

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2019-0038

WASTE DISCHARGE REQUIREMENTS

FOR

US MINE CORPORATION
US MINE CORPORATION IONE PLANT
FOR CONSTRUCTION AND OPERATION
AMADOR COUNTY

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

1. US Mine Corporation (hereinafter Discharger or US Mine) owns and operates the US Mine Corporation, Ione Plant (facility) about 1.25 miles south of Ione in Amador County, in Sections 35 and 36, T5N, R9E, and Sections 1 and 2, T5N, R9E MDB&M. The facility is a sand and clay mining and processing operation regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, Title 27 ("Title 27"), section 20005 et seq.
2. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
 - Attachment A – Facility Location
 - Attachment B – Facility Units
 - Attachment C – Proposed Clay Tailings Impoundments
 - Attachment D – Groundwater and Surface Impoundment Monitoring Network
 - Attachment E – pH Isolines
 - Information Sheet
 - April 2016 Standard Provisions and Reporting Requirements
3. The following acronyms are used throughout this Order:

CDB	Clay Drying Beds
COC	Constituents of Concern
EC	Electrical Conductivity
MCL	Maximum Contaminant Level
MRP	Monitoring and Reporting Program
MU	Mining Unit
ROWD	Report of Waste Discharge
TDS	Total Dissolved Solids
WDR	Waste Discharge Requirements
WQPS	Water Quality Protection Standards

4. The facility is located at 8625 Highway 24, Ione, as shown on Attachment A. The facility consists of Amador County Assessor's Parcel Numbers 05-130-012, -033, -034 and -051; 05-150-007, and -008; 05-160-003, -004, -009, -010, -012, -014 and -015; and 05-190-021.
5. The existing and future facility area is approximately 3,570 acres of which 402 acres have been constructed or reclaimed. Mining activities are currently confined to the portion of the property located south of Ione, west of California Highway 124, and north of California Highway 88, as shown on Attachment B. The facility consists and is proposed to consist of mining units as described in finding 14 and shown on Attachments B and C.
6. The facility was first regulated by WDRs Order No. 5-01-169 which required groundwater monitoring at the site. The Discharger's groundwater monitoring analytical results detected waste constituents in groundwater that degraded waters of the state. Based on those results, the facility was regulated under the requirements in Title 27 in 2009 by new WDRs Order R5-2009-0019 which replaced WDRs Order No. 5-01-0169. After US Mine acquired the property in 2015, Order R5-2015-0145 amended Order R5-2009-0019 by updating the facility name and ownership information to reflect the new owner and operator and the change in facility name.
7. The facility was in continuous operation from 1955 to 2013. A previous Discharger initiated reclamation activities in 2014 and planned to complete reclamation in 2015. US Mine Corporation restarted mining and production in the second half of 2016 after a break in production from 2013-2016. Mining and production have been intermittent since that time.
8. On 19 September 2018, the Discharger submitted a Report of Waste Discharge (ROWD). The ROWD and supporting documents contain information related to this revision/update. The Discharger is proposing to change the treatment and management of clay tailings at the facility. Instead of the treatment in the thickening plant and the discharge of partially dewatered clay paste into the currently permitted tailings ponds (Ponds K and I), US Mine proposes to construct a series of gravity connected clay lined impoundments designed to recover clay and reclaim the water for the use in the mining process. This Order permits the construction of new tailing impoundments and the proposed change in clay tailing management and treatment.
9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in sections A through H of these WDRs below, and in the Standard Provisions and Reporting Requirements, dated April 2016 (SPRRs) which are attached hereto and made part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-2019-0038 and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all facilities regulated

under Title 27 are considered to be “standard” and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.

MINING AND PROCESSING INFORMATION

10. The Discharger conducts active mining at the South Pit/Pond L (Attachment B). Mining includes excavating approximately 700 tons of sand ore per day. The current sand separation process uses water, sodium hydroxide and tall oil to separate sand from clay in the ore. After separation, the sand is dried and stored on a paved pad pending sale and delivery to customers. The tall oil degrades rapidly during sand storage on the pad. Sodium hydroxide is used to neutralize the natural acidity of the ore and monitoring has shown that the sodium hydroxide does not pose a threat to water quality as used in the sand separation process. A clay tailing slurry (classified as a Group B waste as defined in finding 13) resulting from sand separation is piped to a paste plant where an amine polymer is added to flocculate the clays. The thickened paste has been classified as Group C waste (as defined in finding 13) and discharged to a permitted management facility (tailings impoundment) referred to as Ponds K and I. Water from dewatering in the paste plant, and water decanted from the tailings pond is pumped to the Mill Pond for recycling within the sand/clay separation process.
11. The Discharger proposes to modify the treatment and management of clay tailings to simplify the treatment process and allow recovery of additional salable clay products that are now managed as waste. To that end, the Discharger proposes to construct a series of gravity connected clay lined settling impoundments named Clay Drying Beds (CBD) for the discharge of clay tailings.
12. The Discharger proposes to pipe clay tailings through a velocity dissipater (vault) into a series of settling impoundments, each divided by internal weirs, such as CDB-1 or CDB-2 shown on Attachment C. Clays will settle on the bottom of the pond allowing the decanted process water and increasingly finer clays to be transported via gravity downstream to the lower settling impoundments. Fully decanted process water will ultimately flow to the Decant Pond from which it would be transferred to the Mill Pond for reuse in the sand separation process. Storm water retention Pond J would serve as an overflow pond for the decant water when necessary. CDB-1 and CDB-2 will be used alternately to allow active clay accumulation in one pond while passive drying can occur in the other pond. Harvested clay would be held in raw bulk outdoor storage until dried, milled and sold.

13. After dewatering, the decanted water will be transferred to the Mill Pond for reuse. Since recommencement of mining and processing in 2016, supply from reclaimed process water and captured stormwater has been sufficient for all plant operations. Therefore, the use of supplemental source of water has not been needed. However, infrastructure from the previous operator's raw water account with Amador Water Agency (AWA) remains in place.
14. The Discharger proposes to continue to use tall-oil fatty acid in sand processing and sodium hydroxide for neutralization of clay slurry and process water. The Discharger will discontinue the use of amine polymer used in the paste thickening plant after the new proposed clay slurry discharge process is demonstrated effective. The thickening plant may be retained as an emergency backup.

MINING WASTE CLASSIFICATION

15. Order R5-2007-0019 classified clay tailings resulting from the sand separation process as Group B mining waste and required treatment and management to bring clay solids to Group C classification. This order continues this classification pursuant to Title 27, section 22480, which states, in part:

Group B – *mining waste of Group B is either:*

- (a) *mining wastes that consist of or contain hazardous wastes, that qualify for a variance under Chapter 11 of Division 4.5, of Title 22 of this code, provided that the [regional water quality control board] finds that such mining wastes pose a low risk to water quality;*
- (b) *or mining wastes that consist of or contain nonhazardous soluble pollutants of concentrations which exceed water quality objectives for, or could cause, degradation of waters of the state; or*

Group C – *mining wastes from Group C are wastes from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity.*

16. The existing and proposed mining units authorized by this Order are described as follows:

<u>Unit</u>	<u>Area (acre)</u>	<u>Liner</u>	<u>Unit Description & Status</u>
Ponds F and G	70	Clay filled	Reclaimed and closed; location of future CDB Impoundments and Decant Pond
Pond H	9	Clay filled	Not active, in reclamation
Pond J	27	Unlined	Storm water retention/ future decant water overflow pond
Ponds I and K	42	Unlined	Active tailings ponds; backup tailings discharge option after construction of CBD and Decant Ponds
South Pit/Pond L	161	Unlined	Active sand mine/pit
Mill Pond	10	Unlined	Process makeup water pond
CBD Ponds 1 and 2	10 each	Two feet of clay compacted to 90 percent relative compaction	Future clay tailings impoundments; in the location of Ponds F&G
Decant Pond	8	Two feet of clay compacted to 90 percent relative compaction	Future process water recovery impoundment (Group B mining waste); in the location of Pond F

17. The constituents of concern (COC) at the facility are low pH, high concentrations of total dissolved solids (TDS) and sulfate, and high concentrations of metals such as aluminum, sodium, nickel and lead.
18. The Discharger submitted *Characterization of Water and Clay Byproducts, US Mine Corporation Ione Plant, Ione, California* (Characterization Report) on 3 August 2018. The Characterization Report documented a pilot test wherein the Discharger simulated the proposed future clay tailings impoundment setup using a series of gravity connected 55-gallon drums. Samples of clay tailings, settled clay, and decanted process water were collected and analyzed. Laboratory analyses were limited to the COCs identified by the Order and listed in finding 15. The COC concentrations in the samples collected from the simulated clay settling experiment are shown in the table below. The table also includes the California primary maximum contaminant level (primary MCL), the lowest applicable water quality objective (WQO) for groundwater

for protection of drinking water beneficial use for domestic and municipal supply wells, and the background groundwater quality at the site.

Sample/ COC	Aluminum (µg/l)*	Iron (mg/l)**	Lead (µg/l)	Nickel (µg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Dissolved Solids (mg/l)
Decant Water	<50-1,300	<0.10-11	5-23	20-28	170-220	560-770	735-770
Clay Slurry Water	1,300	5.2	30	24	170	570	730
Intrawell Water Quality Protection Standards	94-4,400	24-110	5-9	59-77	95 – 892	120-667	732-3136
CA Primary MCL	1,000	none	15	100	none	none	none
Lowest Applicable WQO	50 ¹⁾	0.3 ^{1), 2)}	0.2 ³⁾	12 ³⁾	20 ⁴⁾	250 ²⁾	500 ²⁾
Background Groundwater Data	9,200	38	42	25	60	173	429

*µg/L = micrograms per liter

**mg/L = milligrams per liter

1) U.S. Environmental Protection Agency (USEPA), Secondary Maximum Contaminant Level (MCL)

2) California Division of Drinking Water Secondary MCL

3) California Public Health Goal (PHG)

4) USEPA Health Advisory

19. Staff reviewed the Characterization Report and responded in a 21 August 2018 letter which concurred with the assertion that the proposed treatment and management achieves Group C classification for the solid component of clay tailings because:
- * The results of acid base accounting analyses of clay samples indicate that acid generation from the solid clay is not likely.
 - * The concentrations of aluminum, iron, and lead in process water samples exceeded water quality goals, but they remained below the maximum intrawell WQPS for onsite groundwater monitoring wells.
 - * Neutralization of decant process water with sodium hydroxide reduced metal concentrations and can be considered treatment to reduce the need for containment pursuant to Title 27 section 22480(d).
 - * US Mine proposes to construct a continuous low permeability clay liner consisting of at least 2 feet of compacted in-situ clay with hydraulic conductivity less than 10⁻⁶ centimeters per second (cm/s) on the bottom of the proposed series of ponds to protect underlying groundwater from any impact associated with their proposed use.
20. The results of the Characterization Report show that the intrinsic properties of tailings in combination with the proposed treatment allow for the containment of clay tailings by less stringent measures pursuant to the Title 27 sections 22480 (c)(3) and (d) which

state respectively: "Classification Considerations - In reaching decisions regarding classification of a mining waste as a Group B or Group C waste, the RWQCB can consider the following: ... (3) whether, because of its intrinsic properties, the waste is readily containable by less stringent measures."; and "(d)Treatment- Mining waste shall be treated or neutralized whenever feasible to minimize the threat to water quality and minimize the need to install waste containment structures."

21. The data also suggest that the discharge consists of or contains pollutants that, under ambient environmental conditions at a mining unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state. Therefore, the discharge is a Group B mining waste and as such requires treatment and management to achieve Group C classification as allowed by Title 27 section 22480 (d). This order continues this classification but allows the change in treatment and management as proposed by the Discharger.

SITE DESCRIPTION

22. Elevation varies across the active area from about 390 feet above mean sea level (AMSL) on the northeast to about 240 feet AMSL on the southwest. Slopes outside of mine pits in the area are gentle to moderate, with local steep slopes at the active mining pit.
23. The lone facility lies along a drainage divide between Jackson Creek to the south, and Dry Creek to the north. Most of the lone plant is internally drained with storm water directed to mine pits and storage ponds. Accumulated runoff is used in the current mining process. During very large rain events, runoff from a small disturbed area at the site does flow off site at the plant entrance along Highway 124. This water is managed by US Mine in accordance with the Industrial General Permit for storm water discharges.
24. Land uses within one mile of the facility include railroad tracks, the City of Ione, and Charles Howard Park to the north, agricultural land with sparse residences across the Jackson Valley Road to the south and to the east, and rural agricultural land to the west. As shown on Attachment B, California Highway 124 crosses the northern half of the property from north to south, and California Highway 88 passes through the approximate middle of the property from east to west.
25. There are 4 groundwater supply wells within one mile of the facility. The four domestic wells are located two each in Sections 1 and 2, Township 5N, Range 9E, Mount Diablo Meridian, respectively.
26. The lone Plant is mining the lone Formation which consists of middle Eocene (about 45 million years old) clay, sandstone, and siltstone. In the area around the facility, the lone Formation is deposited unconformably on the Jurassic (about 145 to 200 million years old) metamorphosed bedrock wherever surface exposures are present. In the

subsurface, the lone Formation is separated locally from the older metamorphic rocks by other sedimentary rocks.

The lone Formation, near the lone Plant, was deposited in a northwest-southeast depression between the pre-lone metamorphic rocks to the east, and the Carabas Paleo-ridge, a topographical high underlain by pre-lone metamorphic. The Carabas Paleo-ridge is expressed at the surface as two northwest-southeast elongated areas of Jurassic metamorphic rock to the west of the lone Plant. The lone beds define a broad synclinal trough with a northwest-southeast oriented axis between the Carabas Paleo-ridge and the metamorphic rocks to the east.

27. The measured horizontal hydraulic conductivity of native soils underlying the mining units is about 3.6×10^{-6} centimeters per second (cm/s).
28. Based on a site-specific seismic analysis, the controlling maximum credible earthquake (MCE) for the site is a moment of magnitude less than 6.7 event along the Greenville Fault at a closest rupture distance of 60 miles/kilometers southwest from the site. It is estimated that a MCE event would produce a peak ground acceleration of 0.213 g at the site with a return period of 2,475 years.
29. The facility receives an average of 22.04 inches of precipitation per year as measured at the lone Station (No. 044283). The mean pan evaporation is 54 inches per year as measured at the lone Station. The 100-year wet season was calculated to be about 40 inches based on data from the Western Regional Climate Center for the lone Station. The estimated 100-year, 24-hour rain event is 4.88 inches, and the estimated 1,000-year, 24-hour rain event is 6.54 inches based on the data from the Camp Pardee Station (No. 04-1428) located about 7 miles from the facility.
30. The facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Numbers 06005C0529G.

SURFACE WATER AND GROUNDWATER CONDITIONS

31. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fifth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
32. The lone plant lies along a drainage divide between Jackson Creek about 1.25 miles to the south, and Sutter Creek about one mile to the north. Active areas at the lone plant are internally drained. Captured precipitation is contained on-site and collected for use in the sand plant. Undeveloped portions of the site drain overland to Sutter Creek north of the plant, and Jackson Creek south of the plant. Sutter Creek is an intermittent stream, and Jackson Creek flow is regulated by operation of the Amador Lake dam upstream from the lone plant. Sutter Creek flows into Dry Creek about one-mile northwest of the lone Plant. Jackson Creek is tributary to Dry Creek, and their confluence is located about 5.5 miles southwest of the lone plant. Dry Creek is

tributary to the Mokelumne River downstream from Camanche Reservoir about 27 miles southwest of the lone plant.

33. The designated beneficial uses of the Mokelumne River – Camanche Reservoir to Delta (Hydro Unit No. 531.2), as specified in the Basin Plan, are agricultural supply; water contact recreation; canoeing and rafting, non-contact water recreation; other non-contact recreation; warm fresh water habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning or aquatic organisms; cold spawning of aquatic organisms; and wildlife habitat.
34. The lone Plant is located at the eastern edge of the San Joaquin Valley Groundwater Basin—Cosumnes Sub basin (Groundwater Basin No. 5-22.16). Historical documents identify the lone Formation as yielding small quantities of groundwater and/or groundwater that was of low quality. Groundwater monitoring during 2017 showed that all monitoring wells comply with intra-well standards calculated based on historical analytical data, and that concentrations of monitored parameters appear to be stable at each monitoring well.
35. The first encountered groundwater ranges from about 10 feet to 35 feet below the ground surface depending on the proximity to mine features. Groundwater elevations of the unconfined aquifer range from about 170 feet MSL to 350 feet MSL. The groundwater within the lone Formation seems to form one interconnected flow system with very low horizontal hydraulic conductivity (about 3.5×10^{-6} cm/s) and correspondingly low horizontal flow velocity of about 1.1 feet per year. Vertical flow within the lone Formation at the site is likely to be negligible.
36. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 210 and 340 micromhos/cm, with total dissolved solids (TDS) ranging between 160 and 210 milligrams per liter (mg/L).
37. As shown on Attachment E, the pH in groundwater and water in surface impoundments is low and quite variable. Groundwater pH values are generally below the WQO of 6.5. A low pH value (3.6) is also measured in one of the background groundwater monitoring wells (MW-J). Water in the active mining pit (South Pit/Pond L) has pH lower than 3. Both groundwater and surface impoundment water samples are showing low but stable pH values and have not decreased after mining resumed in 2016. Low pH is characteristic of the lone Formation and seems to be the result of natural variability in mineralogy of the lone Formation.
38. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

GROUNDWATER AND SURFACE WATER MONITORING

39. The existing groundwater monitoring network for the site consists of background monitoring wells MW-J and MW-N, and detection monitoring wells MW-A, MW-B, MW-E, MW-I MW-K, MW-L, MW-M, MW-P, MW-Q, as shown on Attachment D. Two of the wells, MW-L and MW-M monitor the deep groundwater zone; the rest of the detection wells are monitoring the shallow groundwater zone. MW-O and MW-H are used for the measurements of depth to water and field parameters.
40. The Discharger's detection monitoring program for groundwater at the facility satisfies the requirements contained in Title 27 for the existing configuration but will not satisfy Title 27 requirements after the new tailing impoundments are constructed. Provision H.11 of this Order requires submittal of a well installation workplan and installation of a Point of Compliance groundwater monitoring well hydraulically downgradient from the Decant Pond (Title 27 section 20415 (1)(B)1) before the discharge of tailings into the new impoundments can occur.
41. The only surface water monitored at the site is the water in impoundments/former mining pits. Ponds J, K, L, Mill pond, and the future Decant Pond shall be sampled and monitored as specified in the MRP No. R5-2019-0038 which is attached to and incorporated to this order.
42. The Discharger submitted the Water Quality Protection Standard (WQPS) report on 25 June 2009 proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. The WQPS report proposed to use Intrawell data analysis to calculate tolerance limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP No. R5-2019-0038.

DESIGN OF MINING UNIT(S)

43. Water Code section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
44. On 26 November 2018, the Discharger submitted a technical design report for a new tailing impoundment system to separate and harvest clay and reclaim process water. In general, the proposed system consists of two separate impoundments for separation of clay solids named clay drying beds (CDB 1 and CDB 2) that are segmented into a series of five basins separated by 40-foot wide cascading weirs which facilitate settling and clarification of process water. Once the basins in one of the lanes are sufficiently full, the flow of clay tailings to that row will be shut off and rerouted to the adjacent lane until filled and the dried clay from the first lane is mined out. This process is expected to repeat indefinitely. The water in the slurry flowing through the CDB is expected to be flowing at an approximate rate of 2,000 gallons per minute. The process from the start of discharge to excavation for an individual lane is

expected to take approximately 2 to 3 years and produce approximately 65,000 tons of salable clay. CDB 1 will be sized to be approximately 444,350 square feet and retain up to 66,650 tons of clay. CDB 2 will be approximately 421,150 square feet and retain up to 63,200 tons of clay. As shown in Attachments B and C, the future tailings impoundments would be constructed in the area of reclaimed tailings storage area Ponds F and Pond G in the south area of the facility.

45. Finding 18 provides a description of classification considerations pursuant to Title 27 section 22480 (c)(3) and (d) which allow for less stringent containment of clay tailings based on their intrinsic properties. This Order allows the Discharger to line the CBD and Decant Pond impoundments with 2 feet of compacted in-situ clay liner. The impoundments shall be constructed and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the post-closure maintenance period in accordance with the criteria set forth in Title 27 for surface impoundments.
46. The Decant Pond will be designed to hold a capacity of approximately 6.8 million gallons and will also be collecting storm water from its drainage area. The water from the Decant Pond will be reclaimed and pumped into Mill Pond for reuse, or to overflow J Pond, depending on available capacity in the Mill Pond.
47. The Technical Design Report included a water balance for existing and future impoundments. Existing and projected future inter-pond flows and water levels confirm that the pond circuit has capacity for waste discharge and storm demands. Pond capacities and pump systems are sufficient to handle flows expected during operation through the dry and wet seasons of the year. Pond levels throughout the system are stable and the back-up capacity in J-Pond will be able to handle extreme flows.
48. Construction will proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.

RECLAMATION AND FINANCIAL ASSURANCES

49. Title 27 section 22212 requires the Discharger to establish financial assurances for post-closure maintenance for 30 years. Surface mining operations at the Facility are subject to the California Surface Mining and Reclamation Act (SMARA, 1975). For the purposes of SMARA, Amador County is the lead agency. The Discharger's Reclamation Plan (RP77-5) and related financial assurance for the cost of reclaiming all disturbed areas have been approved by the lead agency. The Reclamation Plan is designed to minimize water degradation, control soil erosion and other adverse effects from the surface mining operation and return the mined land to a usable condition.
50. Title 27 California Code of Regulations section 22510(c) requires the Regional Water Quality Control Boards to issue WDRs which incorporate the relevant provisions of an approved mining and reclamation plan (see California Surface Mining and Reclamation Act, Public Resources Code, section 2770, et seq.), prescribe additional conditions as necessary to prevent water quality degradation, and ensure that there

will be no significant increase in the concentration of indicator parameters or waste constituents in ground or surface water, unless requirements are waived.

51. Order R5-2009-0019 allowed the Discharger to utilize Financial Assurances established in compliance with SMARA regulations to cover a part of their Financial Assurance requirement and establish a separate second Financial Assurance to fulfill any remaining requirements. This order continues this approach. The Discharger's request to name Central Valley Water Board as a beneficiary to the Irrevocable Standby Letter of Credit was approved by the Lead Agency and formalized by an Amendment on 9 May 2017. On 28 April 2018, the amount of existing financial assurance mechanism was **\$1,412,354.83**.
52. The Discharger's Reclamation Plan (RP77-5) is not equivalent to the Closure and Post-Closure Maintenance Plan required by Title 27 section 22510(b) therefore Lead Agency financial assurances may not be equivalent to the Closure and Post-Closure Funding required by Title 27 section 22510(f). The Financial Assurances F.1 and H. Provision 11. of this Order require submittal of Closure and Post-Closure Maintenance Plan and the establishment of a separate second Financial Assurance to fulfill potential requirements in excess of the existing financial assurances.

CEQA AND OTHER CONSIDERATIONS

53. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, section 15301.
54. This order implements:
 - *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition.*
 - The prescriptive standards and performance goals of California Code of Regulations, Title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions.
55. Based on the threat and complexity of the discharge, the facility is determined to be classified **3 B** as defined below:

Category 3 threat to water quality, defined as, "Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2."

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

56. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge 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 the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
57. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2019-0038" are necessary to assure compliance with these waste discharge requirements.

PROCEDURAL REQUIREMENTS

58. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
59. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
60. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
61. Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

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

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order R5-2009-0019 is rescinded except for purposes of enforcement, and that US Mine Corporation, its agents, successors, and assigns, in order to meet the provisions of Division 7

of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in California Code of Regulations Title 27.
2. The discharge of 'Group A' or 'Group B' mining waste other than the permitted discharge is prohibited. For the purposes of this Order, the term 'Group A' or 'Group B' mining waste is defined in California Code of Regulations Title 27 section 22480.
3. The discharge of any waste other than mining waste at the Facility is prohibited. Prohibited wastes may include, but are not limited to, oil, grease, solvents, other petroleum products, and toxic and hazardous materials.
4. The discharge of wastes outside of a mining unit or portions of a mining unit specifically designed for their containment is prohibited.
5. The discharge of mining waste at the Facility from sources other than the US Mine Corporation Ione Plant is prohibited.
6. No discharge of mining waste into the new tailing impoundments CBD-1, CBD-2, and Decant Pond shall take place until the Construction Quality Assurance Report is approved by the Central Valley Water Board's Executive Officer.
7. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited, other than to the on-site facilities identified herein.
8. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Standard Provisions and Reporting Requirements dated April 2016 (SPRRs).

B. DISCHARGE SPECIFICATIONS

1. The discharge shall not cause a condition of pollution or nuisance as defined by the Water Code section 13050.
2. Mine tailings shall only be discharged into and shall be confined to tailings impoundments specifically designed for their containment.
3. Until the new tailing impoundment system is operational and as a back-up option, mine tailings may be treated in the paste plant and discharged into Pond K as previously permitted by Order R5-2009-0019.
4. Decant water shall be reclaimed from the Decant Pond and re-used in sand mining and processing.

5. The discharge of decant water outside the Decant Pond, Mill Pond, or Pond J is prohibited.

The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the SPRRs dated April 2016.

C. FACILITY SPECIFICATIONS

1. Annually, prior to the anticipated rainy season but no later than **1 November**, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP No. R5-2019-0038.

The Discharger shall **immediately** notify Central Valley Water Board staff by telephone and email and **immediately** take measures to regain surface impoundment capacity in the event that freeboard levels are equal to or less than 2 feet plus the amount needed to hold the 10-year 24-hr storm to the nearest tenth of a foot.

The Discharger shall record onsite rainfall to track the magnitude of storm events and shall record surface impoundment freeboard levels in accordance with the attached monitoring and reporting program.

D. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. Precipitation and drainage controls shall be designed and constructed to accommodate the anticipated volume and precipitation and peak flows from surface runoff for one 10- year, 24-hour storm event as required by California Code of Regulations Title 27 section 22490(h)(1)(C).
2. Mining units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
3. The future clay tailings impoundments CBD-1 and CBD-2 and the Decant Pond shall have capacity for wastewater flows to the impoundment, seasonal precipitation, and one 10-year 24-hour design storm, and maintain at least 2 feet of freeboard.
4. The surface impoundment(s) shall be designed, constructed and maintained to prevent scouring and/or erosion of the compacted clay liners and other containment features at points of discharge to the tailings ponds and by wave action at the water line.
5. After clay removal from a CBD pond, the Discharger shall inspect clay liner for integrity and make any repairs to the liner to provide two feet of clay compacted to 90 percent compaction with hydraulic permeability less than 10^{-6} cm/s liner before the discharge of clay tailings into the pond.

6. The Discharger shall submit a design report including plans, specifications, and a construction quality assurance plan for review and approval prior to constructing any new mining units.
7. The Discharger shall submit a final construction quality assurance report documenting construction of any new mining units for review and approval prior to discharging wastes to the mining unit.
8. The Discharger shall comply with all Standard Design and Construction Specifications listed in Section E of the SPRRs dated April 2016.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. As detailed in H. Provisions 11., the Discharger shall submit a Closure and Post-Closure Monitoring and Maintenance Plan prepared by a California-registered civil engineer or certified engineering geologist, and containing all applicable information required in Title 27 section 21769. The plan shall include updated cost of closure and post-closure monitoring and maintenance and may require establishment of additional financial assurance mechanism in excess to the current Lead Agency Irrevocable Standby Letter of Credit of **\$1,412,354.83**.
2. The Discharger shall comply with all Closure and Post-Closure Maintenance Specifications listed in Section F of the SPRRs dated April 2016.

F. FINANCIAL ASSURANCE

1. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance in accordance with an approved closure and post-closure maintenance plan [Title 27 section 22510(f)]. This Order continues to allow the Discharger to utilize Financial Assurances established in compliance with SMARA regulations to cover a part of their Financial Assurance requirement and establish a separate second Financial Assurance to fulfill any remaining requirements.
2. By **30 October** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance closure and post-closure funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 section 22236.
3. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs dated April 2016.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and surface impoundments/ponds, and in accordance with Monitoring and Reporting Program (MRP) No. R5-2019-0038, and the Standard Monitoring Specifications listed in Section I of the SPRRs dated April 2016.
2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-2019-0038, and the SPRRs dated April 2016.
3. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the mining unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP No. R5-2019-0038.
4. For each monitoring event, the Discharger shall determine whether the mining unit is in compliance with the Water Quality Protection Standard using procedures specified in MRP No. R5-2019-0038 and the Standard Monitoring Specifications in Section I of the SPRRs dated April 2016.
5. As specified in MRP R5 2019-0038, the Discharger shall enter all reports and monitoring data into the online GeoTracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.
6. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specification listed in Sections I and J of the SPRRs dated April 2016.

H. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated April 2016, which are attached hereto and made part of this Order by reference. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Program No. R5-2019-0038, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and monitoring groundwater and surface waters/impoundments throughout the active life of the mining units and any applicable post-closure maintenance period. A violation of Monitoring and Reporting Program No. R5-2019-0038 is a violation of these waste discharge requirements.

3. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
4. The Discharger shall maintain legible records of the volume and type of waste discharged to the surface impoundments and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Central Valley Water Board and of the State Water Resources Control Board, copies of these records shall be sent to the Central Valley Water Board upon request.
5. The Discharger shall comply with all applicable provisions Title 27 that are not specifically referred to in this Order.
6. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order and of the California Water Code.
7. The Discharger shall immediately notify the Central Valley Water Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
8. In the event of any change in control or ownership of the facility or disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name 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 General Provision K.2.e in the Standard Provisions and Reporting Requirements and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
9. The Discharger shall provide proof to the Central Valley Water Board **within sixty days after completing final closure** that the deed to the facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
 - a. The parcel has been used for disposal of wastes.

- b. Land use options for the parcel are restricted in accordance with post-closure land uses set forth in any post-closure plan (if applicable).
- c. In the event that the Discharger defaults on carrying out either any corrective action needed to address a release, groundwater monitoring, or any post-closure maintenance (if applicable), then the responsibility for carrying out such work falls to the property owner.

10. All technical reports required herein 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 California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

11. The following reports required by this Order shall be submitted pursuant to Water Code section 13267, and to the extent applicable, shall be prepared by the appropriately licensed professional as described in the Standard Provisions and Reporting Requirements.

<u>Task</u>	<u>Compliance Date</u>
<p>A. Updated Sample Collection and Analysis Plan</p> <p>Submit an updated Sample Collection and Analysis Plan for monitoring and reporting as specified in incorporated Monitoring and Reporting Program R5-2019-0038.</p>	<p>31 August 2019</p>
<p>B. Closure and Post-Closure Maintenance Plan</p> <p>Submit a Closure and Post-Closure Maintenance Plan including inspection, maintenance, and monitoring of the facility during the closure and post-closure maintenance period, a closure and post-closure maintenance cost estimate for the entire facility, and proof of the closure and post-closure fund mechanism with the Central Valley Water Board listed as a beneficiary as detailed in Financial Assurances F.1. The plan will be implemented for a period of 30 years or until the waste no longer poses a threat to water quality, whichever is greater.</p>	<p>Within 180 days after the adoption of this order</p>

<u>Task</u>	<u>Compliance Date</u>
<p>C. Construction Quality Assurance Report</p> <p>Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specifications in Section F of the SPRRs).</p>	<p>At least 60 days prior to proposed discharge</p>
<p>D. Operation Plan</p> <p>Submit an Operation Plan for new impoundments pursuant to Title 27 section 20375 (b). The Operation Plan shall include a description of plans for CBD liner inspection and repair after clay harvest from CBD ponds, and clay liner inspection and potential replacement for Decant Pond pursuant to Title 27 section 20330 (e).</p>	<p>At least 60 days prior to the proposed discharge</p>
<p>E. Point of Compliance Detection Groundwater Monitoring Well Work Plan</p> <p>Submit a workplan for installation of Point of Compliance groundwater monitoring well (as defined in Title 27 2-164) for the future Decant Pond in a location pursuant to the Title 27 section 20415 (b) and (e).</p>	<p>At least 60 days prior to the proposed discharge</p>
<p>F. Point of Compliance Detection Groundwater Monitoring Well Completion and Water Quality Report</p> <p>Submit well installation report and the results of at least one groundwater sampling event.</p>	<p>Prior to the proposed discharge</p>
<p>G. Propose Water Quality Protection Standard for the new Point of Compliance Groundwater Monitoring Well</p> <p>Calculate water quality protection standards for the new groundwater monitoring as specified in the Monitoring and Reporting Program C.1.</p>	<p>In the monitoring report after eight valid data points have been collected</p>

12. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

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

14. This Order shall take effect upon the date of adoption.
15. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:

All technical reports and monitoring reports required under this Order shall be converted to PDF and uploaded via internet to the State Water Board's GeoTracker database at <http://geotracker.waterboards.ca.gov>, as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. Project-associated analytical data shall be similarly uploaded to the GeoTracker database in an appropriate format specified under this Order under a site-specific global identification number. Information on the GeoTracker database is provided at:

http://www.swrcb.ca.gov/ust/electronic_submittal/index.shtm

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention	Title 27 Permitting and Mining Unit
Report Title	
Geotracker Upload ID	
Discharger name	US Mine Co.
Facility name	US Mine Co. Ione Plant
County	Amador County
CIWQS place ID	788029

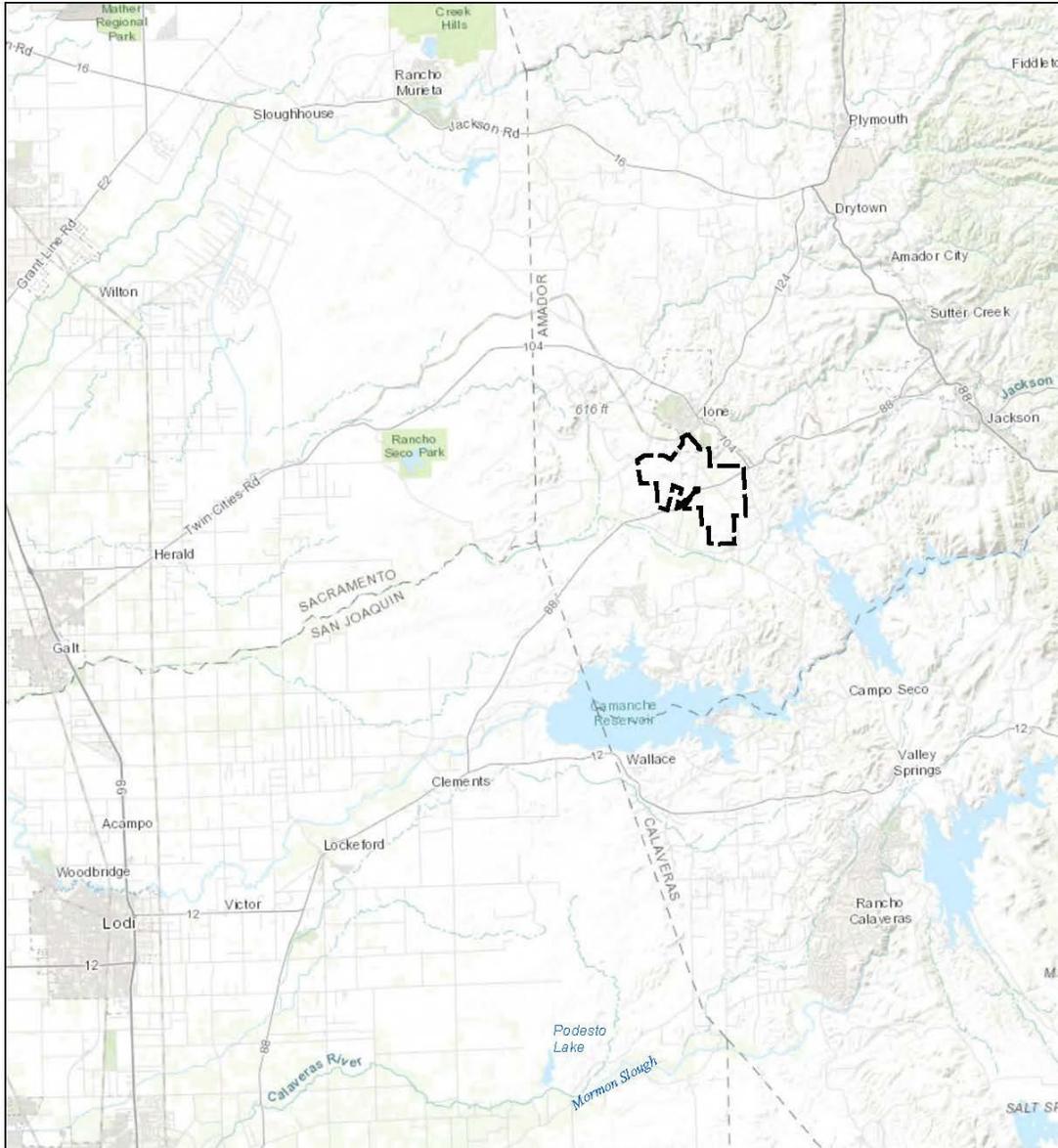
16. The Discharger shall comply with all General Provision listed in Section K of the SPRRs dated April 2016.

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region on 5 April 2019.

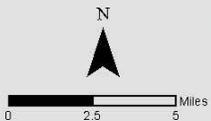
ORIGINAL SIGNED BY

PATRICK PULUPA, Executive Officer

NJV/BSS



 Project Site



**US Mine Corporation - Ione Plant
Ione, CA**

**Figure 2
Location Map**

Sources: ESRI Data Server 2012

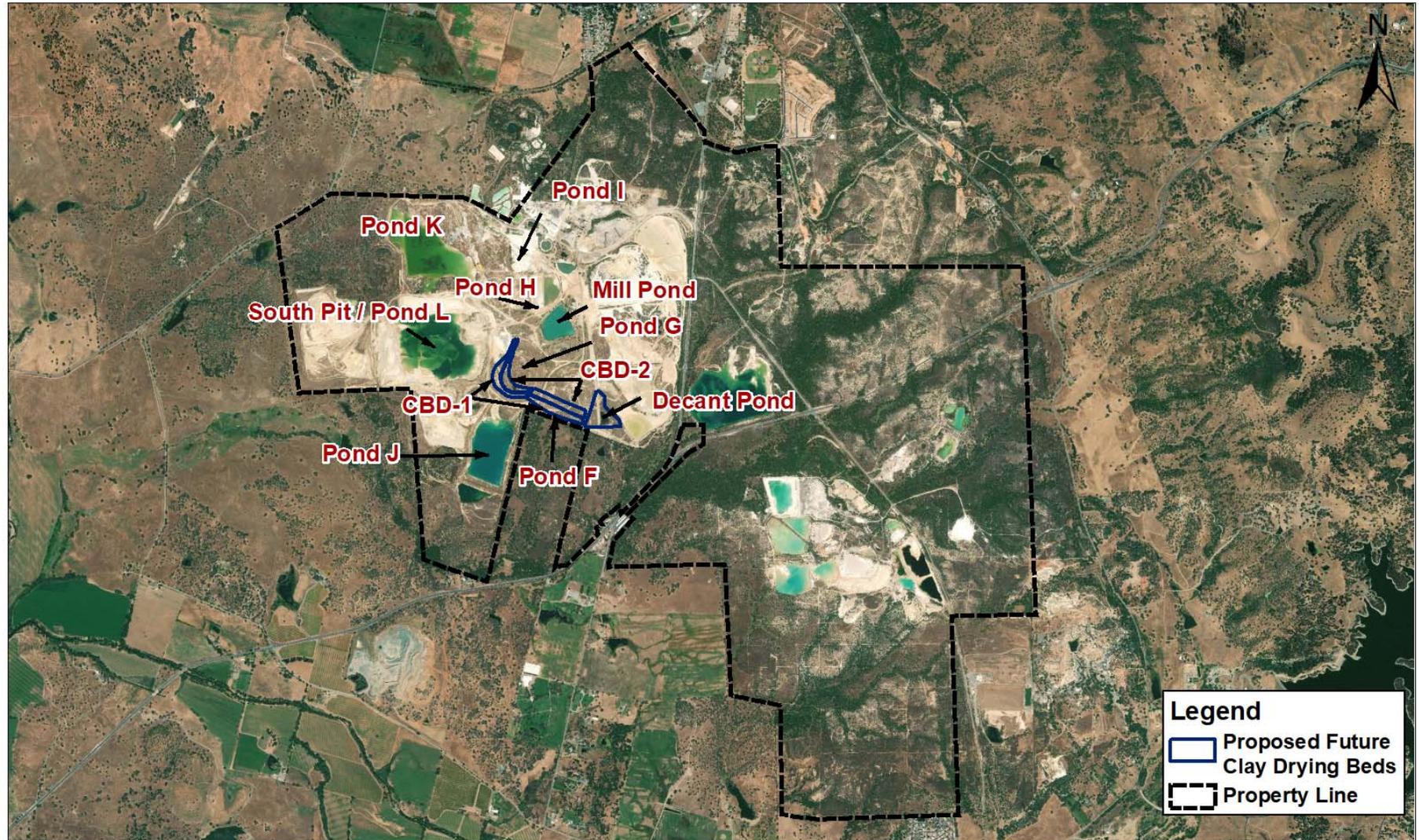


Burleson Consulting, Inc.

Document Path: S:\GIS\Projects\US Mines Corp\Figure 2_US Mines_Location Map.mxd

DRAWING REFERENCE:
Report of Waste Discharge Figure 2
Buleson Consulting Inc.
2018-07-31

Facility Location
US Mine Co.
US Mine Ione Plant
Amador County



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DRAWING REFERENCE

Report of Waste Discharge Figure 5 (modified)
 Buleson Consulting Inc.
 2018-07-31

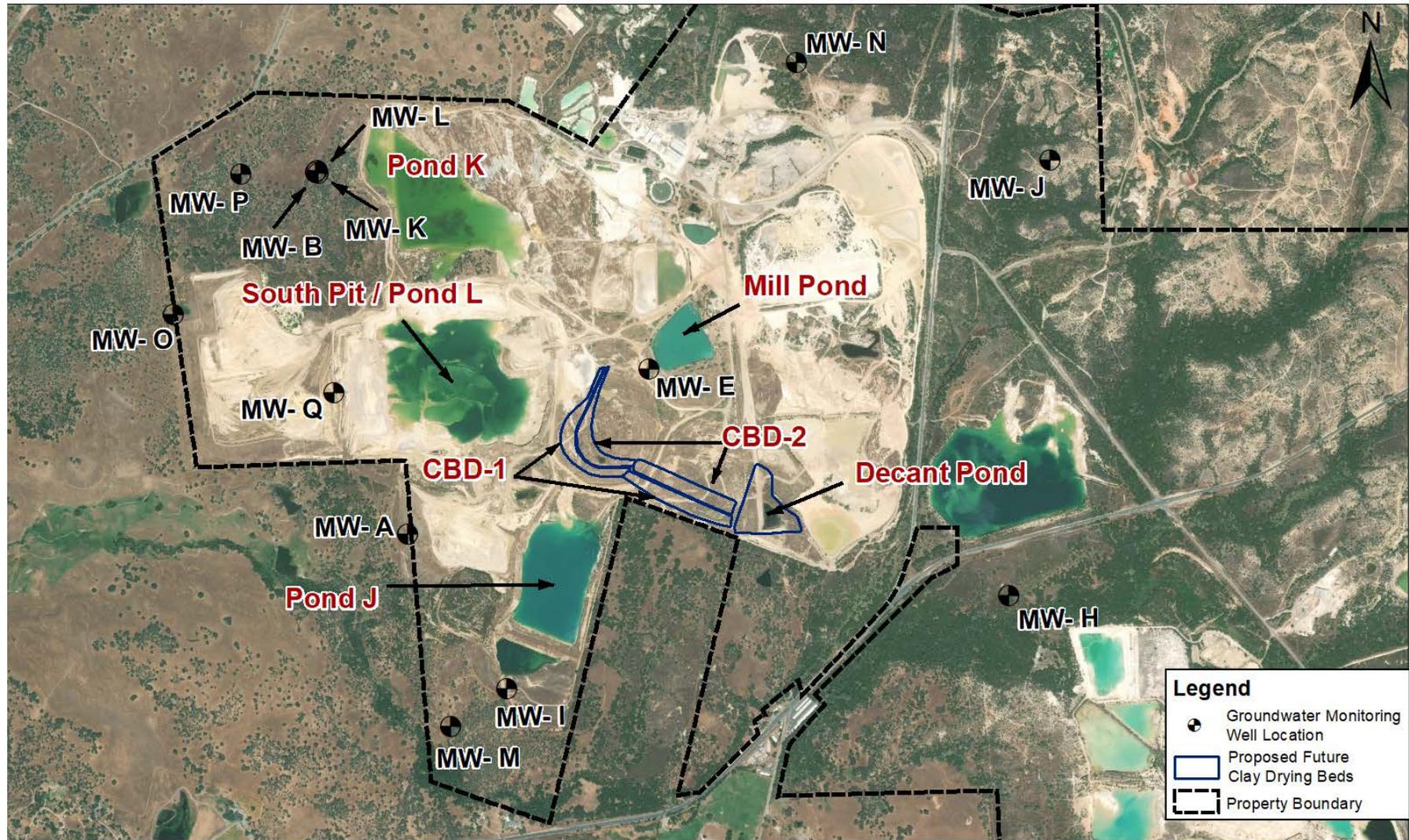
Facility Units

US Mine Co.
 US Mine Lone Plant
 Amador County



DRAWING REFERENCE
Technical Design Report Figure 3
Condor Earth Technologies
2018-11-21

Proposed Clay Tailings Impoundments
US Mine Co.
US Mine Lone Plant
Amador County



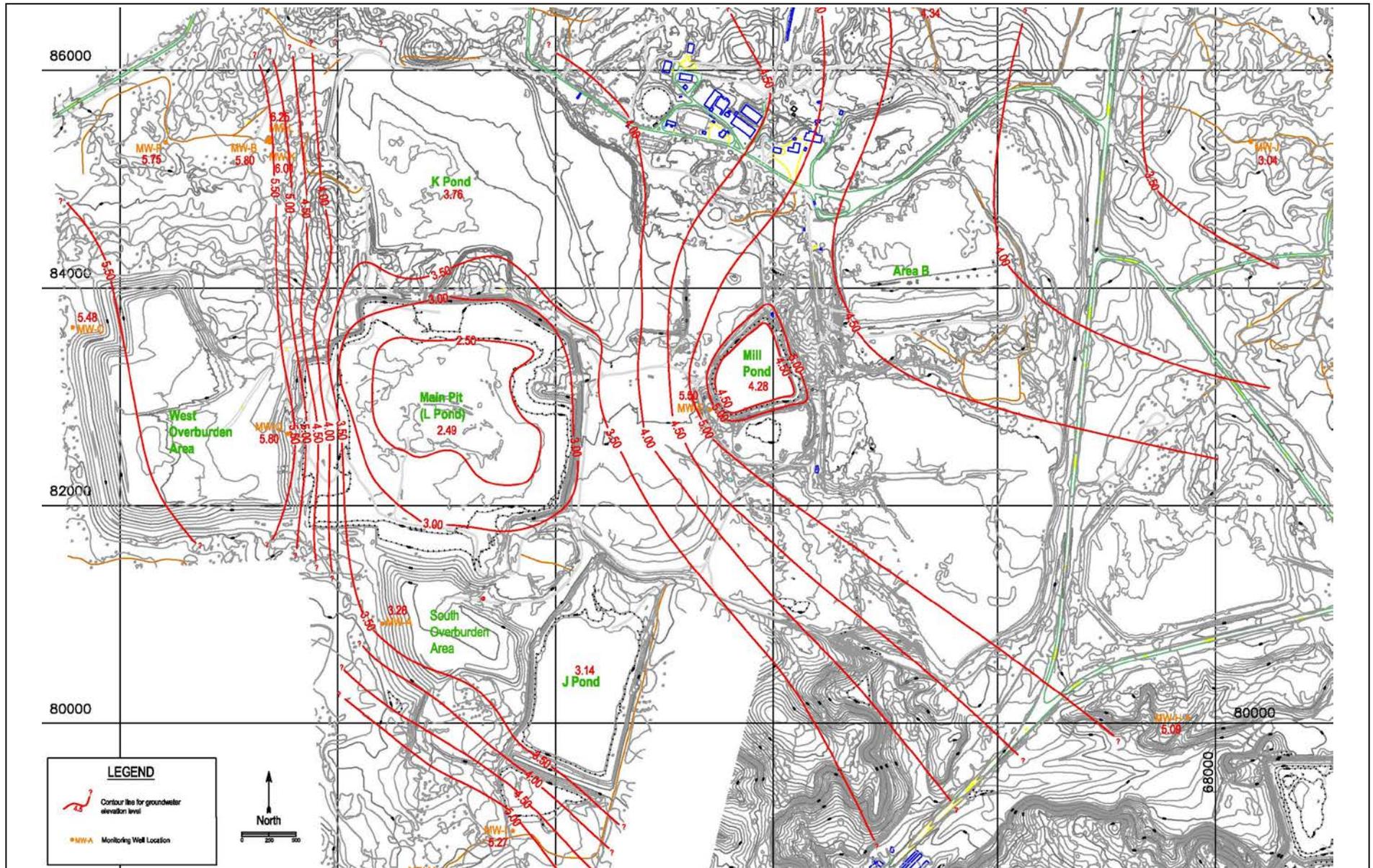
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DRAWING REFERENCE

Report of Waste Discharge Figures 2, and 5
 Buleson Consulting Inc.
 2018-07-31

Groundwater and Surface Impoundment Monitoring Network

US Mine Co., US Mine Ione Plant
 Amador County



DRAWING REFERENCE

2018 1st Semi-annual Monitoring Report
US Mine
2018-07-12

pH Isolines
US Mine Co.
US Mine Ione Plant
Amador County

INFORMATION SHEET

ORDER NO. R5-2019-0038
WASTE DISCHARGE REQUIREMENTS FOR
US MINE CORPORATION
US MINE CORPORATION IONE PLANT
FOR CONSTRUCTION AND OPERATION
AMADOR COUNTY

Pursuant to California Code of Regulations Title 27 (Title 27) this Waste Discharge Requirements (WDR) revision of Order R5-2009-0019 regulates the construction of new tailing impoundments and the proposed change in clay tailing management and treatment for the operation of the US Mine Corporation (US Mine) sand and clay mining and processing facility near Ione in Amador County.

US Mine (Discharger) owns and operates US Mine Corporation Ione Plant about one mile south of Ione in Amador County. The Discharger is proposing to change the treatment and management of clay tailings at the facility. Order R5-2009-0019 classifies clay tailings as Group B mining waste (Groups of Mining Waste in Title 27 section 22480) and requires treatment and management to achieve Group C classification. The revised Order continues this classification and permits the proposed change in clay tailings treatment and management. Instead of the treatment in the thickening plant and the discharge of partially dewatered clay paste into the currently permitted tailings ponds (Ponds K and I), the Discharger proposes to construct a series of gravity connected clay lined impoundments designed to recover clay and reclaim the water for the use in the mining process. Clay tailings are proposed to be piped through a velocity dissipater into an upper settling impoundment CBD-1 divided by weirs to settle the coarse clay and allowing the decanted process water and fine clays to be transported via gravity downstream to the lower settling impoundment CBD-2. Fully decanted water will ultimately to flow to the Decant Pond from which it would be transferred to the Mill Pond for reuse in the sand separation process. Pond J, currently used as a stormwater retention pond, would serve as an overflow pond. Harvested clay would be held in raw bulk outdoor storage until dried and milled and sold.

NV

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2019-0038

FOR

US MINE CORPORATION
IONE PLANT
FOR CONSTRUCTION AND OPERATION
AMADOR COUNTY

This monitoring and reporting program (MRP) is issued to US Mine Corporation (Discharger) pursuant to California Water Code section 13267 and incorporates requirements for groundwater and surface impoundment monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5-2019-0038, and the Standard Provisions and Reporting Requirements dated April 2016 (SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer. Failure to comply with this MRP, or with the SPRRs, constitutes noncompliance with the WDRs and with Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and surface impoundments in accordance with Standard Monitoring Specifications in Section I of the SPRRs. The provisions section of WDRs requires that the Discharger submits an updated *Sample Collection and Analysis Plan*. All monitoring shall be conducted in accordance with the approved *Sample Collection and Analysis Plan*, which shall include quality assurance/quality control standards.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells and surface impoundments shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables 1 through 5.

The Discharger shall use USEPA test methods with the lowest achievable detection limit for that constituent taking any matrix interferences into account. The reporting limit shall be no higher than the practical quantitation limit. The Discharger shall report all trace concentrations that are between the detection limit and the practical quantitation limit. All metals analyses shall be for dissolved metals.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Surface Impoundment Monitoring
A.3	Waste Discharge Monitoring
A.4	Facility Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system **meets** the applicable requirements of Title 27, however, a new point of compliance groundwater monitoring well will be required after the new tailings impoundments are constructed.

The current groundwater monitoring network consists of the following:

<u>Well</u>	<u>Status</u>	<u>Zone</u>	<u>Units Being Monitored</u>
MW-A	Detection	Shallow	South Overburden Area/Pond L
MW-B	Detection	Shallow	Pond K
MW-E	Detection	Shallow	Mill Pond
MW-I	Detection	Shallow	Pond J
MW-K	Detection	Shallow	Pond K
MW-L	Detection	Deep	Pond K
MW-M	Detection	Deep	Pond J
MW-P	Detection	Shallow	Pond K
MW-Q	Detection	Shallow	West Overburden Area
MW-J	Background	Shallow	
MW-N	Background	Shallow	
MW-H	Depth to groundwater	Shallow	
MW-O	Depth to groundwater	Shallow	

The current groundwater monitoring detection monitoring system meets the current configuration of the facility but will not meet the requirements of Title 27, sections 20415 and 20420 after the new tailing impoundments are constructed. The Provisions section of the WDRs requires the Discharger to install a point of compliance groundwater monitoring well downgradient from the Decant Pond and add it to the facility groundwater monitoring network.

Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, corrective action monitoring wells (if any), and any additional wells added as part of the approved groundwater monitoring

system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

Table 1: Groundwater Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Groundwater Elevation	feet & hundredths, MSL	Quarterly ¹	Semiannually
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Sodium			
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Dissolved Metals (Iron, Nickel, Aluminum, Arsenic, Lead)	ug/L	Semiannually	Semiannually

¹ The Discharger shall measure the groundwater elevation in each well **quarterly**, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

2. Surface Impoundment Monitoring

The current surface impoundment monitoring points for the facility are (Attachment D):

<u>Mon Pt.</u>	<u>Status</u>
Pond J	Stormwater/Overflow pond
Pond K	Active tailings pond
Pond L	Active sand mine
Mill Pond	Process makeup water pond
Decant Pond	Future process water recovery facility

For surface impoundment monitoring, a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in the following table.

Samples shall be collected and analyzed in accordance with the following table:

Table 2: Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Freeboard	feet and tenths	Monthly ¹	Semiannually
Temperature	°F		
Discharge Flow ²	gallons/day	Monthly	Semiannually
pH	pH units	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Dissolved Metals (Barium, Iron, Nickel, Aluminum, Arsenic, Lead)	ug/L	Semiannually	Semiannually

- ¹ Freeboard shall be measured monthly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. Freeboard shall be measured from the top of the surface impoundment down to the water level in the impoundment and can be measured using markings on the primary geomembrane liner or a free-standing gauge.
- ² Flow of wastewater into Decant Pond as measured and recorded at totalizing meter.

3. Waste Discharge Monitoring

The Discharger shall monitor all wastes discharged to the CBD impoundments on a weekly and monthly basis and report the results in the semiannual monitoring reports:

Table 3: Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Quantity Discharged	Cubic yards (gallons?)	Quarterly
Remaining Capacity	Cubic yards	Quarterly
Minimum Freeboard	feet and tenths	Quarterly
Quantity of clay harvested	Cubic yards	Annually

4. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The

inspection shall assess repair and maintenance needed for liner systems; LCRS pumps, piping and control systems; drainage control systems; groundwater monitoring wells; unsaturated zone monitoring systems; and shall assess preparedness for winter conditions including but not limited to the required surface impoundment capacity and erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section B.3 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all waste management unit berms for damage **within 7 days** following major storm events capable of causing damage or significant erosion. Freeboard in surface impoundments shall be measured and recorded within 24 hours after onsite rainfall of greater than two inches in a 24-hour period. The Discharger shall take photos of any problems areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.4 of this MRP.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Annual Facility Inspection Report	31 October	15 November
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 July	30 October

The Discharger shall enter all monitoring data and reports into the online GeoTracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the GeoTracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention	Title 27 Permitting and Mining Unit
Report Title	
GeoTracker Upload ID	
Discharger Name	US Mine Co.
Facility name	US Mine Co. Ione Plant
County	Amador County
CIWQS Place ID	788029

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order No. R5-2019-0038 and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. **In addition, the Discharger shall enter all monitoring data and monitoring reports into the online GeoTracker database as required by Division 3 of Title 27.**

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

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 complete the application for this Order. Records shall be maintained throughout the life of the facility. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
 - a) For each groundwater monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;
 - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
 - b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c) The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].

- d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, and the surface impoundments. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables 1 through 5 unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
 - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
 - f) An evaluation of the concentration of each monitoring parameter as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release in the SPRRs for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
 - g) A summary of all waste discharge monitoring required in Section A.3 of this MRP.
 - h) A summary of all Facility Monitoring including onsite rainfall data for the reporting period required in Section A.4 of this MRP.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following additional information beyond what is required for semiannual monitoring reports:
- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
 - c) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary

for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.

- d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
 - e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
 - f) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - g) Updated concentration limits for each monitoring parameter at each monitoring well based on the new background data set.
3. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.a of this MRP, above.
 4. **Major Storm Event Reporting:** The Discharger shall also notify Central Valley Water Board staff within **7 days** after major storm events of any damage or significant erosion and report any needed repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.b of this MRP above for requirements for performing the inspection and conducting the repairs.
 5. **Financial Assurances Report:** By **30 October** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of the closure and post-closure funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

For each waste management unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water

Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface impoundment monitoring program, groundwater monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

The Discharger proposed the methods for calculating concentration limits in the 25 June 2009 *Water Quality Protection Standard Report*.

The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in the tables in Section A of this MRP specified monitored medium.

3. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

The methods for calculating concentration limits were included in the 25 June 2009 *Water Quality Protection Standard Report*. The approved method uses the Statistical Tolerance Limit Method at 95% confidence and 95% coverage for each groundwater monitoring well. The most recent *intra-well* concentration limits for select parameters as reported in the 18 January 2018, 2017 *Annual Monitoring Report* were as follows:

Monitoring Well	Aluminum (dissolved) (µg/l) ¹	Arsenic (dissolved) (µg/l)	Iron (dissolved) (µg/l)	Lead (dissolved) (µg/l)	Nickel (dissolved) (µg/l)	Sodium (mg/L) ¹	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)
MW-A	4,388	4.9	53,350	6.10	26.8	136	35.4	145.6	732
MW-B	102	3.8	84,693	8.99	7.4	95	79.9	299.2	785
MW-K	102	3.8	109,54 1	6.10	7.4	191	106.0	304.6	824
MW-E	1,370	3.8	43,061	6.10	50.3	124	92.4	666.5	1,360
MW-I	102	4.2	110,22 1	6.10	76.8	135	353.4	119.9	1,097
MW-L	102	4.1	24,681	5.27	8.1	892	1300.9	586.8	3,136
MW-M	102	5.2	24,347	5.27	5.9	224	367.2	167.6	1,036

¹ Micrograms per liter

² Milligrams per liter

4. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.43 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.44 of the SPRRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Standard Monitoring Specification I.45 of the SPRRs.

5. Point of Compliance

The point of compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

<u>Mining Unit</u>	<u>Point of Compliance Monitoring Wells</u>
Pond I/K	MW-B, MW-K and MW-L
Mill Pond	MW-E
Pond J	MW-I
Decant Pond	To be installed

6. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

7. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.\

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

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

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region on 5 April 2019.

ORIGINAL SIGNED BY

PATRICK PULUPA, Executive Officer

NJV

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
INDUSTRIAL FACILITIES REGULATED BY TITLE 27
(Title 27, § 20005 et seq.)

April 2016

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. 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.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

- a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. 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. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].
5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. 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 Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is

made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

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

C. STANDARD PROHIBITIONS

1. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].
2. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed waste management unit is prohibited.
4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
4. The discharge shall remain within the designated disposal area at all times.
5. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
4. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
5. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
6. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
7. The Discharger shall maintain the depth of the fluid in the sump of each waste management unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

8. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
9. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new Class II waste management units that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new waste management unit (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, sections 21760(b) and 20375(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have

been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].
5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].
10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].
11. Liners shall be designed and constructed to contain the fluid, including waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].
14. A test pad for each barrier layer and any final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
16. The Discharger shall propose an electronic leak location survey of the top liner for any new waste management unit in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].
18. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.
20. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].
21. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
22. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
23. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.
25. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new Class II waste management unit. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
26. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
2. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
4. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
7. The Discharger shall design storm water conveyance systems for Class II units that are closed as a landfill for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. Construction or repair of a final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].
9. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
10. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].
11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].
12. The Discharger shall repair any cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b) and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that

monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4)].

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].
3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].
4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].
5. A Detection Monitoring Program for a new Class II waste management unit shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].
6. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).
7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures;
 - e. Chain of Custody control; and
 - f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.
9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively

interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)].
19. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].
20. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

21. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
22. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.
23. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].
24. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).
25. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].
26. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].
27. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].
28. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].
29. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

30. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].
31. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
32. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].
33. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].
34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].
35. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].
36. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].
37. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].
38. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether

there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

39. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
40. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX, Article 19 to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
41. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).
42. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
43. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the

Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

- a. Standard Monitoring Specification I.44 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
- b. Standard Monitoring Specification I.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

44. Verification Procedure for Analytes Detected in Less than 10% of

Background Samples. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one or more analyte that equals or exceeds its PQL.
- b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
 - 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more

analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

- a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
- b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
- c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

45. **Verification Procedure for Analytes Detected in 10% or Greater of the Background Samples.** The Discharger shall use either a statistical or non-statistical method pursuant to Title 27, section 20415(e)(8)(E) for all analytes that are detected in 10% or greater of the background samples. The Discharger shall use one of the statistical methods required in Title 27, section 20415(e)(8)(E) unless another method has been proposed by the Discharger in a Water Quality Protection Standard Report (or equivalent report) and approved by the Central Valley Water Board in a Monitoring and Reporting Program pursuant to Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). The method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.**
The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there is measurably significant evidence of a release [Title 27, § 20420(i)].
- b. **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph 1.45.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(8)(E)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests

(i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

46. **Physical Evidence of a Release.** If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. RESPONSE TO A RELEASE

1. **Measurably Significant Evidence of a Release Has Been Confirmed.** If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)].
 - c. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].
 - d. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the

waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

- e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

K. GENERAL PROVISIONS

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 appropriate Central Valley Water Board office by telephone **as soon as** it or its agents 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 describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.

- c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.
 - e. Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
3. 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, extent, and impact of the noncompliance.
 4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
 5. 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 regarded as a defense for the Discharger's violations of this Order.
 6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost

estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.
9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 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 Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

2. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].
3. Precipitation on Class II waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
4. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.
 - b. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.
 - c. Prevent surface erosion through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent erosion.
 - d. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
 - e. Take into account:
 - i) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.
 - ii) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.
 - iii) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.
 - iv) The design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility.
 - f. Preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

5. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].
6. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
7. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].
8. Any drainage layer in a final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].