CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2010-0048
WDID NO. 6B152004002

REVISED WASTE DISCHARGE REQUIREMENTS

FOR

U.S. BORAX, INC., BORON FACILITY
GANGUE WASTE PILE AND GANGUE/REFUSE WASTE PILE

Kern County

The California Regional Water Quality Control Board, Lahontan Region (Water Board), finds:

1. Discharger

On September 2, 2009, October 29, 2009, and April 15, 2010, U.S. Borax, Inc., hereinafter referred to as the "Discharger," submitted information that collectively constitutes a complete revised Report of Waste Discharge (RWD) for proposed changes to Waste Discharge Requirements (WDRs), Board Order No. 6-89-59 and Monitoring and Reporting Program 6-89-59-A1, that govern two Group C mining waste piles, which are referred to as the Gangue Waste Pile and the Gangue/Overburden Waste Pile. These two piles will be combined and their footprint expanded with additional Group C mining waste created from ore recovery operations from inactive Group A Mining Waste Surface Impoundments. No change is proposed to the Gangue/Refuse Waste Pile, which is a separate Waste Management Unit (WMU) also covered under existing Board Order No. 6-89-59 and Monitoring and Reporting Program 6-89-59-A1. U.S. Borax, Inc. is a wholly owned subsidiary of Rio Tinto. U.S. Borax, Inc. owns and operates the U.S. Borax Mine in Boron, California.

2. Reason for Action

The Discharger proposes to expand the footprint and height of the existing Group C Mining Waste piles – the Gangue Waste Pile and the Gangue/Overburden Waste Pile, and combine them into one Group C Waste Pile, which will hereafter be referred to as the Gangue Waste Pile. In addition, the Discharger is proposing to discharge to the newly created Gangue Waste Pile additional Group C mining waste created from ore recovery operations from inactive Group A Mining Waste Surface Impoundments (Former Ponds 4 and 5, currently regulated under Board Order No. R6V-2006-0025), after demonstration that the material meets Group C requirements, as set forth in California Code of Regulations (CCR), title 27, section 22480, subdivision (b)(3). Economic quantities of solid borax ore have accumulated into distinct layers in the inactive on-site Group A Mining Waste Surface Impoundments, Former Ponds 4 and 5, which have been drained of tailings wastewater, and are currently classified as Group A Mining Waste Piles. Ore recovery would involve mechanically separating the

solid ore, which contains higher concentrations of arsenic, from the non-hazardous portion of the gangue waste and clay material. The ore would be sent to the onsite plant for processing (regulated under a separate Board Order, R6V-2006-0025), and the segregated gangue waste and clay material would be discharged to the newly created Gangue Waste Pile, after demonstration that the material met the definition of Group C mining waste set forth in CCR, title 27, section 22480, subdivision (b)(3). This Order includes a revised monitoring and reporting program for these WMUs.

3. Facility

U.S. Borax, Inc. owns and operates a borate mine, a primary process refinery, a boric acid plant, Group A mining waste piles, Group C mining waste piles (Gangue Waste Piles), and the Class III Landfill (Gangue/Refuse Waste Pile) at the Boron operation site. The borate mine, primary process refinery, boric acid plant, active Surface Impoundments, and the inactive Surface Impoundments are regulated under a separate Board Order (R6V-2006-0025). The borate mine consists of an open-pit. The final mine pit is planned to reach a diameter of two and one-half miles and a depth of 1,300 feet below ground surface (bgs). The borate ore removed from the pit undergoes crushing, dissolving, and thickening, which separates borates from the gangue. Gangue is the insoluble material removed from the ore. The gangue material undergoes centrifugation/dewatering. The borate undergoes crystallization, filtration/centrifugation, and drying in both the primary process refinery and the boric acid plant. The solid refuse waste generated from the Boron operations is disposed in the Gangue/Refuse Waste Pile. For the purposes of this Order, the Gangue Waste Pile and the Gangue/Refuse Waste Pile are the WMUs referred to as the "Facility."

4. Waste Streams

This Order regulates the discharge of the following waste streams to the Gangue Waste Pile and Gangue/Refuse Waste Pile generated by or in connection with the mining/processing operations.

a. Non-ore Group C mining waste produced from harvesting inactive Surface Impoundments, Former Ponds 4 and 5 (non-ore gangue) - approximately 250,000 cubic yards per year.

b. Gangue produced from the Boric Acid Plant (BAP gangue) centrifugation/ dewatering process - approximately 300,000 cubic yards per year.

c. Gangue produced from the Primary Process (PP gangue) Refinery dewatering process - approximately 500,000 cubic yards per year.

d. Gangue produced from the Primary Process Refinery centrifugation process (Mudbird gangue) - approximately 500,000 cubic yards per year.

e. Solid refuse waste generated from the mine operations consists of approximately 0.2 % dry office and lunch trash, 0.5% conveyor belts, 1.7% paper, and 80% dry gangue (daily cover), with the remaining percentage accounting for moisture of the materials - approximately 26,000 cubic yards per year. Solid refuse waste will only be discharged to the Gangue/Refuse Waste Pile.

The discharge volumes for the Gangue Waste and refuse are the average quantities of waste currently discharged. Any change in the borax production rate will cause a proportional change in the volume of waste discharged to the WMUs.

5. Site Location

The site is located three miles northwest of Boron in the North Muroc Hydrologic Area of the Antelope Hydrologic Unit. This area is within Sections 10 through 15 and 21 through 26, T11N, R8W and Sections 7, 17 through 20, T11N, R7W, SBB&M; at approximately 35°0'17"N, 117°42'12"W; as shown on Attachment "A," which is made a part of this Order.

6. Permit History

Board Order No. 6-89-59 for U.S. Borax and Chemical Corporation, adopted April 13, 1989, addressed the two existing Group C Waste Piles and the Class III Landfill (Gangue/Refuse Waste Pile).

Board Order No. 6-93-100 was adopted on September 9, 1993, and amended the WDRs for all existing municipal solid waste landfills, applicable to the Class III Landfill (Gangue/Refuse Waste Pile), in the Lahontan Region to incorporate the requirements of Title 40, Code of Federal Regulations, Parts 257 and 258 (Subtitle D), as implemented in the State of California under State Water Resources Control Board (SWRCB) Resolution No. 93-62.

Monitoring and Reporting Program (MRP) 89-59A1 was adopted September 5, 1996, to replace MRP 89-59.

Board Order No. R6V-2006-0025, adopted June 14, 2006, addressed the borate mine, primary process refinery, boric acid plant, active Surface Impoundments, and inactive Surface Impoundments.

7. Site Geology

The geology beneath the site is characterized by a series of high-angle northwest-trending normal faults offsetting older, east-trending faults. The Gangue Waste Pile is located within a fault-bounded block, informally known as the "Mine Basin." The major east-trending structural features include the North Borax fault, which defines the northern boundary of the block, and the South Borax and Western Borax faults, which define the southern and western boundaries of the block. The Portal and Portal Extension faults trend to the northwest beneath the site. The structural area north of the North Borax fault is known as the North Basin, whereas the area south of the South Borax and Western Borax faults is known as the South Basin. There are no known Holocene-age faults in or around the site.

The stratigraphic units beneath the site consist of the following, from oldest to youngest:

a. Intrusive igneous rocks of quartz monzonite and quartz diorite composition form the crystalline basement rocks beneath the site at depths ranging from 1,500 to 3,000 feet bgs.

b. The Lower Tropico Group noncomformably overlies the basement rocks and consists of interbedded tuffaceous shales, limestones, and coarse fluviatile sedimentary rocks of arkosic composition. The Lower Tropico Group is known to be up to 1,000 feet thick in the vicinity of the site.

c. The Upper Tropico Group overlies the Lower Tropico Group and consists of a basal Saddleback Basalt Member, a middle Shale Member, and an upper Arkose Member. The upper and lower contacts of the Upper Tropico Group are unconformable, whereas contacts between members are generally conformable.

    i. The Saddleback Basalt Member ranges in thickness from 20 feet to over 200 feet and originated as a series of basalt flows from numerous vents and fissures as well as from Saddleback Mountain, which is located east of the open pit.

    ii. The Shale Member, also known as the "Kramer Beds," consists of two lacustrine shale units that are separated by a middle borate-bearing unit, the later of which is mined and processed by the Facility. The Shale Member is up to 400 feet think within the vicinity of the site and thins to the west of the open pit where it interfingers with the Arkose Member.

iii. The Arkose Member consists of fluviatile sedimentary rocks of arkosic composition with interbedded sands, silty clays, and gravels, and ranges in thickness from zero to 450 feet thick across the site.

d. Overlying the Upper Tropico Group is Quaternary-age older and recent alluvium. The alluvium is relatively unconsolidated and ranges in thickness from 10 to 70 feet across the site.

8. Site Hydrogeology

The Upper Tropico Group is the main water-bearing unit within the vicinity of the site. Groundwater is found in all three members of this group. These water-bearing sediments are present in discontinuous, highly faulted blocks (Mine Basin, North Basin, and South Basin) with wide variations in thickness and permeability. In the Mine Basin, depth to groundwater ranges from 120 to 350 feet bgs. Depth to groundwater in the North Basin ranges from 180 to 245 feet bgs, and in the South Basin depth to groundwater ranges from 100 to 250 feet bgs.

The known structural features serve as major impediments to groundwater flow, but do not completely restrict hydraulic connectivity between the basins. Hydraulic gradient in the Mine Basin is generally to the south; however, in the northern portion of the Mine Basin, hydraulic gradient is to the east towards the open pit. In the North and South Basins, hydraulic gradient is generally in a south-southwesterly direction.

9. Site Topography

The WMUs are located on an alluvial fill surface that slopes to the southwest at a grade of approximately 2%. Scattered bedrock hills and ridges protrude above the alluvium. The elevation at the base of the WMU is approximately 2,450 feet above mean sea level (amsl). Waste piles heights are up to 150 feet above ground surface.

10. Climate

The climate at the site is characterized by hot summers and mild winters. Average annual rainfall at the site is approximately 5.85 inches. Net evaporation ranges from approximately 67.8 to 98.9 inches.

11. Land Uses

Surrounding land use at the site is used for desert wildlife habitat. Land within and outside the mine facility is zoned for mining, industrial, and recreational. The

closest communities to the site are the towns of Boron and Desert Lake, which are approximately 1.11 to the southeast and 1.34 miles to the south, respectively.

12. Site Flood Hazards

Portions of the WMUs are located within a 100-year flood hazard zone. The zone is shown on the Federal Emergency Management Agency (FEMA) flood map identification number 06029C3400E, dated September 26, 2008. The flood zone, Zone A, is along a drainage trending from the northwest to the southeast and intersects a small portion of the Gangue/Refuse Waste Pile. Base flood elevations have not been determined for this zone.

13. Site Surface Hydrology/Stormwater Runoff

Perennial surface water bodies do not occur on or within one mile of the site. Ephemeral surface flow occurs from stormwater runoff. The maximum 24-hour precipitation from data collected for years 2004-2009 ranges from 0.24 to 1.76 inches.

14. Groundwater Quality

Nine monitoring wells are sampled as part of the detection monitoring of the WMUs. Monitoring parameters for these WMUs are arsenic, boron, and total dissolved solids (TDS). Concentrations of arsenic range from non-detect to 0.44 milligrams per liter (mg/L), concentrations of boron range from 0.7 to 44 mg/L, and TDS concentrations range from 330 to 960 mg/L. Variations in lithology contribute to variations in groundwater quality; for example, the lakebed shale member includes the ore host rocks and therefore contains higher concentrations of trace minerals.

15. Waste Classification

Process material deposited to Former Ponds 4 and 5 was classified as Group A mining waste based on elevated concentrations of arsenic in the discharge. At the time of the discharge, the Group A mining waste was in a liquid-slurry form. Over time, that material dried and segregated. Some material in Former Ponds 4 and 5, which contains high levels of arsenic, can be economically reprocessed for ore. The remaining material has been analyzed using the United States Environmental Protection Agency (USEPA) Toxicity Characteristic Leaching Procedure (TCLP). The results of this analysis indicate that this waste is non-hazardous, and therefore not Group A mining waste, based on leachable arsenic concentrations. This method is an aggressive method using acid solution to recover arsenic. The discharger has demonstrated that this non-hazardous material has low-acid

generating potential. Additionally, this material has a low hydraulic conductivity. CCR, title 27, section 22480, subdivision (c), specifies that these factors may be considered in the classification of a mining waste as either Group B or Group C. Group C mining wastes, as specified in CCR, title 27, section 22480, subdivision (b)(3), "are wastes from which any discharge would be in compliance with the applicable water quality control plan," (Basin Plan) "including water quality objectives other than turbidity." Because of the intrinsic characteristics of the material to be discharged from the segregation operation, the Discharger is required to demonstrate, as part of this Order, that the material proposed to be discharged to the Gangue Waste Pile from Former Ponds 4 and 5 meets the requirements for a Group C waste as specified in CCR, title 27, section 22480, subdivision (b)(3) and the numerical and narrative values specified in the Basin Plan. This is to be derived by taking representative samples of the proposed material, filtering the samples, and analyzing the filtrate to determine the concentrations of chemical constituents in the filtered liquid, thus providing empirical analytical data for the leachate using the Waste Extraction Test, per CCR, title 22, Division 4.5, Chapter 11, Article 5, Appendix II. These results are to be submitted to the Water Board for approval. Should the results of that test show results higher than the Water Quality Objectives stated in the Basin Plan, the material cannot be classified as a Group C waste and thus will not be permitted to be discharged to the Gangue Waste Pile.

In addition to the Group C non-ore gangue produced from harvesting the inactive Surface Impoundments, Former Ponds 4 and 5 described above, this Order also regulates the discharge from the waste streams noted in Finding 4 (b) through (e). Those waste streams were classified in Board Order 6-89-59 as Group C mining waste, except for Finding 4 (e), which describes both Group C mining waste and Class III municipal solid waste (MSW); these classifications are carried forward to this Order and remain unchanged.

The Discharger periodically covers the gangue waste material with overburden to facilitate equipment travel in the area. The overburden material is classified as inert; however, the overburden is being applied to the Group C WMUs. Therefore, when placed on the Group C WMUs, the overburden will be regulated by this Order as part of the Group C mining waste in the Group C WMU.

Industrial solid waste produced at the site, as described in Finding 4 (e), is disposed of in the Gangue/Refuse Waste Pile and is classified in CCR, title 27, sections 20220 and 20230, as inert and non-hazardous solid waste. The waste is defined as municipal solid waste in Subtitle D. The Gangue/Refuse Waste Pile will continue to receive this waste derived from the site operations.

16. Waste Management Unit Classification

The existing two Group C Mining Waste Piles, the Gangue Waste Pile and the Gangue/Overburden Waste Pile, will be combined into a new, larger, Group C Mining Waste Pile, referred to as the Gangue Waste Pile. Following demonstration that the material separated from the ore from the inactive Group A Mining Waste Surface Impoundments, Former Pond 4 and Former Pond 5, is classified as Group C, that material would be deposited on the Gangue Waste Pile. Pursuant to CCR, title 27, section 22490, because only mining waste classified as Group C will be discharged to the Gangue Waste Pile, no liner or leachate collection and removal system is required. The existing footprint boundary, and proposed expansion boundary for the Group C Gangue Waste Pile is shown on Attachment "B," which is made part of this Board Order.

Pursuant to CCR, title 27, section 20260, the Gangue/Refuse Waste Pile is classified as an existing Class III WMU; the footprint boundary is shown in Attachment B. Table 1, below, lists the total and remaining capacity of these WMUs.

Table 1: Solid Waste Management Unit Approximate Capacity

Waste Management Unit	Area (acres)	Total Capacity (cubic yards)	Remaining Capacity (cubic yards)	Life Expectancy
Gangue Waste Pile	588	222,000,000	87,000,000	2050
Gangue/Refuse Waste Pile	60	10,600,000	900,000	2036

17. Authorized Waste Disposal Sites

Gangue Waste Pile and the Gangue/Refuse Waste Pile are the only unlined authorized disposal sites for Group C mining wastes identified in Finding 15 and are shown in Attachment "B." Group C mining waste discharged to the WMUs constructed at the mine site to contain Group A or Group B Mining waste are regulated by a separate Board Order.

On October 9, 1991, the USEPA promulgated federal MSW regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D (Code of Federal Regulations, Title 40, Part 258), hereafter referred to as "Subtitle D." These regulations apply to all Class II and Class III landfills that accept MSW. The Gangue/Refuse Waste Pile receives about 3.1 tons per day of a mixture of MSW and other non-hazardous, inert waste. The existing footprint of the Gangue/Refuse Waste Pile, as documented, establishes the area of land covered by municipal solid waste and that is subject to 40 CFR Part 258.1, as published in the Federal Register October 1, 1993. The footprint documents the limits of waste,

which encompasses approximately 60 acres, is exempt from Subtitle D requirements for composite liners, and is shown as Attachment "B."

18. Technical and Monitoring Reports

The Discharger must submit technical and monitoring reports in compliance with this Order as described in Monitoring and Reporting Program (MRP) No. R6V-2010-0048, which is attached to and made part of this Order.

19. Water Quality Protection Standard

The Water Quality Protection Standard (WQPS) consists of monitoring parameters, constituents of concern (COCs), concentration limits, monitoring points, and the Point of Compliance. The WQPS applies over the active life of the Facility, closure and post-closure maintenance period, and the compliance period. The COCs, monitoring points, and Point of Compliance are described in MRP No. R6V-2010-0048. The Discharger has submitted background water quality data and a WQPS for the water-bearing media beneath each WMU of the Facility.

20. Statistical Methods

Statistical analyses of groundwater monitoring data are necessary for the earliest possible detection of measurably significant evidence of a release of waste from the Facility. CCR, title 27, section 20415, subdivision (e)(7), requires statistical data analyses to determine when there is "measurably significant" evidence of a release from the WMU. MRP No. R6V-2010-0048 includes methods for statistical analyses and monitoring parameters. Control charts have been developed using intra-well comparison techniques. Eight quarters of historical data have been used for the wells designated as monitoring points to construct Shewhart-CUSUM control charts for each well and for each monitoring analyte. Control limits based on statistical analysis are defined for each well. Control limits may be updated in accordance with CCR, title 27, section 20415.

21. Physical Evidence of a Release

An evaluation monitoring program may be initiated without statistical verification if there is significant physical evidence of a release from a waste pile. Physical evidence can include but is not limited to time-series plots, vegetation loss, and soil discoloration as provided in CCR, title 27, section 20425.

22. Preliminary Closure and Post-Closure Maintenance Plans

The Discharger submitted revised preliminary Closure and Post-Closure Maintenance Plans (CPCMP) for the Gangue Waste Pile (August 31, 2009), and for the Gangue/Refuse Waste Pile (October 19, 2009), in compliance with CCR, title 27, sections 20950, 21400, 21769, and 22510. These plans were prepared under the supervision of a Certified Engineering Geologist licensed in the State of California. The Discharger proposes to reclaim the Gangue Waste Pile in accordance with the Surface Mining and Reclamation Act (SMARA) Site Reclamation Plan. For final closure, the Discharger proposes to construct a final cover for the Gangue/Refuse Waste Pile as required under CCR, title 27, section 21790.

23. Financial Assurance

The Discharger has provided financial assurance documentation in the form of a letter of credit that has been established for closure, post-closure maintenance, and potential corrective actions for the WMUs. This Order requires the Discharger to annually demonstrate that the amount of financial assurance is adequate, or the need to increase the amount of financial assurance as required in CCR, title 27, section 20950, as part of the annual report.

24. Current and Past Cleanup Activities

There are no current or past clean-up activities associated with these WMUs. Groundwater evaluation and interim corrective action activities for the Discharger's Surface Impoundments are covered under a separate Order.

25. Lahontan Basin Plan

The Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan), which became effective on March 31, 1995. This Order implements the Basin Plan.

26. Beneficial Uses

The present and potential beneficial uses of the groundwaters of the Antelope Valley Groundwater Basin (Department of Water Resources No. 6-44), which includes aquifers in the North Muroc Hydrologic Area of the Antelope Hydrologic Unit (Department of Water Resources No. 626.60) as set forth and defined in the Basin Plan are:

a. Municipal and domestic supply (MUN);
b. Agricultural supply (AGR);
c. Industrial service supply (IND); and
d. Freshwater replenishment (FRSH).

27. California Environmental Quality Act (CEQA) Compliance

This Boron mine expansion project is subject to the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, Section 21000 et seq., in accordance with CCR, title 14, section 15378. The County of Kern (County) is the CEQA Lead Agency for this project under the CEQA Guidelines. A Draft Environmental Impact Report (EIR) was prepared by the County, acting as lead agency under CEQA. The EIR was certified by the County on January 9, 2004, (State Clearinghouse Number 2002121007). The U.S. Borax Life of Mine Project EIR evaluated the expansion of the existing surface mining operation, which included the proposed expansion of the gangue disposal area and development of a reclamation plan. The proposed project has been designed for impacts based upon a foreseeable remaining mine life of 40 years.

The County, as the Lead Agency, found in the EIR that the effect of the project on stormwater and site drainage should be reduced to a less than significant impact, provided mitigation measures were implemented. Mitigation Measures required: 1) implementation of a flood impact study for undisturbed areas, and 2) implementation of an approved Storm Water Management Plan during mining and reclamation operations.

The Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, subdivision (g)(2), evaluated the potentially significant impacts to water quality identified in the EIR. With regard to the expansion of the Group C Mining Waste Piles into the Gangue Waste Pile as proposed, the Water Board finds the mitigation measures, and the monitoring of the effectiveness of the mitigation measures, as required by this Order and MRP No. R6V-2010-0048, are adequate to reduce water quality impacts to less than significant.

In addition to the Group C Mining Waste Pile noted above, this Order also governs an existing Landfill (Gangue/Refuse Waste Pile) that the Discharger operates. The Landfill (Gangue/Refuse Waste Pile) is, therefore, exempt from the provisions of CEQA, Public Resources Code, Section 21000 et seq., in accordance with Section 15301 of the CEQA Guidelines, as the project does not involve an expansion of the Gangue/Refuse Waste Pile.

28. Notice to Interested Parties and Public

The Water Board has notified the Discharger and all known interested parties and persons of its intent to issue revised WDRs for the Facility.

29. Consideration of Comments

The Water Board, in a public meeting, heard and considered all comments pertaining to the discharges.

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. RECEIVING WATER LIMITATIONS

The Discharger shall not cause the existing water quality to be degraded. Receiving water limitations are narrative and numerical water quality objectives contained in the Basin Plan for all groundwaters of the Lahontan Region. As such, they are required to be met. Under no circumstances shall the Discharger cause the presence of the following substances or conditions in groundwaters of the Antelope Hydrologic Unit.

A. Bacteria – The medium concentration of coliform organisms, over any seven-day period, must be less than 1.1 Most Probable Number per 100 milliliters (MPN/100 mL) in groundwaters.

B. Chemical Constituents – Groundwaters must not contain concentrations of chemical constituents in excess of the Maximum Contaminant Levels (MCLs) or Secondary MCL (SMCLs) based upon drinking water standards specified in the following provisions of CCR, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (SMCLs – Consumer Acceptance Contaminant Levels), and Table 64449-B of section 64449 (SMCLs – Consumer Acceptance Contaminant Level Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

Groundwaters must not contain concentrations of chemical constituents that adversely affect the water for beneficial uses (i.e., agricultural purposes).

Groundwaters must not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

C. Radioactivity – Groundwater must not contain concentrations of radionuclides in excess of limits specified in CCR, title 22, section 64442, Table 64442, and section 64443, Table 64443, including future changes as the changes take effect.

D. Taste and Odors – Groundwaters must not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses. At a minimum, concentrations must not exceed adopted SMCLs as specified in CCR, Title 22, Table 64449-A of section 64449 (SMCLs – Consumer Acceptance Contaminant Levels) and Table 64449-B of section 64449 (SMCLs – Consumer Acceptance Contaminant Levels Ranges) including future changes as the changes take effect.

E. Color – Groundwaters must not contain color-producing substances from tracers in concentrations that cause a nuisance or that adversely affect beneficial uses.

F. Toxic Substances – Any presence of toxic substances in concentrations that individually, collectively, or cumulatively cause a detrimental physiological response in humans, plants, animals, or aquatic life is prohibited.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge of gangue separated from ore from inactive Group A Surface Impoundments, Former Ponds 4 and 5, may only be discharged to the Group C Gangue Waste Pile if a demonstration has been made and accepted by the Water Board that the discharge of materials to be deposited meet Water Quality Objectives.

2. The discharge must not cause or threaten to cause a condition of pollution or nuisance as defined in California Water Code, section 13050.

3. There must be no discharge, bypass, or diversion of wastewater from the collection, conveyance, or disposal facilities to adjacent land areas or surface waters.

4. Group C Mining Waste, as described in Finding 4 of this Order, shall only be discharged to the authorized disposal sites specified in this Order or waste containment units designed for their containment.

5. The discharge of nonhazardous solid waste, as defined in CCR, title 27, section 20220, and as described in Finding 4 of this Order, shall only be discharged to the authorized disposal site.

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

7. The discharge of hazardous waste, or generation of hazardous waste due to evaporation, is prohibited. For the purposes of this Order, the term "hazardous waste" is defined in CCR, title 27, section 20164.

8. The discharge of waste containing either free liquid, liquid in excess of the moisture holding capacity of the waste, or the waste which contains liquid in excess of the moisture holding capacity in the WMU as a result of waste management operations, compaction, or settlement to WMUs, is prohibited as specified in CCR, title 27, section 20200, subdivision (d)(2).

9. The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids, by weight) to WMUs is prohibited as specified in CCR, title 27, section 20200, subdivision (d)(3).

10. The discharge of solid wastes to ponded water from any source is prohibited.

11. Any collected run-off found to contain hazardous or designated levels of constituents shall be discharged to an active WMU authorized to receive that characterized waste or to an approved disposal site.

12. The discharge of waste, as defined in California Water Code (CWC), section 13030, subdivision (d), that causes a violation of any narrative water quality objective (WQO) contained in the Basin Plan, including the Nondegradation Objective, is prohibited.

13. Where any numeric or narrative WQO contained in the Basin Plan is already being violated, the discharge of waste that causes further degradation or pollution is prohibited.

14. The discharge must not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the WMUs if such waste constituents could migrate to waters of the State – in either liquid or gaseous

phase – and cause a condition of nuisance, degradation, contamination or pollution.

15. The discharge shall not cause the concentration of any Monitoring Parameter or other COC to exhibit a measurably significant increase over its respective concentration limit (background data set) in any monitored medium at any detection monitoring point, as indicated by the constituent's then-current concentration's exceeding the threshold value established through the application of an approved statistical or non-statistical data analysis method to that background data set.

16. The WMUs shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping as specified in CCR, title 27, section 20365, subdivision (a).

17. All facilities used for the collection, conveyance, or disposal of waste must be adequately protected against overflow, washout, inundation, structural damage, or a significant reduction in efficiency resulting from a storm or flood with a 100-year return period. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

18. Annually, prior to the anticipation the rainy season, any necessary erosion control measures shall be implemented; any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site.

19. The integrity of the WMUs must be maintained throughout the life of the Facility and must not be diminished as a result of any maintenance operation.

20. The Discharger must notify the Water Board within one business day of any slope failure occurring at a WMU. The Discharger shall correct any failure which threatens the integrity of the WMU, after approval of the method, in accordance with a schedule established by the Water Board as specified in CCR, title 27, section 21710, subdivision (c)(2).

21. The Discharger must maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with these WDRs.

22. The discharge of waste in a manner that does not maintain a five-foot separation between the waste and the seasonal high groundwater table is prohibited.

23. The Discharger shall, in a timely manner or within 10 days, remove and relocate to an authorized disposal site any wastes which are discharged at the disposal site in violation of this Order.

24. Water used for dust control during disposal site operations shall be limited to a minimal amount.

25. At closure, the Facility must be closed in accordance with the Final Closure Plans accepted by the Water Board.

26. All closure plans, groundwater, and unsaturated zone monitoring plans, including any required updates to existing plans, requested in this Order shall be prepared by, or under the supervision of, a California Professional Engineer or Certified Engineering Geologist.

27. The Discharger must at all times maintain adequate and viable financial assurances acceptable to the Water Board Executive Officer for costs associated with closure, post-closure, and corrective action for all known or reasonably foreseeable releases.

B. Stormwater Discharges

Waste in discharges of stormwater must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and management practices. The applicant shall comply with all requirements (with the exception of purely administrative requirements, e.g., submitting a Notice of Intent) contained in the State Water Board's Waste Discharge Requirements For Discharges of Storm Water Discharges Associated with Construction Activity, General Permit No. CAS000002, and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities, General Permit No. CAS000001, and all subsequent revisions and amendments.

These requirements do not preclude the Discharger from requirements imposed by municipalities, counties, drainage districts, and other local agencies regarding discharges of stormwater to separate storm sewer systems or other water conveyances and water bodies under their jurisdiction.

C. Detection Monitoring Program

The Discharger must maintain a detection monitoring program (DMP) as required in CCR, title 27, section 20385, subdivision (a)(1).

D. Evaluation Monitoring Program

The Discharger must perform an evaluation monitoring program (EMP) when there is a measurably significant evidence of release as required in CCR, title 27, section 20385, subdivision (a)(2) and (3).

E. Corrective Action Program

The Discharger shall institute a corrective action program (CAP) when required pursuant to CCR, title 27, section 20385, subdivision (a)(4).

III. WATER QUALITY MONITORING AND RESPONSE PROGRAMS

A. Water Quality Protection Standard

1. The Discharger must submit a RWD to the Water Board at least 140 days before initiating a discharge to the WMUs of any new constituents of concern. Before a new discharge commences, the Discharger must estimate the concentration for such constituents within the waste stream and submit written statistical method(s) in order to detect a release of such constituents.

2. At any given time, the concentration limit for each monitoring parameter and constituent of concern must be equal to the background data set of that constituent. The background data set for each monitoring point/constituent pair should be comprised of at least eight data points, collected quarterly.

3. If the Discharger or Water Board Executive Officer determines that concentration limits were or are exceeded, the Discharger may immediately institute verification procedures upon such determination as specified below or submit an amended RWD within 90 days of

such determination in order to establish an evaluation monitoring program. In the event of a release, unless the amended RWD (proposing an EMP) proposes and substantiates a longer period, the Discharger will only have 90 days, once the Water Board authorizes the initiation of the EMP, to complete the delineation, develop a suite of proposed corrective action measures, and submit a proposed CAP for adoption by the Water Board.

4. Monitoring wells and/or unsaturated zone samples must be used to obtain background data and to detect a release from the Facility.

B. Statistical Methods

1. The Discharger must use approved statistical data analysis methods to evaluate Point of Compliance data in order to determine "measurably significant" (as defined in CCR, title 27, section 20164) evidence of a release from the WMU. Approved methods may include an intrawell statistical approach proposed by the Discharger. Viable methods include, but are not limited to, a parametric upper prediction limit, a gamma upper prediction limit, and a Shewhart Cumulative Sum (CUSUM) control chart, including a pass 1-of-3 retesting approach. Viable statistical methods, including the retesting approach, must include those which can meet or beat United States Environmental Protection Agency's (U.S. EPA's) Reference Power Curve.

2. The Discharger must determine, within 45 days after completion of sampling, whether there is measurably significant evidence of a release from the WMU at each Monitoring Point. The analysis must consider all monitoring parameters and constituents of concern. The Executive Officer may also make an independent finding that there is measurably significant evidence of a release or physical evidence of a release.

3. If there is measurably significant or physical evidence of a release, the Discharger must immediately notify the Water Board by certified mail (see notification procedures contained in MRP No. R6V-2010-0048. Subsequently, the Discharger may immediately initiate verification procedures, as specified in section D below, whenever there is a determination by the Discharger or Executive Officer that there is measurably significant or physical evidence of a release.

C. Physical Evidence of a Release

The Discharger must determine whether there is significant physical evidence of a release from the WMUs. Significant physical evidence may include, but is not limited to, unexplained volumetric changes in the WMUs, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, and unexplained water table mounding beneath or adjacent to the WMUs, and/or any other change in the environment that could reasonably be expected to be the result of a release from the WMUs (see notification procedures contained in the MRP No. R6V-2010-0048.

D. Verification Procedures

1. If the Discharger or Executive Officer verify evidence of a release, the Discharger is required to submit a technical report to the Water Board, pursuant to California Water Code, section 13267, subdivision (b), within 90 days of such a determination that there is, or was, a release. The report must propose an evaluation monitoring program (see subsection II.D., entitled "Evaluation Monitoring Program"), or make a demonstration to the Water Board that there is a source other than the Facility that caused evidence of a release (see notification procedures contained in MRP No. R6V-2010-0048).

2. The verification procedure need only be performed for the constituent(s) that has shown a measurably significant evidence of a release, and must be performed for those monitoring points at which a release is indicated.

3. The Discharger must either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or must conduct a discrete retest in which only data obtained from the resampling event must be analyzed to verify evidence of a release.

4. The Discharger must report to the Water Board, by certified mail, the results of the verification procedure, as well as all concentration data collected for use in the retest within seven days of the last laboratory analysis.

E. Technical Report without Verification Procedures

If the Discharger does not use verification procedures to evaluate evidence of a release, and there is confirmation that there is measurably significant evidence of a release, then the Discharger is required to submit, within 90 days of such confirmation, an amended RWD in order to establish an Evaluation Monitoring Program or demonstrate to the Water Board that there is a source other than the WMUs that caused evidence of a release (see "Unscheduled Reports to be Filed With the Water Board," of MRP No. R6V-2010-0048.

F. Monitoring and Reporting

1. Pursuant to California Water Code, section 13267, subdivision (b), the Discharger must comply with the MRP as established in the attached MRP No. R6V-2010-0048, and as specified by the Executive Officer. The MRP may be modified by the Water Board Executive Officer.

2. The Discharger must comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of MRP No. R6V-2010-0048.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. 6-89-59 and MRP 89-59A1 are hereby rescinded.

B. Standard Provisions

The Discharger must comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment "C," which is made part of this Order.

C. Claim of Copyright or Other Protection

Any and all reports and other documents submitted to the Lahontan Water Board pursuant to this request will need to be copied for some or all of the following reasons: 1) normal internal use of the document, including staff copies, record copies, copies for Board members and agenda packets; 2) any further proceedings of the Lahontan Water Board and the State Water Board; 3) any court proceeding that may involve the document; and 4) any

copies requested by members of the public pursuant to the Public Records Act or other legal proceeding.

If the Discharger or its contractor(s) claims any copyright or other protection, the submittal must include a notice, and the notice will accompany all documents copied for the reasons stated above. If copyright protection for a submitted document is claimed, failure to expressly grant permission for the copying stated above will render the document unusable for the Lahontan Water Board's purposes and will result in the document being returned to the Discharger as if the task had not been completed.

D. Closure and Post-Closure

The Preliminary CPCMP shall be updated if there is a substantial change in operations. A final CPCMP shall be submitted at least 140 days prior to beginning any partial or final closure activities, or prior to discontinuing the use of the Facility for waste treatment, storage, or disposal. Information shall be submitted annually indicating conformance with the existing operations. The final plans must be prepared by or under the supervision of either a California registered civil engineer or certified engineering geologist and be in compliance with CCR, title 27, sections 20950, 21400, 21769, and 22510. The closure of each WMU must be under the direct supervision of a California registered civil engineer or certified engineering geologist, and must be closed and maintained in compliance with the approved plan.

E. Modifications to the Facility

If the Discharger intends to implement changes in the type, quantity, or concentrations of waste materials discharged; site operations and features; or proposed closure procedures, including changes in cost estimates, as specified in CCR, title 27, section 21710, subdivision (a)(4); or if the Discharger intends to expand the Facility or the capacity of the WMUs, a report must submitted to the Water Board no later than **140 days prior** to the anticipated change, containing a detailed plan for Facility expansion. This plan must include, but is not limited to, a time schedule for studies, design, and other steps needed to provide additional capacity, and must be done in accordance with an accepted construction quality control plan.

Pursuant to California Water Code, section 13260, the Discharger must file a complete revised RWD to the Water Board no later than **140 days prior** to the discharge of waste to areas outside the authorized disposal site.

The Discharger must notify the Water Board in writing no later than **140 days prior** of any proposed change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of a WMU pursuant to CCR, title 27, section 21710, subdivision (c)(1).

F. Financial Assurance

As specified in the Monitoring and Reporting Program, the Discharger shall submit information that adequate financial assurance has been provided for closure and post-closure maintenance pursuant to CCR, title 27, section 22510, subdivision (f). Evidence must include the total amount of money available in the financial assurance instrument developed by the Discharger. The Discharger must either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by the appropriate amount. An increase may be necessary due to inflation, a change in regulatory requirements, a change in the approved closure plan, or unforeseen events. If the facility Surface Mining and Reclamation Act (SMARA) financial assurance is to be used to satisfy part of the obligation, the Discharger must submit proof that the Water Board has been added as an alternate payee.

G. Adverse Conditions

The Discharger must notify the Water Board within one business day of the discovery of any adverse condition in accordance with the notification procedures in Item 2.a of the attached "Standard Provisions for Waste Discharge Requirements." Adverse conditions include but are not limited to:

1. Waste pile slope failure;

2. Discharge of wastes outside of authorized containment units;

3. Discharge of hazardous waste; or

4. Evidence of any release from the authorized containment units.

V. TIME SCHEDULE

A. Annual Report

On or before **February 28, 2011**, and before February 28 every year thereafter the Dischargers must submit an annual report to the Water Board.

This report must include the items described in the General Provisions for Monitoring and Reporting.

B. Financial Assurance Documents

On or before **April 1, 2011**, and before April 1 every year thereafter, the Dischargers must submit an annual financial assurance report to the Water Board. This report must summarize the amount of money available in the financial assurance instrument. This report should also provide a demonstration that the amount of financial assurance is adequate, or the need to increase the amount of financial assurance as required in CCR, title 27, section 22510, subdivision (f) for closure and post-closure maintenance.

C. Group C Justification Report

No later than **60 days prior to discharge** of the non-ore gangue from the inactive Group A Surface Impoundments, Former Ponds 4 and 5, to the Group C Gangue Waste Pile, a report must be submitted to the Water Board for acceptance using the Waste Extraction Test described in Finding 15, Waste Classification, demonstrating that the material to be discharged to the Gangue Waste Pile from the Group A Surface Impoundments does not exceed both narrative and numerical Water Quality Objectives stated in the Basin Plan.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on October 14, 2010.

HAROLD J. SINGER
EXECUTIVE OFFICER

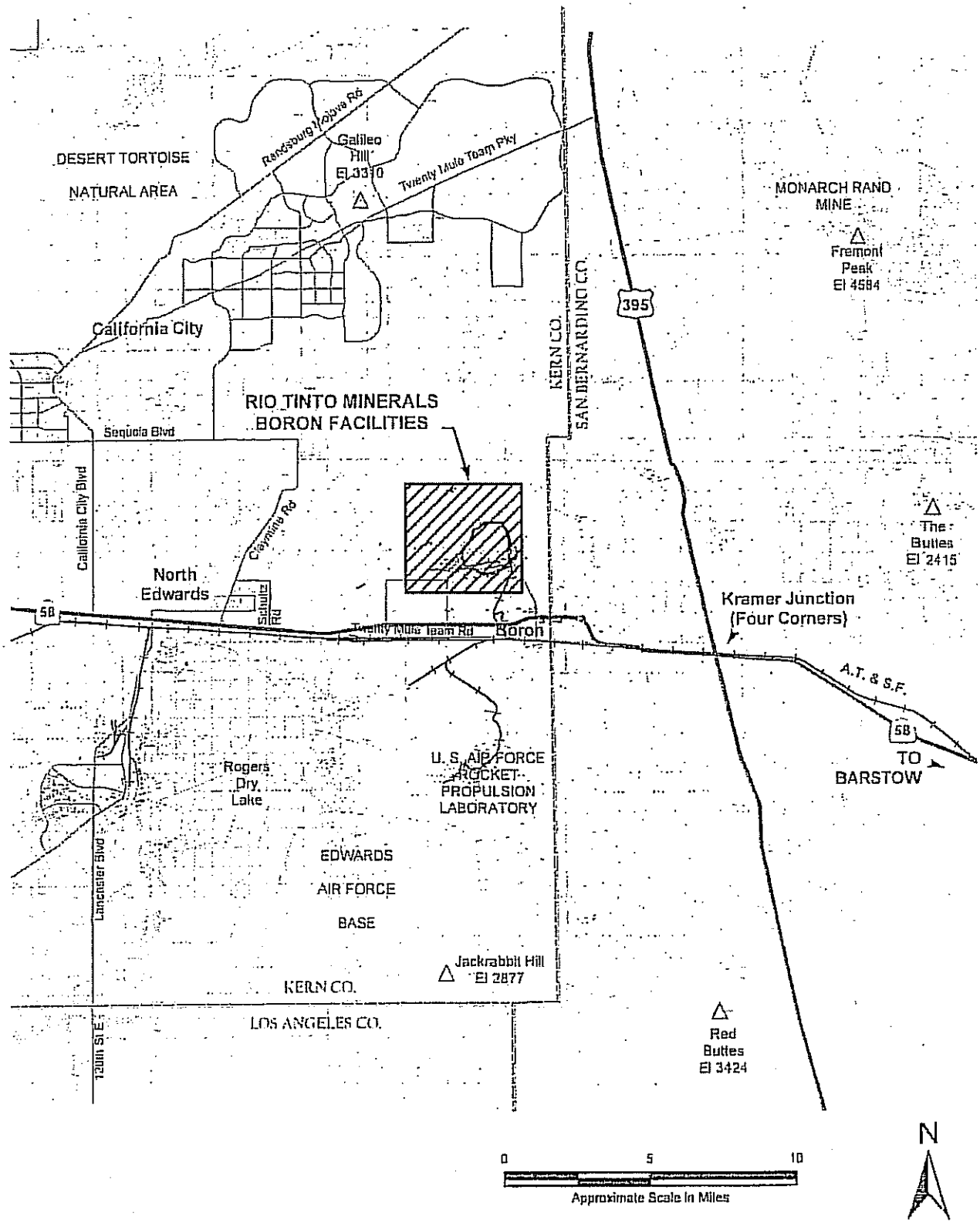
Attachments: A. Location Site Map
B. Waste Management Units Site Map
C. Standard Provisions for Waste Discharge Requirements

BB/rp/ BO2010/Borax/R6V-2010-0048BoraxWDR.doc

U.S. BORAX, INC.
BORON FACILITY
Kern County

Attachment A
Location Site Map

WASTE DISCHARGE REQUIREMENTS
BOARD ORDER NO. R6V-2010-0048
WDID NO. 6B152004002

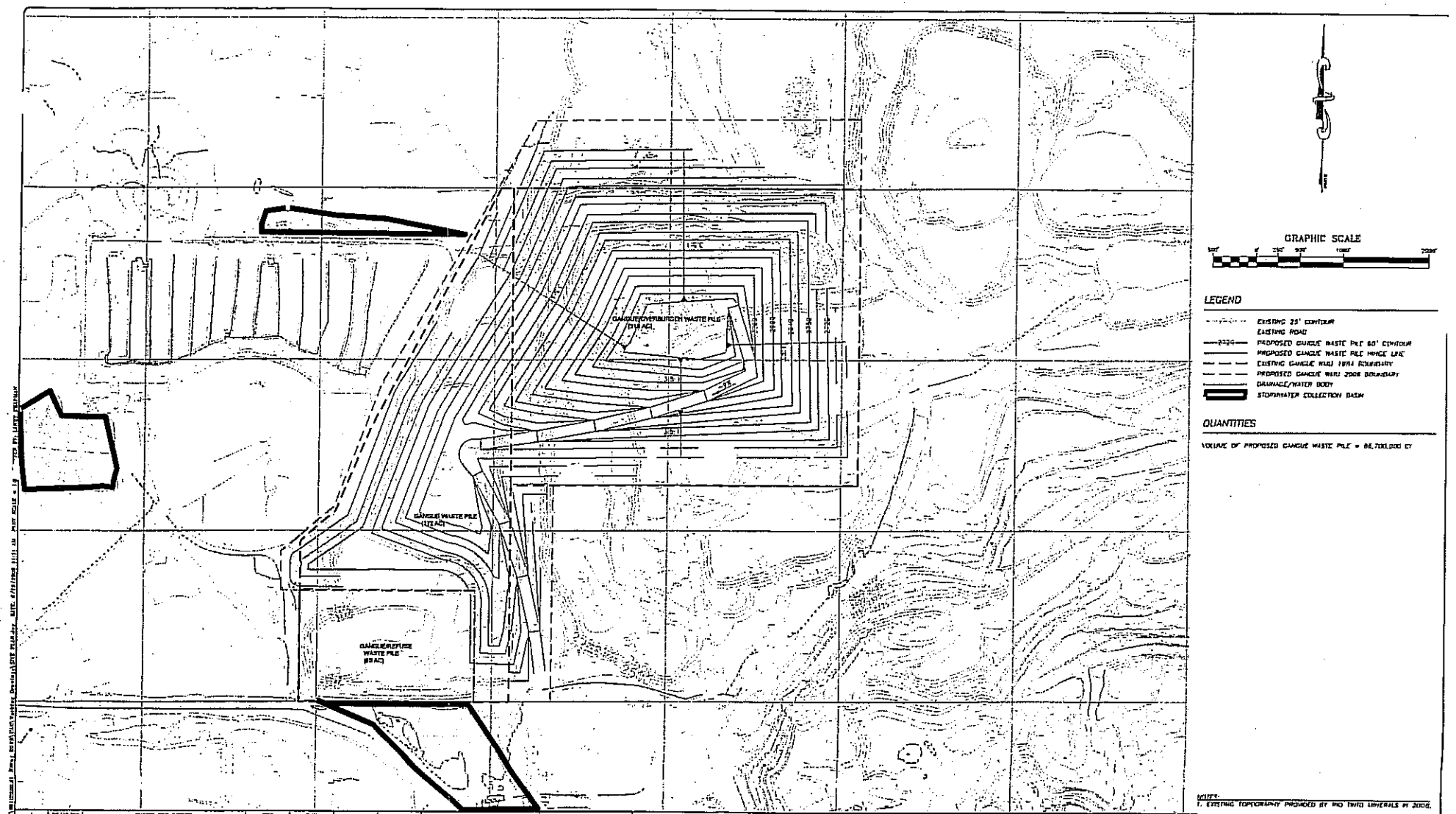


RIO TINTO MINERALS	Date: May 07, 2009	RIO TINTO MINERALS BORON FACILITIES LOCATION MAP	FIGURE 1
	Scale: 1" = 5 miles		
	Author: SLN		Dwg. File: WDR2009/ SiteLocation_Ifor SAP.mxd
Job No.: USB9802	Projection: Custom		

U.S. BORAX, INC.
BORON FACILITY
Kern County

Attachment B
Waste Management Units Site Map

WASTE DISCHARGE REQUIREMENTS
BOARD ORDER NO. R6V-2010-0048
WDID NO. 6B152004002



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

a. to enter upon premises in which an effluent source is located or in which any required records are kept;

b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);

c. to inspect monitoring equipment or records; and

d. to sample any discharge.

2. Reporting Requirements

a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.

b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.

c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.

d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation.

f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

Provisions of the WDRs are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.

b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

REVISED MONITORING AND REPORTING
PROGRAM NO. R6V-2010-0048
WDID NO. 6B152004002

FOR

U.S. BORAX, INC., BORON FACILITY
GANGUE WASTE PILE AND GANGUE/REFUSE WASTE PILE

Kern County

I. WATER QUALITY PROTECTION STANDARD

Pursuant to California Code of Regulations (CCR), title 27, section 20390 for waste management units the Discharger shall comply with the monitoring provisions contained in sections 20385 through 20430 of title 27. A Water Quality Protection Standard (WQPS) is required by CCR, title 27, section 20390, to assure the earliest possible detection of a release from the waste management unit to the underlying soil and/or groundwater. The WQPS shall consist of all constituents of concern, the concentration limit (or control limit) for each constituent of concern, the Point of Compliance, and all Monitoring Points.

A. Definition of Terms

1. Monitored Media includes the saturated zone and unsaturated zone, per CCR, title 27, section 20415.

2. Constituent(s) of concern or COC(s) means any waste constituent(s), reaction product(s), and hazardous constituent(s) that is reasonably expected to be in or derived from waste contained in a waste management unit (CCR, title 27, section 20164). The constituents of concern (COCs) for the waste management units (WMUs) at this Facility are listed below.

3. Monitoring parameter means one of the set of parameters specified in the waste discharge requirements for which monitoring is conducted. Monitoring parameters include physical parameters, waste constituents, reaction products, and hazardous constituents, that provide a reliable indication of a release from a waste management unit (CCR, title 27, section 20164). The monitoring parameters for the WMUs at this Facility are listed below.

II. MONITORING

A. Waste Stream

1. Monthly, calculate average discharge volumes, in cubic yards per month, for the waste streams listed below. (The Discharger shall indicate the location of discharge for each waste stream.)
   a. Pond harvesting waste,
   b. Boric acid plant,
   c. Primary process refinery total solid waste, and
   d. Non-hazardous solid waste.
2. Monthly, pond harvesting waste for disposal to the Gangue Waste Pile and Gangue/Refuse Waste Pile will be sampled and analyzed for arsenic, as specified in the approved Sampling and Analysis Plan (SAP).

B. Detection Monitoring

The Discharger must use the SAP, submitted in 2009, and approved by the Water Board. Revisions to the SAP must be approved by the Water Board. The Discharger has proposed to use statistical or non-statistical data analysis methods for each monitoring period. The Discharger proposes to compare the concentration of each monitoring parameter with its respective Threshold Value, to determine if there has been a release from a particular WMU. Each report should include a comparison of monitoring parameter concentrations with respective Threshold Values and determine if there has been a potential release from any WMU. A release may have occurred if the groundwater monitoring system contains a COC above the respective Threshold Values. These data must be presented in tabular form.

1. Unsaturated Zone

   a. Monitoring Systems

      A network of vertical neutron access monitoring tubes is used to monitor the unsaturated zone surrounding the WMUs.

   b. Monitoring Points

      The monitoring access tubes for the unsaturated zone surrounding the WMUs are shown in Attachment A, which is made part of this MRP. The existing monitoring points are identified as VZ-3, VZ-5, VZ-23, VZ-25, and VZ-28, or their replacements, as approved by the Water Board.

c. Monitoring Parameters

Moisture levels in the unsaturated zone monitoring tubes surrounding the WMUs shall be measured. Detection of any moisture levels above background shall require further investigation for potential discharges.

d. Monitoring Frequency

i. Quarterly, the unsaturated zone monitoring system at each WMU must be monitored. Results must be recorded and submitted with the semi-annual monitoring reports. If standing water or any other adverse situation is detected in the neutron access monitoring tubes, the Water Board shall be notified immediately by phone followed up by a letter within 7 days.

ii. Unsaturated zone monitoring field instruments must be calibrated and operated within design parameters. Calibration results must be included with the monitoring report conducted for each reporting period.

2. Groundwater

a. Monitoring Points

Water samples must be collected from groundwater monitoring wells at the frequency and locations listed below in this MRP, or from replacement wells as approved by the Water Board. The groundwater monitoring points for detection monitoring are shown on Attachment "B," which is attached to and made a part of this MRP. The groundwater monitoring points are: GWM-1, GWM-3, GWM-15, GWM-16, GWM-19, GWM-22, GWM-50, GWM-51, and GWM-74, or equivalent replacement groundwater monitoring points.

b. Detection Monitoring Parameters

The Discharger must sample and analyze at the monitoring points for the monitoring parameters and constituents of concern at the frequencies listed in Table 1, below. Static water depths and levels must be measured to the nearest 0.01 foot.

Table 1. Monitoring Parameters and Other COCs and Monitoring Frequencies	
ALL WELLS	
Semi-Annual Monitoring Parameters	**Units**
Arsenic (As)	mg/L
Boron (B)	mg/L
Total Dissolved Solids (TDS)	mg/L
Quarterly Field Parameters	
Dissolved Oxygen (DO)	mg/L
Electrical Conductivity (EC)	umhos/cm
pH reading	pH
Temperature (T)	C^o
Turbidity	NTUs
Three-Year COC Monitoring	
Anions & Cations	
Bicarbonate	mg/L
Calcium (Ca)	mg/L
Carbonate (CO_3)	mg/L
Chloride (Cl)	mg/L
Fluoride (F)	mg/L
Magnesium (Mg)	mg/L
Potassium (K)	mg/L
Sodium (Na)	mg/L
Sulfate (SO_4)	mg/L
Metals	
Antimony (Sb)	mg/L
Barium (Ba)	mg/L
Iron (Fe)	mg/L
Lead (Pb)	mg/L
Manganese (Mn)	mg/L
Mercury (Hg)	mg/L
Silicon (Si)	mg/L
LANDFILL WELLS (GWM-15 & GWM-19)	
Five-Year COC Monitoring	
Beryllium (Be)	mg/L
Cadmium (Cd)	mg/L
Chromium (Cr)	mg/L
Cobalt (Co)	mg/L
Copper (Cu)	mg/L
Nickel (Ni)	mg/L
Selenium (Se)	mg/L
Silver (Ag)	mg/L
Sulfide	mg/L
Thallium (Tl)	mg/L
Tin (Sn)	mg/L
Vanadium (V)	mg/L
Zinc (Zn)	mg/L
Hazardous Organic Constituents[1]	ug/L

Table 1. Monitoring Parameters and Other COCs and Monitoring Frequencies (continued)	
Annual COC Monitoring	
All volatile organic constituents (VOCs)[2]	ug/L

1 = As specified in Appendix II, 40 CFR Part 258
2 = Appendix I, 40 CFR Part 258, list of 47 VOCs
C° = degrees celcius
mg/L = milligrams per liter
NTUs = nephlometric turbidity units
ug/L = micrograms per liter
umhos/cm = micromhos per centimeter

c. Aquifer Characteristics

Semi-annually, the most recent groundwater potentiometric surface must be illustrated on an 8.5- by 11-inch copy of a site plan showing the aquifer characteristics listed in Table 2 below, and include all monitoring locations specified for the Gangue Waste Piles and the Gangue/Refuse Waste Pile.

Table 2. Aquifer Characteristics	
Parameter	**Units**
Depth to groundwater	Feet below ground surface
Static water level	Feet above mean sea level
Slope of groundwater gradient	Feet / Feet
Direction of groundwater gradient	Degrees from North
Velocity of groundwater flow	Feet / Year

d. Background Concentration Limits

Background concentration limits (control limits) have been established for the monitoring points pursuant to CCR, title 27, sections 20415, 20420, and 20425 in the 2009 Sampling and Analyses Plan (SAP). The limits may be updated every two years following statistical analyses and as approved by the Water Board.

e. Summary of groundwater monitoring frequencies is shown in Table 3, below.

Table 3. Summary of Groundwater Monitoring Frequencies					
Waste Management Unit	**Water Levels**	**Field Parameters**	**Monitoring Parameters**	**VOCs**	**Other COCs**
Landfill[1]	Quarterly	Semi-Annual	Semi-Annual	Annual	3-year/5-year
Gangue Waste Pile	Quarterly	Semi-Annual	Semi-Annual	N/A	3-year

1 = This Waste Management Unit's COCs include those in Appendix II to 40 CFR 258.

III. RECORD KEEPING AND REPORTING REQUIREMENTS

A. Sampling Records To Be Maintained

Written records for each WMU must be maintained on site by the Discharger, and must be retained for a minimum of five years. This period of retention shall be extended during the course of cleanup of any plume and/or soil or groundwater pollution, any unresolved litigation regarding this discharge or when requested by the Water Board. Such records shall include all monitoring and spill reports submitted to the Water Board. At a minimum, the following information shall be maintained:

1. Tables and scaled contour and groundwater flow maps showing sample locations;

2. Location of the detection or corrective action program (evaluation monitoring) well from which the sample was collected, along with the identity of the individual who obtained the sample;

3. Date and time of sampling;

4. Quality assurance/quality control (QA/QC) information including the complete sampling and analysis procedures used, sample preservation methods, sample holding times, method detection limits, practical quantification limits and the identity and volumes of reagents used;

5. Calculation of results; and

6. Results of analyses shown on California certified laboratory sheets.

B. Scheduled Reports To Be Filed With The Water Board

The following periodic reports shall be submitted to the Water Board, as specified below:

1. Detection Monitoring and Background Water Quality Report
Semi-annually, submit the detection monitoring report including the monitoring data applicable to each monitored media, for each monitoring point, and for each WMU, as specified in this MRP.

The detection monitoring report shall include the following:

a. Results of groundwater sampling and analyses, including graphs and tables with updated control limits for each monitoring point.

b. The report shall describe each monitored groundwater body and include a scaled contour map and graphical presentation of the velocity and direction of groundwater flow beneath and around the unit, including mapped fault blocks beneath each unit. The report should also detail the varying flow direction based upon water level elevations collected during the sampling event.

c. The report shall include a current map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points. The map must be updated when wells are abandoned or new wells are added.

d. A brief chronological summary of dates of any operational problems and maintenance activities that potential impact water quality at the site shall be submitted.

This summary shall discuss:

i. Any modifications or additions to the treatment facilities or disposal facilities.

ii. Any major maintenance conducted on the conveyance system, treatment, or disposal facilities. Indicate changes on the map requested above.

iii. Any major problems with the conveyance system, treatment facilities, or disposal facilities.

iv. The calibration of any flow measuring devices.

2. Annual Summary Report

The Discharger shall submit an Annual Summary Report to the Water Board summarizing the monitoring information for the previous year with each year's data presented in a stand alone format and including the background water quality report. This report shall summarize the monitoring information for the previous year including all the historical data for the site. The annual reporting period ends December 31 for a given year.

The contents of this report shall be as follows:

a. For each monitoring point, submit in graphical format the laboratory analytical data for all samples collected within at least the previous five calendar years. Each graph shall show

the concentration of one or more constituents over time for a given downgradient or upgradient monitoring well location. The scale should be appropriate to show trends or variations in water quality. Graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot down gradient data (CCR, title 27, section 20415).

b. Statistical control charts should be provided for each monitoring parameter for each monitoring well location.

c. All monitoring analytical data obtained during the previous year must be presented in tabular form. This data may also be required in digitized form if requested.

d. The report should include a complete chronological 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 Order.

e. The report must provide evidence that adequate financial assurance pursuant to the requirements of the Order has been obtained. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by the appropriate amount if necessary, due to inflation, a change in regulatory requirements, a change in the approved closure plan or other unforeseen events.

f. Each Annual Report shall verify conformance of the Closure and Post-Closure Maintenance Plan (CPCMP) to the existing operations. If needed, this report must include an updated CPCMP for all solid waste management units. The CPCMP shall include line item cost estimates for closure and post-closure activities. The CPCMP shall specify which items are incorporated into the plan as requirements under the Surface Mining and Reclamation Act, relevant to the protection of water quality.

g. The Discharger shall submit a revised SAP addressing any changes necessary based on required monitoring and reporting.

h. The Discharger shall list the most recent Concentration Limit (background data set, including its source monitoring point or background monitoring point) for each COC at each compliance-testing monitoring point.

3. Additional Monitoring Information

a. A letter transmitting the essential points during the reporting period must accompany each report. The letter shall include a chronological discussion of any requirement violations found since the last report was submitted, and shall describe actions taken or planned for correcting those violations, as well as the required compliance date.

b. The Water Board shall be notified within 24 hours when detection monitor parameters or COCs are reported at concentrations above their respective background (control limits), or if any adverse situation occurs. Exceedances will be reported to the Water Board as soon as they are discovered and an explanation that data indicated that the exceedance is not verified or an Evaluation Monitoring/Corrective Action Plan will be submitted within 30 days of the exceedance.

c. If the Discharger has previously submitted a detailed time schedule for correcting violations, a reference to the dated correspondence transmitting this schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.

d. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or above, or by his/her duly authorized representative. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signatory's knowledge the report is true, complete, and correct.

C. Unscheduled Reports To Be Filed With The Water Board

1. Spill Reports

a. The Discharger shall report by telephone any seepage, spill, leak, or other breach of a containment system (hereinafter referred to as a "spill"), including any slope failure of any WMU (immediately after it is discovered. A written report shall be filed with the Water Board within ten working days with the following information:

i. General information including the date, time, location, and cause of the spill;

ii. Photographs of the spill site before and after corrective measures are taken;

iii. An estimate of the volume of waste involved;

iv. A description of the type of waste(s) involved and the area affected;

v. A description of any samples collected before and after any corrective measures, and the laboratory analysis results provided in tabular form and on laboratory data sheets;

vi. Identification of any water-bearing monitored media affected or threatened and any sampling and analysis proposed as well as a schedule for submittal; and

vii. A summary of any corrective measures taken, underway or proposed.

2. Notice of Tentative Release

If a release is tentatively indicated, the Discharger shall notify the Water Board and conduct a discrete retest, as described below.

Should the appropriate statistical or non-statistical data analysis indicate, for a given COC or monitoring parameter, that a release is tentatively identified, the Discharger shall:

a. Immediately notify the Water Board verbally by telephone as to the monitoring point(s) and constituent(s) or parameter(s) involved;

b. Provide written notification by certified mail within seven days of such determination; and

c. Carry out two discrete retests for the COC(s) or monitoring parameter(s) involved.

3. Report of Release

The Discharger must perform the procedures contained in this subsection whenever there is evidence of a release from a WMU.

a. Physical or Measurably Significant Evidence of a Release From a WMU.

The Discharger must immediately notify the Water Board verbally whenever a determination is made that there is physical or measurably significant evidence of a release from a WMU. This verbal notification must be followed by written notification via certified mail within seven days of such determination. Upon such notification, the Discharger may initiate verification procedures or demonstrate that another source other than the WMU caused evidence of a release (see below).

The notification must include the following information:

i. The WMU that may have released or be releasing;
ii. General information including the date, time, location, and cause of the release;
iii. An estimate of the flow rate and volume of waste involved;
iv. A procedure for collecting samples and description of laboratory tests to be conducted;
v. Identification of any water-bearing media affected or threatened;
vi. A summary of proposed corrective actions; and
vii. For measurably significant evidence of a release – the monitoring parameters and/or constituents of concern that are involved in the measurably significant evidence of a release from the WMUs;
viii. For physical evidence of a release – physical and chemical factors that indicate physical evidence of a release.

b. Other Source That May Cause Evidence of a Release From a WMU.

The Discharger may make a demonstration that a source other than the WMU caused evidence of a release. For this case, the Discharger must notify the Water Board of the intention to make this demonstration. The notification must be sent to the Water Board by certified mail within seven days of determining physical or measurably significant evidence of a release.

4. Evaluation Monitoring

The Discharger must, within 90 days of verifying a release, submit a technical report, pursuant to the California Water Code (CWR), section 13267, subsection (b), proposing an Evaluation Monitoring Program (EMP). If the Discharger decides not to conduct verification procedures, or decides not to make a demonstration that a source other than the WMU is responsible for the release, the release will be considered verified.

The Discharger must, within 90 days of determining "measurably significant" evidence of a release, submit to the Water Board an amended report of waste discharge to establish an evaluation monitoring program meeting the provisions of CCR, title 27, section 20420, subdivision (k)(5). The report must include the following information:

a. COC Concentrations — the maximum concentration of each COC at each monitoring point, as determined during the most recent COC sampling event (i.e., under CCR, title 27, section 20420, subdivision (g) or (k)[1]);

b. Proposed Monitoring System Changes — any proposed changes to the water quality monitoring systems at the WMU necessary to meet the provisions of CCR, title 27, section 20425;

c. Proposed Monitoring Changes — any proposed additions or changes to the monitoring frequency, sampling and analytical procedures or methods, or statistical methods used at the WMUs necessary to meet the provisions of CCR, title 27, section 20425; and

d. Proposed Delineation Approach — a detailed description of the measures to be taken by the Discharger to assess the nature and extent of the release from the WMUs.

5. Preliminary Engineering Feasibility Study Report

The Discharger must, within 180 days of verifying the release, submit a Preliminary Engineering Feasibility Study (CCR, title 27, section 20420, subsection (k)[6]) for corrective action.

IV. SAMPLING AND STATISTICAL ANALYSIS PROCEDURES

A. Laboratory Standards

Sample collection, storage, and analyses shall be performed according to the most recent version of *Standard USEPA Methods for the Examination of Water and Wastewater.* Water and waste analyses shall be performed by a laboratory approved for these analyses by the State of California. Specific methods of analysis must be identified on each laboratory report.

If methods other than USEPA-approved methods or Standard Methods for the Examination of Water and Wastewater are used, the exact methodology must be submitted for review and must be accepted by the Water Board Executive Officer prior to use.

B. Sampling and Analysis Procedures

Sample collection, storage and analysis shall be conducted in accordance with an approved SAP. The most recent version of the approved SAP shall be kept on site by the Discharger.

C. Statistical Data Analysis Method

In order to determine if any new releases have occurred from the WMUs, evaluation of data will be conducted using statistical methods. The Discharger must propose, in the WQPS, the statistical test to use for comparing detection monitoring well groundwater data to background monitoring well groundwater data. Approved methods may include an intrawell statistical approach proposed by the Discharger. Viable methods include, but are not limited to, a parametric upper prediction limit, and a Shewhart Cumulative Sum (CUSUM) control chart, including a pass1-of-3 retesting approach. Viable statistical methods, including the retesting approach, must include those which can meet or beat United States Environmental Protection Agency's (U.S. EPA's) Reference Power Curve.

D. Non-statistical Data Analysis Method

In order to determine if any new releases have occurred from the Waste Management Units, evaluation of data will be conducted using non-statistical methods. Non-statistical analysis shall be as follows:

1. Physical Evidence

Physical evidence can include vegetation loss, soil discoloration, or groundwater mounding. Each semi-annual report shall comment on these physical elements.

2. Time-Series Plots

Semi-annually, the Discharger shall graph time-series plots of the historical and most recent analytical results from the unsaturated zone monitoring and groundwater monitoring to show any trends in constituent concentrations through time. Time series plots must include applicable MCL or WQPS established for each respective constituent.

V. OTHER PROVISIONS

A. Detection Monitoring

At any time, the Discharger may file a written request, including appropriate supporting documents, with the Water Board's Executive Officer proposing appropriate modifications to the Monitoring and Reporting Program.

B. Information

Monitoring reports are to clearly identify the following:

1. Name and telephone number of an individual who can answer questions about the report;

2. Monitoring and Reporting Program No. R6V-2010-0048; and

3. WDID No. 6B152004002.

C. Reporting Frequency

Reports must be submitted in accordance with the following:

Report Designation	**Period**	**Report Submittal Date**
1st Semi-Annual Monitoring	Jan. 1-June 30	July 30
2nd Semi-Annual Monitoring*	July 1-Dec. 31	February 28
Annual Summary Report*	Jan. 1-Dec. 31	February 28
Three-year COC Monitoring*	next scheduled	July 30, 2012
Five-year COC Monitoring*	next scheduled	January 30, 2012

* May be combined in one report. The five year monitoring period must alternate between the first quarter and the third quarter. Three- and five-year COC monitoring information must be reported every three or five years, respectively, beginning with the dates shown. Annual VOC monitoring is to be conducted in the 2nd Semi-Annual Monitoring Period.

D. Failure To Furnish Reports

Any person failing or refusing to furnish technical or monitoring reports or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation under Section 13268 of the CWC.

E. General Provisions

The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made a part of this Monitoring and Reporting Program.

Ordered by: Harold J. Singer Dated: Oct 14 2010
HAROLD J. SINGER
EXECUTIVE OFFICER

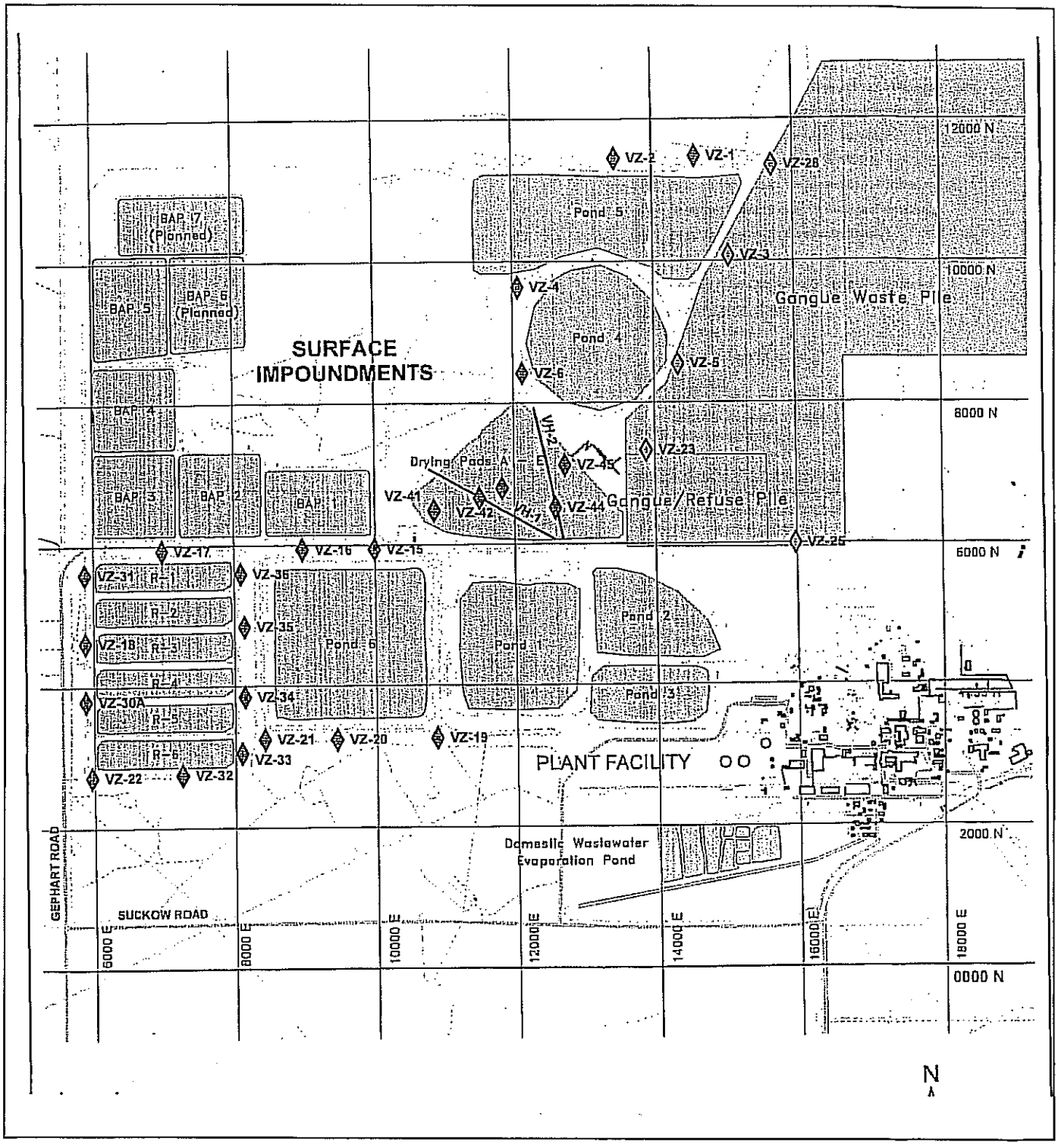
Attachments A: Unsaturated Monitoring Well Locations
B: Groundwater Monitoring Well Locations
C: General Provisions for Monitoring and Reporting

BB/rp BO2010/Boron/R6V-2010-0048_BoraxMRP

U.S. BORAX, INC.
BORON FACILITY
Kern County

Attachment A
Unsaturated Monitoring Well Locations

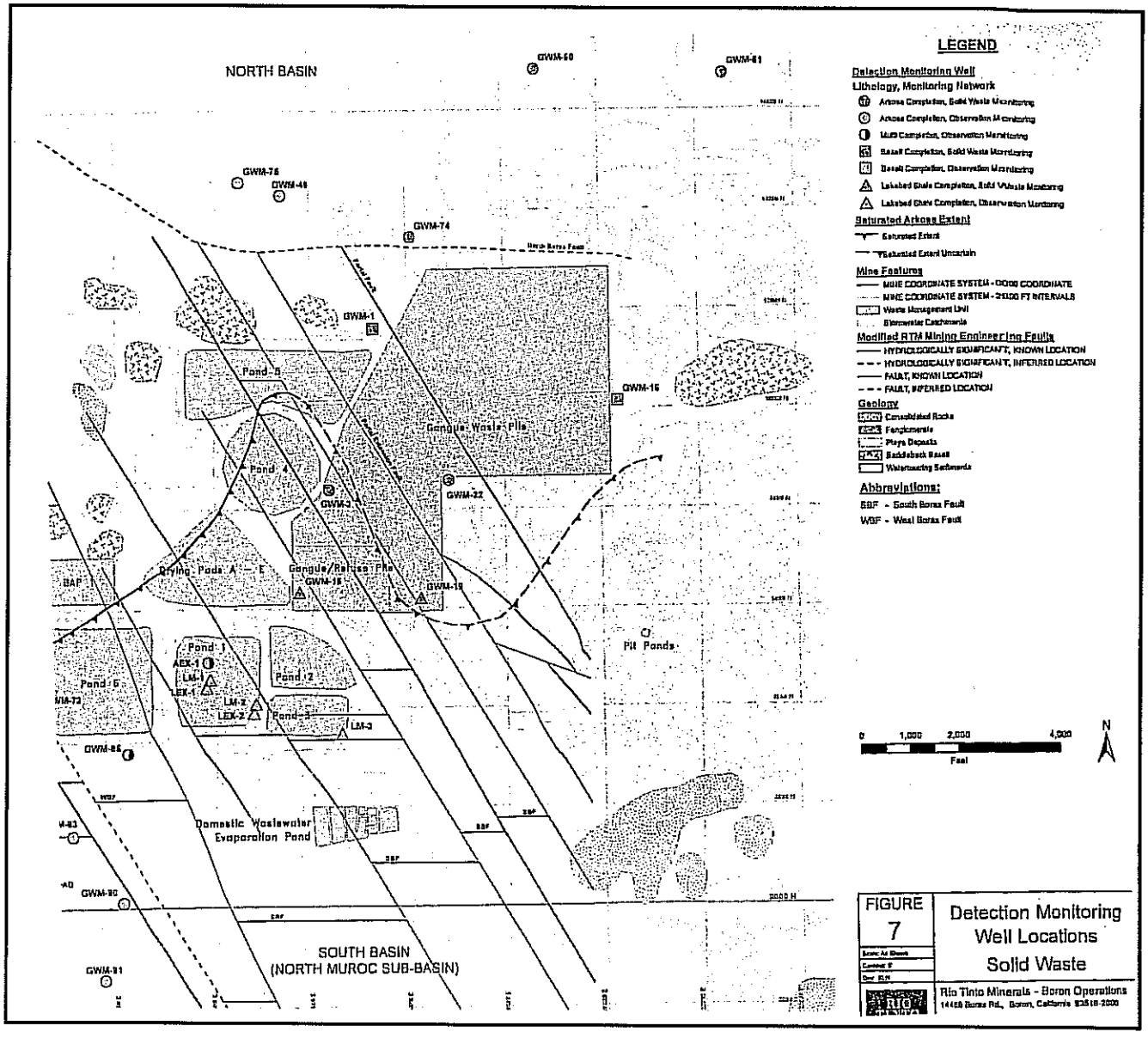
MONITORING AND REPORTING
PROGRAM NO. R6V-2010-0048
WDID NO. 6B152004002



U.S. BORAX, INC.
BORON FACILITY
Kern County

Attachment B
Groundwater Monitoring Well Locations

MONITORING AND REPORTING
PROGRAM NO. R6V-2010-0048
WDID NO. 6B152004002



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. SAMPLING AND ANALYSIS

   a. All analyses shall be performed in accordance with the current edition(s) of the following documents:

      i. Standard Methods for the Examination of Water and Wastewater

      ii. Methods for Chemical Analysis of Water and Wastes, EPA

   b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.

   c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.

   d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.

   e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.

   f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.

   g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.

b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.

d. Monitoring reports shall be signed by:

i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;

ii. In the case of a partnership, by a general partner;

iii. In the case of a sole proprietorship, by the proprietor; or

iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

e. Monitoring reports are to include the following:

i. Name and telephone number of individual who can answer questions about the report.

ii. The Monitoring and Reporting Program Number.

iii. WDID Number.

f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation under Section 13268 of the Water Code.