average to protect the AGR beneficial use and 900 $\mu\text{S}/\text{cm}$ EC as an annual average to protect the MUN beneficial use) to performance-based salinity requirements, and would require these dischargers to participate in a basin-wide Prioritization and Optimization Study to develop a long-term strategy for addressing salinity accumulation in the Central Valley.

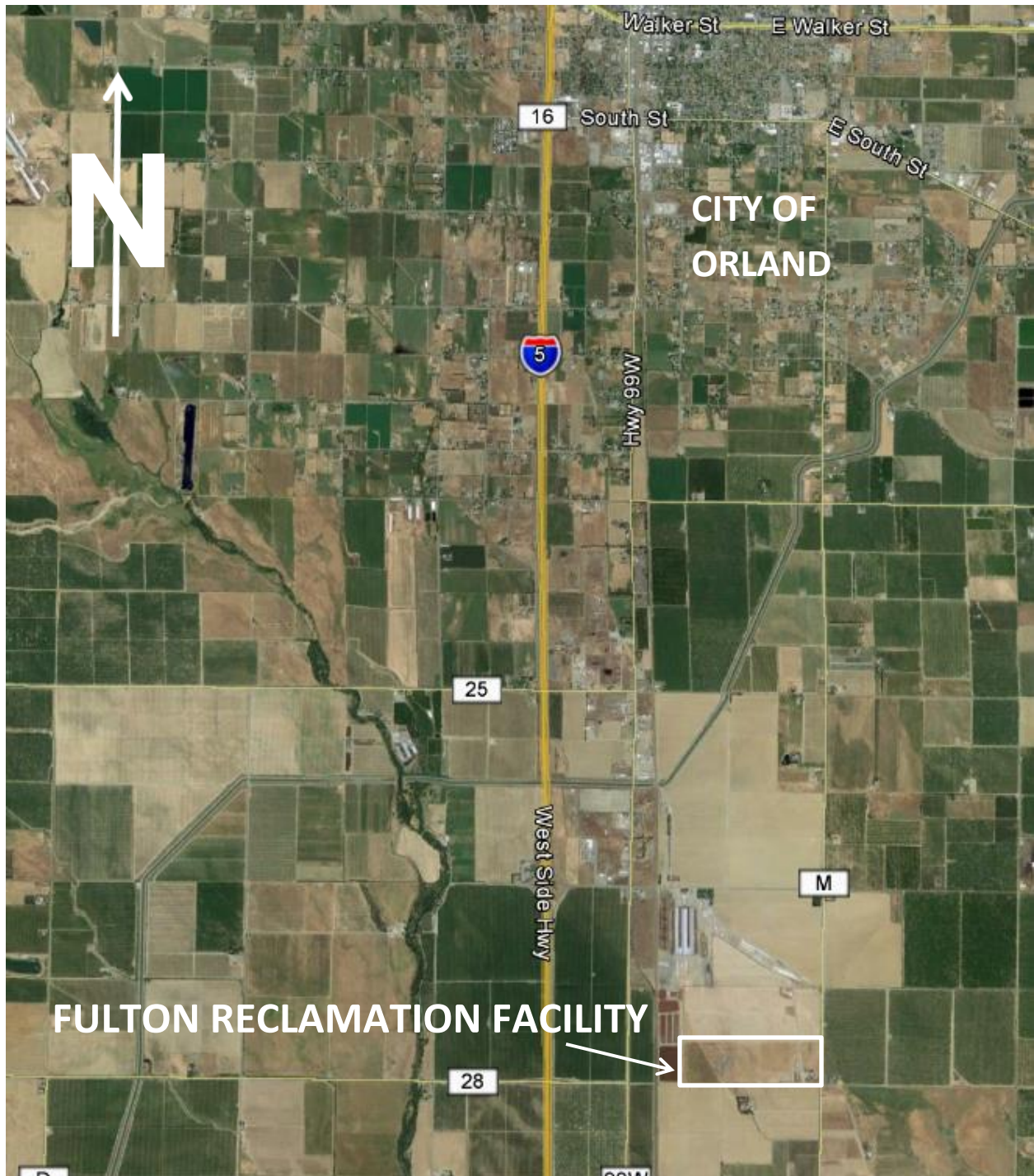
The level of participation required of dischargers whose discharges do not meet stringent salinity requirements will vary based on factors such as the amount of salinity in the discharge, local conditions, and type of discharge. The Board anticipates that the CV-SALTS initiative will result in regulatory changes that will be implemented through conditional prohibitions and modifications to many WDRs region-wide, including the WDRs that regulate discharges from the Facility. More information regarding this regulatory planning process can be found at the following link:

https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/

REOPENER

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans and are intended to assure conformance with them. It may be appropriate to reopen the Order if new technical information is received or if applicable laws and regulations change.

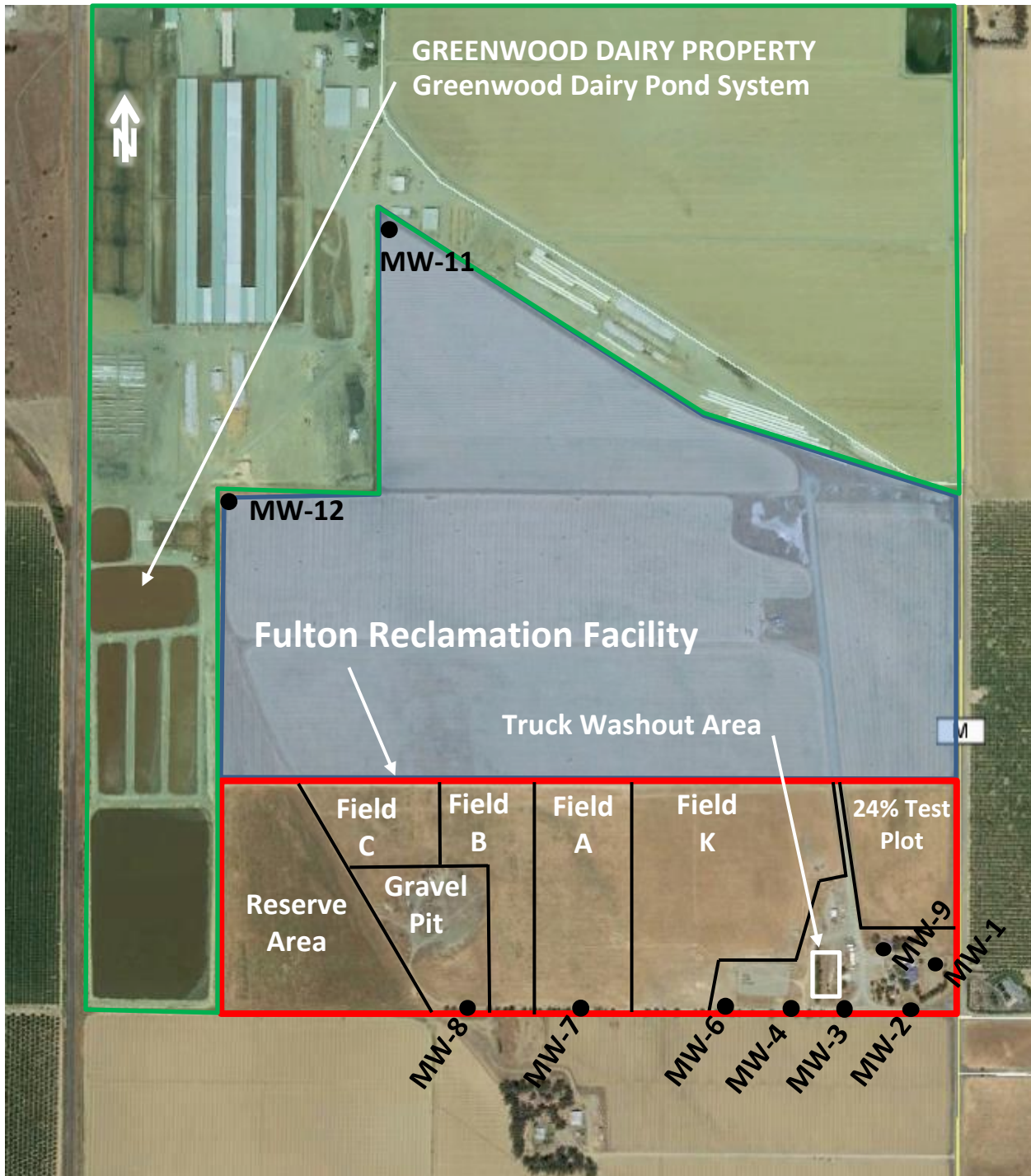
ATTACHMENT A - SITE LOCATION MAP



DRAWING REFERENCE:
GOOGLE EARTH
MAP DATA: © 2018 GOOGLE
NO SCALE

SITE LOCATION MAP
FULTON RECLAMATION FACILITY
GLENN COUNTY

ATTACHMENT B - FACILITY MAP



DRAWING REFERENCE:
GOOGLE EARTH
MAP DATA: © 2018 GOOGLE
NO SCALE

FACILITY MAP
FULTON RECLAMATION FACILITY
GLENN COUNTY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS

1 March 1991

A. General Provisions:

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
2. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
3. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
 - 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;
 - d. A material change in the character, location, or volume of discharge.
4. Before making a material change in the character, location, or volume of discharge, the discharger shall file a new Report of Waste Discharge with the Regional Board. A material change includes, but is not limited to, the following:
 - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements.
 - b. A significant change in disposal method, location or volume, e.g., change from land disposal to land treatment.
 - c. The addition of a major industrial, municipal or domestic waste discharge facility.
 - d. The addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.

Waste Discharge to Land

5. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
6. The discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.
7. The discharger shall maintain in good working order and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
8. The discharger shall permit representatives of the Regional Board (hereafter Board) and the State Water Resources Control Board, upon presentations of credentials, to:
 - a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,
 - b. Copy any records required to be kept under terms and conditions of this Order,
 - c. Inspect at reasonable hours, monitoring equipment required by this Order, and
 - d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.
9. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.
10. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be a defense for the discharger's violations of the Order.
11. Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.
12. The discharge shall remain within the designated disposal area at all times.

B. General Reporting Requirements:

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at **(916) 464-3291** [*Note: Current phone numbers for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us.*] as soon as it or its agents

Waste Discharge to Land

have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

2. The discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events.

This plan shall:

- a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.
- b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.
- c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

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

3. All reports shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in 3a, 3b or 3c of this requirement if;
 - (1) the authorization is made in writing by a person described in 3a, 3b or 3c 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 waste management 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 Board

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

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the 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. Technical and monitoring reports specified in this Order are requested pursuant to Section 13267 of the Water Code. Failing to furnish the reports by the specified deadlines and falsifying information in the reports, are misdemeanors that may result in assessment of civil liabilities against the discharger.
5. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Note: Current addresses for all three Regional Board offices may be found on the internet at http://www.swrcb.ca.gov/rwqcb5/contact_us or the current address if the office relocates.

C. Provisions for Monitoring:

1. All analyses shall be made in accordance with the latest edition of: (1) *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 600 Series) and (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition). The test method may be modified subject to application and approval of alternate test procedures under the Code of Federal Regulations (40 CFR 136).
2. Chemical, bacteriological, and bioassay analysis shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Board staff. The Quality Assurance-Quality Control Program must conform to EPA guidelines or to procedures approved by the Board.

Unless otherwise specified, all metals shall be reported as Total Metals.

3. The discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to

Waste Discharge to Land

complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

Record of monitoring information shall include:

- a. the date, exact place, and time of sampling or measurements,
 - b. the individual(s) who performed the sampling of the measurements,
 - c. the date(s) analyses were performed,
 - d. the individual(s) who performed the analyses,
 - e. the laboratory which performed the analysis,
 - f. the analytical techniques or methods used, and
 - g. the results of such analyses.
4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.
 5. The discharger shall maintain a written sampling program sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling plan.
 6. The discharger shall construct all monitoring wells to meet or exceed the standards stated in the State Department of Water Resources *Bulletin 74-81* and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.22

D. Standard Conditions for Facilities Subject to California Code of Regulations, Title 23, Division 3, Chapter 15 (Chapter 15)

1. All classified waste management units shall be designed under the direct supervision of a California registered civil engineer or a California certified engineering geologist. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:
 - a. demonstrate that the waste management unit has been constructed according to the specifications and plans as approved by the Board.
 - b. provide quality control on the materials and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
2. Prior to the discharge of waste to any classified waste management unit, a California registered civil engineer or a California certified engineering geologist must certify that the waste management unit meets the construction or prescriptive standards and performance goals in Chapter 15, unless an engineered alternative has been approved by the Board. In the case of an engineered alternative, the registered civil engineer or a certified engineering geologist must

Waste Discharge to Land

certify that the waste management unit has been constructed in accordance with Board-approved plans and specifications.

3. Materials used to construct liners shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the waste management units.
4. Closure of each waste management unit shall be performed under the direct supervision of a California registered civil engineer or a California certified engineering geologist.

E. Conditions Applicable to Discharge Facilities Exempted from Chapter 15 Under Section 2511

1. If the discharger's wastewater treatment plant is publicly owned or regulated by the Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to California Code of Regulations, Title 23, Division 4, Chapter 14.
2. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The Board may take enforcement action against the discharger for by-pass unless:
 - a. (1) By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and
 - (2) There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or
 - b. (1) by-pass is required for essential maintenance to assure efficient operation; and
 - (2) neither effluent nor receiving water limitations are exceeded; and
 - (3) the discharger notifies the Board ten days in advance.

The permittee shall submit notice of an unanticipated by-pass as required in paragraph B.1. above.

3. A discharger that wishes to establish the affirmative defense of an upset (see definition in E.6 below) in an action brought for noncompliance shall demonstrate, through properly signed, contemporaneous operating logs, or other evidence, that:

Waste Discharge to Land

- a. an upset occurred and the cause(s) can be identified;
- b. the permitted facility was being properly operated at the time of the upset;
- c. the discharger submitted notice of the upset as required in paragraph B.1. above; and
- d. the discharger complied with any remedial measures required by waste discharge requirements.

In any enforcement proceeding, the discharger seeking to establish the occurrence of an upset has the burden of proof.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Board by **31 January**.
5. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to disposal. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
6. Definitions
 - a. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper action.
 - b. The monthly average discharge is the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging. This number is to be reported in gallons per day or million gallons per day.

Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges by the number of days during the month when the measurements were made.
 - c. The monthly average concentration is the arithmetic mean of measurements made during the month.
 - d. The "daily maximum" **discharge** is the total discharge by volume during any day.

Waste Discharge to Land

- e. The “daily maximum” **concentration** is the highest measurement made on any single discrete sample or composite sample.
- f. A “grab” sample is any sample collected in less than 15 minutes.
- g. Unless otherwise specified, a composite sample is a combination of individual samples collected over the specified sampling period;
 - (1) at equal time intervals, with a maximum interval of one hour
 - (2) at varying time intervals (average interval one hour or less) so that each sample represents an equal portion of the cumulative flow.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results.

7. Annual Pretreatment Report Requirements:

Applies to dischargers required to have a Pretreatment Program as stated in waste discharge requirements.)

The annual report shall be submitted **by 28 February** and include, but not be limited to, the following items:

- a. A summary of analytical results from representative, flow-proportioned, 24-hour composite sampling of the influent and effluent for those pollutants EPA has identified under Section 307(a) of the Clean Water Act which are known or suspected to be discharged by industrial users.

The discharger is not required to sample and analyze for asbestos until EPA promulgates an applicable analytical technique under 40 CFR (Code of Federal Regulations) Part 136. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

- b. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the discharger knows or suspects were caused by industrial users of the system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any

Waste Discharge to Land

additional limitations, or changes to existing requirements, may be necessary to prevent Pass Through, Interference, or noncompliance with sludge disposal requirements.

- c. The cumulative number of industrial users that the discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
- d. An updated list of the discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:
 - (1) Complied with baseline monitoring report requirements (where applicable);
 - (2) Consistently achieved compliance;
 - (3) Inconsistently achieved compliance;
 - (4) Significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
 - (5) Complied with schedule to achieve compliance (include the date final compliance is required);
 - (6) Did not achieve compliance and not on a compliance schedule;
 - (7) Compliance status unknown.

A report describing the compliance status of any industrial user characterized by the descriptions in items (d)(3) through (d)(7) above shall be **submitted quarterly from the annual report date** to EPA and the Board. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this Order.

- e. A summary of the inspection and sampling activities conducted by the discharger during the past year to gather information and data regarding the industrial users. The summary shall include but not be limited to, a tabulation of categories of dischargers that were inspected and sampled; how many and how often; and incidents of noncompliance detected.

Waste Discharge to Land

- f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:
- (1) Warning letters or notices of violation regarding the industrial user's apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations;
 - (2) Administrative Orders regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
 - (3) Civil actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations;
 - (4) Criminal actions regarding the industrial user's noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
 - (5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;
 - (6) Restriction of flow to the treatment plant; or
 - (7) Disconnection from discharge to the treatment plant.
- g. A description of any significant changes in operating the pretreatment program which differ from the discharger's approved Pretreatment Program, including, but not limited to, changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority of enforcement policy; funding mechanisms; resource requirements; and staffing levels.
- h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.
- i. A summary of public participation activities to involve and inform the public.
- j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

Duplicate signed copies of these reports shall be submitted to the Board and:

Regional Administrator
U.S. Environmental Protection Agency W-5
75 Hawthorne Street
San Francisco, CA 94105

and

State Water Resource Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

Revised January 2004 to update addresses and phone numbers