

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0062

WASTE DISCHARGE REQUIREMENTS
FOR
IT ENVIRONMENTAL LIQUIDATING TRUST
BENSON RIDGE FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILL
LAKE COUNTY

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

1. IT Environmental Liquidating Trust (hereafter Discharger) maintains a closed Class I landfill and operates an active Class II surface impoundment at the Benson Ridge Facility in Lake County. From 1979 to 1984, the facility accepted liquid, sludge, and solid wastes from the geothermal industry in the Geysers area for disposal in three Class II-1 surface impoundments equipped with two-foot compacted clay liners.
2. Assessor's Parcel Numbers are 7-018-13, 7-029-6, 7-030-21, and 9-022-01. The facility occupies the northeast portion of Section 25 and a small portion of the southeast quarter of Section 24 of Township 13 North, Range 9 West, and the northwest corner of Section 30 and a small portion of the southwest quarter of Section 19 of Township 13 North, Range 8 West.
3. The facility is 2.5 miles southeast of Kelseyville along California State Highway 29, as shown in Attachment A, which is incorporated herein and made a part of this Order. The property covers about 137 acres. The area formerly permitted for waste management operation covers about 25 acres of which 9 acres were used for actual disposal operations.
4. The facility was formerly owned and operated by IT Corporation until their bankruptcy proceedings were completed in 2004, at which time the IT Environmental Liquidating Trust was formed to handle the ongoing monitoring and maintenance using the existing financial assurance mechanism (insurance policies). The former IT Corporation completed closure of the site in 1992 by consolidating wastes from the former Class II-1 surface impoundments into an onsite Class I landfill located in two of the former surface impoundments. No outside wastes have been accepted at the facility since 1984. The active Class II surface impoundment was constructed as part of site closure to contain and evaporate impacted groundwater, leachate from the landfill and surface impoundment, and purge water from the onsite monitoring wells. The closed facility is jointly regulated by the California Department of Toxic

Substances Control (DTSC). Additional information about the site closure is included in the Information Sheet attached to this Order.

5. The Class I landfill consists of two separate units covering about 4.5 acres, and has a composite liner system and a composite final cover. The Class II surface impoundment was constructed with two independent cells covering about 3.2 acres, and is double lined. The locations of the Class I landfill units, Class II surface impoundment cells, and other site features are shown on Attachment B, which is incorporated herein and made a part of this Order.
6. Previous WDRs Order No. 98-047, adopted by the Regional Water Board on 27 February 1998, also prescribed requirements for operation of the Class II surface impoundment, and post-closure maintenance of the Class I landfill. This Order is being updated to ensure consistency with the Regional Water Board's plans and policies.

WASTES AND THEIR CLASSIFICATION

7. The facility was formerly permitted to receive the following wastes: drilling muds, petroleum fractions, geothermal condensates and brines, geothermal power plant wastes from hydrogen sulfide abatement/removal equipment, and geothermal power plant solid wastes from maintenance operations.
8. The Discharger estimated that there are approximately 85,000 cubic yards of geothermal drilling muds and geothermal production wastes within the existing landfills. Laboratory analyses of waste samples from the former surface impoundments have reported occurrences of hazardous levels of arsenic, vanadium, and mercury. The Discharger treated the waste to below hazardous levels and stabilized the waste with mixtures of cement and fly ash prior to being placed within the Class I landfill; however, DTSC still regulates the wastes in the Class I landfill as hazardous.
9. The State Water Resources Control Board (State Water Board) adopted regulations under Title 27 of the California Code of Regulations (Title 27), consisting of requirements, waste classifications, and waste management unit classifications designed to protect the beneficial uses of waters of the state for projects involving the discharge of designated waste to land for treatment, storage, or disposal.
10. California Water Code §13173(b) defines "designated waste" to include "[n]on hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations that exceed applicable water quality objectives or that could reasonably

be expected to affect beneficial uses of waters of the state as contained in the appropriate state water quality control plan."

11. The discharge of impacted groundwater and leachate, especially after evaporative concentration in the surface impoundments, poses a significant threat to water quality. Monitoring data indicates that groundwater currently discharged to the surface impoundments from the most impacted well has total dissolved solids concentrations of about 1,400 milligrams per liter (mg/L) and sulfate of about 1,200 mg/L from recovery well RW-1, which exceed both drinking water standards and background groundwater concentrations. Therefore, the discharge is a 'designated waste' and as such must be discharged to a Class II surface impoundment as required by Title 27.

SITE DESCRIPTION

12. The Benson Ridge facility occupies a narrow valley formed by the junction of two volcanic ridges extending from Mount Konocti in southwestern Lake County. These two ridges, one of which is named Benson Ridge, envelope a natural, closed depression in the northern half of the site and form the upper portion of a small, broad-sloped, south-draining valley in the southern portion. The ridges partially enclose the basin in which the waste management units (WMUs) are located, but do not completely coalesce.
13. Land within 1,000 feet of the facility is currently open space.
14. The 1000-year, 24-hour precipitation event for the facility is 9.11 inches as reported by the Discharger in the 1991 Closure and Post-Closure Maintenance Plan. The 100-year wet season for the facility is 54.16 inches.
15. The facility receives an average of 29 inches of precipitation per year at Kelseyville, Clearlake Park and Cordes Mahnke stations, measured between the years 1932 and 1978.
16. The mean annual evaporation for this facility is 54 inches per year as measured between the years 1957 and 1979. Based on these data, average annual net evaporation at the facility is 25 inches. Monthly evaporation rates are highest during the months of June, July and August, and lowest during the months of December and January.
17. The facility is not within a 100-year floodplain. The existing stormwater diversion structures are designed to protect the landfill and surface impoundment from inundation or washout due to sheetflow from the hillsides.

18. The geology of the site is very complex. Underlying bedrock and adjoining ridges consist of bedrock which forms a basin where the WMUs are located. Pyroclastic deposits of air fall tuff and tuff breccia, weathered in places to form clayey gravel to gravelly clay-silty clay, fill the basin and immediately underlie the WMUs.
19. The northern half of the Benson Ridge facility is a naturally occurring closed depression characterized as a flat-bottomed basin, about 100 to 180 feet wide and 1,700 feet long, with a nearly flat slope rising to the steep volcanic ridge at the northern end of the depression. The southern half of the facility is characterized as a small valley with broad, moderate side slopes.
20. The hydrogeologic model developed from the 23 December 1987 *Hydrogeological Assessment Report* indicates that the central part of the valley and the waste handling area are underlain by a veneer of pyroclastic debris over fractured volcanic bedrock (primarily dacite). The pyroclastic deposits are about 50 to 60 feet thick in the central part of the valley; consist of sand, silt, and clay with low permeability; and cover a surface area of less than 35 acres.
21. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basin, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
22. Surface water drainage is southward into an intermittent, unnamed drainage channel that discharges to another unnamed west-trending course that runs parallel to Highway 29 and eventually drains into McIntire Creek through a series of small check dams. Surface water then flows into Cole Creek and then to Clear Lake.
23. The designated beneficial uses of Clear Lake, as specified in the Basin Plan, are municipal and domestic supply; industrial service supply; agricultural supply; water contact and non-contact water recreation; spawning, reproduction, and/or early development; warm fresh water habitat; cold fresh water habitat; and wildlife habitat.
24. At this facility two groundwater bearing zones have been identified:
 - The perched zone is a shallow and discontinuous zone that occurs 15 to 60 feet beneath the ground surface and consists of silty to sandy clay and pyroclastic debris, and is underlain by a very low permeability sandy clay layer. The perched zone was polluted by previous waste management operations.

- The deep zone is a site-wide and regional zone that lies 200 to 350 feet beneath the ground surface at the site and consists of hard, fractured volcanic bedrock. Groundwater monitoring indicates that water quality in the deep zone has not been affected by previous or current waste management operations.
25. The designated beneficial uses of the underlying groundwater, as specified in the Basin Plan, are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
 26. The closest fault, the Big Valley Fault, trends north-northwest and is approximately 1,500 feet west of the facility entrance. The Big Valley Fault is reported to have displayed no Holocene movement. The Mayacamas Mountains are 1.5 miles southwest of the facility. The majority of the northwest-trending faults of the Mayacamas Mountains are classified as late Quaternary. The Konocti Bay-Childer's Peak Fault, at a distance approximately 3.5 miles from the site, is the closest potentially active fault.
 27. The Discharger analyzed the stability of the closure configuration for both static and seismic conditions. The analyses indicate that the proposed closure configuration will perform well under both static and seismic conditions. The factors of safety were 2.3 under static conditions and 1.2 under seismic conditions using the pseudo-static approach. The estimated permanent deformation/displacement of the designed fill during a maximum credible earthquake (MCE) event was approximately 2 inches. The MCE for the analysis was a Richter magnitude 6.25 event on the Konocti Bay-Childer's Peak fault, at a distance approximately 3.5 miles from the site.

GROUNDWATER IMPACTS AND CORRECTIVE ACTION

28. Leakage from the three former Class II-1 surface impoundments polluted the perched groundwater body directly beneath the three former surface impoundments with inorganic constituents including total dissolved solids, sulfate, chloride, sodium, and boron. The cleanup of groundwater was addressed in Cleanup and Abatement Order No. 91-107 adopted by the Regional Water Board on 26 April 1991.
29. Groundwater has been extracted from the perched zone from five recovery wells (RW-1 through RW-5) since 1992. To date, approximately 8 million gallons of groundwater has been extracted. Monitoring data indicate that groundwater extraction has resulted in significant reductions in the concentrations of the constituents of concern. Extraction has resulted in concentrations either below or near the concentration limits in recovery wells RW-3 through RW-5. Concentrations in RW-2, and particularly in RW-1 are generally still well above the concentration limits, but have seen substantial reductions with concentrations ranging from about 10 percent to 40

percent of what they were when extraction began. Concentrations are continuing to decline, although the rate of the decreases has slowed with time. As of March 2007, concentrations of constituents of concern in the recovery wells were as shown in the table in Finding No. 32, below.

30. Groundwater extraction should continue until concentration limits for all constituents of concern are below respective concentration limits throughout the zone affected by the release, or until the Discharger demonstrates to the Regional Water Board, pursuant to Title 27 Section 20400, that concentration limits greater than background should be approved in revised WDRs. In either case, Title 27 Section 20430(g) requires that concentrations remain below the concentration limits for a period of one year and eight sampling events. Concentration limits greater than background can only be approved if the Regional Water Board finds that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the concentration limit is not exceeded. In no case can a concentration limit greater than background exceed the maximum concentration that would be allowed under other applicable statutes or regulations (e.g., MCLs).

GROUNDWATER, SURFACE WATER, AND UNSATURATED ZONE MONITORING

31. Groundwater monitoring locations for the perched zone consist of the five groundwater recovery wells, RW-1 through RW-5. Several other monitoring wells are installed in the perched zone, but are consistently dry due to ongoing groundwater extraction. These wells are: MW-33 located at the southern end of the site; MW-15 and MW-20 located between the landfills and the surface impoundments; MW-9, MW-24, and MW-24A located just north of the landfills. Water levels are checked quarterly, even in these dry wells.
32. Concentration limits for the perched zone are based on background monitoring data from former monitoring well MW-7. This data was collected from 1983 to 1992 prior to extraction of groundwater from the perched zone. Due to ongoing groundwater extraction, no groundwater exists at background locations in the perched zone. Therefore, the Discharger uses the historical data set from former MW-7 to calculate concentration limits for the perched zone. The concentration limit for boron in the perched zone was formerly 0.2 mg/L based on the data set from MW-7. In the June 2007 Post-closure Permit Application, the Discharger proposed a higher limit for boron of 0.49 mg/L based an extrapolation of other inorganic constituents in groundwater. This was done due to the uncertainty of statistically derived concentration limits calculated from the small historical data set, and the feasibility of achieving a boron concentration of 0.2 mg/L in the perched zone by continued groundwater extraction. Calculations for this higher limit for boron are given in Table 9 of that report. The new

limit would not exceed the lowest water quality objective for boron, which is the agricultural limit of 0.7 mg/L. This Order establishes the concentration limits for the perched zone shown in the table below, and also includes the most recent monitoring data from the perched zone as of March 2007. Since the concentration limits (in mg/l) are calculated from an historical data set, they do not need to be regularly updated.

Constituent	RW-1	RW-2	RW-3	RW-4	RW-5	Conc. Limit ¹
TDS	1,390	827	338	357	211	340
Sulfate	1,230	446	71	198	26	27
Chloride	16.3	7	4.2	7.4	3.7	12
Boron	8.63	6.41	0.0982	1.23	0.701	0.49
Sodium	188	124	20.3	36.4	19.5	16

¹ Concentration limit in perched zone based on background concentrations at former well MW-7.

33. Groundwater monitoring locations for the deep zone consist of MW-13 (formerly the background well) located south of the facility, and MW-31 and MW-32 located adjacent to the landfills, and MW-27 located on top of a ridge to the east of the site which is usually dry. Historical groundwater monitoring indicates that the deep zone has not been affected by the former disposal activities. The Discharger established intrawell concentration limits for the deep zone in 1999 due to spatial variability between the former background well, and the well located beneath the WMUs. As of March 2007, concentrations of constituents of concern in the deep zone monitoring wells, and their intrawell concentration limits (in mg/l), were as follows:

Constituent	MW-13	MW-13 CL ¹	MW-31	MW-31 CL ¹	MW-32	MW-32 CL ¹
TDS	502	922	416	540	285	410
Sulfate	<2	20	51	87	<2	8
Chloride	33	75	5.9	10	4	6.9
Boron	4.08	5.5	<0.2	0.72	<0.2	0.65
Sodium	57.6	150	<1	25	15.5	21

¹ Concentration limits for deep zone as of 2007, to be regularly updated in accordance with the Monitoring and Report Program.

34. Unsaturated zone monitoring for the Class I landfills consists of suction lysimeters LS-1 and LS-2 located beneath the LCRS sumps. Unsaturated zone monitoring for the Class II surface impoundments consists of suction lysimeters LS-3 and LS-4 located beneath the LCRS sumps. The suction lysimeters are intended to monitor for the presence of liquids beneath each surface impoundment or landfill unit.
35. Surface water monitoring for the site is conducted under the General Storm Water Permit for Industrial Activities. All storm water runoff from the site is channeled to a series of sedimentation basins prior to leaving the site.

DESIGN AND OPERATION OF CLASS II SURFACE IMPOUNDMENT

36. The Class II surface impoundment includes a north cell and a south cell, which are about 1.6 acres each. Each cell has a double composite liner with an intervening LCRS. The outer liner has composite liner consisting of two feet of compacted clay with a maximum hydraulic conductivity of 1×10^{-6} cm/s and a minimum relative compaction of 90 percent immediately overlain by a 40-mil High Density Polyethylene (HDPE) liner. The LCRS permeable layer has a synthetic geocomposite and slopes to a collection sump which contains a slotted pipe surrounded by drainage rock. The sumps are designated LCRS-3 and LCRS-4. The inner liner has two components, a protective soil liner and a primary synthetic liner. The soil liner has a minimum thickness of one foot and the inner synthetic liner is 40-mil HDPE. Suction lysimeters were installed beneath each cell of the surface impoundment. The following is a list of these liner components, from top to bottom:

- 40-mil HDPE geomembrane layer.
- One-foot protective soil layer.
- Geocomposite drainage layer (LCRS).
- 40-mil HDPE geomembrane layer.
- Two-foot compacted clay layer.

The southern cell of the Class II surface impoundment also includes an additional 80-mil HDPE geomembrane, an additional geocomposite drainage layer LCRS, and additional sump that were installed over the primary inner 40-mil geomembrane during 1999 in response to exceedances of the Action Leakage Rate (ALR) and Repair Leakage Rate (RLR) that were required under Order No. 98-047.

37. Currently, the south cell is used to store groundwater in the wintertime, and the north cell is only used in the summer for enhanced evaporation. During wet years, both cells are used to store groundwater in the wintertime if the south cell does not have enough capacity. After being used for enhanced evaporation during the dry season, the north cell is cleaned out by pressure washing the liner system. At the end of the wet season, the rainwater in the north cell is sampled prior to discharge under the General Storm Water Permit for Industrial Activities.

38. Title 27 requires that Class II surface impoundments have capacity to accommodate the discharge, plus the 1,000-year, 24-hour storm event, and seasonal precipitation, while maintaining two feet of freeboard. The capacity for the maximum seasonal precipitation required by this Order is for the 100-year wet season.

39. As proposed by the Discharger in the June 2007 Post-Closure Permit Application, this Order requires minimum freeboard of 2.8 feet for the north cell and 2.6 feet for the south cell. These freeboard requirements are based on 2 feet of freeboard plus the additional volume needed to accommodate the 1,000-year, 24-hour storm event. The total capacity of the Class II surface impoundment (north and south cells combined) is 30.43 acre-feet (AF) with 2 feet of freeboard.
40. The Discharger submitted water balance calculations as part of the Post-Closure Permit Application. The amount of capacity needed to accommodate the 100-year wet season and the 1,000-year, 24-hour storm event with 2 feet of freeboard is calculated to be 16.87 AF. Therefore, the most water that can be present in the surface impoundment prior to the wet season is approximately 13.5 AF (30.43 AF minus 16.87 AF) to accommodate precipitation. During the period since the surface impoundment began operating in 1993, the most groundwater that has been pumped to it during the wet season (November through April) was about 3.7 AF during 2005-06, and the average has been about 1.7 AF per year. Therefore, to accommodate the required capacity for rainfall, plus the amount of groundwater pumped during the wettest year on record, the impoundment would need to have no more than 9.86 AF (~10 AF) of water in it at the beginning of the wet season. It should be recognized that groundwater pumping can be reduced or stopped if surface impoundment capacity conditions warrant. Therefore, this Order requires that the Discharger reduce the rate of groundwater pumping if the Class II surface impoundment has more than 10 AF of water in it as of 1 November of each year. This Order also requires that the Discharger cease groundwater pumping for at least two months if the Class II surface impoundment has more than 13.5 AF of water in it as of 1 November of each year. After two months (1 January), the Discharger may request groundwater pumping to be continued at a reduced flow rate.

ACTION LEAKAGE RATES FOR CLASS II SURFACE IMPOUNDMENT CELLS

41. Order No. 98-047 had the following requirements:

“Action Leakage Rate (ALR) - If leachate generation in the LCRS exceeds 150 gpd for 30 consecutive days or 4500 gallons over a 30 day period, the Discharger shall immediately take steps to locate leak(s) in the liner system and notify the Board. Leak detection work may be done without ceasing discharge or draining the pond, if possible.”

“Repair Leakage Rate (RLR) - if leachate generation in the LCRS exceeds 400 gpd the Discharger shall immediately cease the discharge of waste, including leachate, to the surface impoundment and notify the Board. The notification shall include a time table

for remedial action to repair the upper liner of the surface impoundment or action necessary to reduce leachate production.”

Order No. 98-047 did not contain information regarding the rationale for the required rates of leakage for the ALR or RLR.

42. The Discharger proposed a new ALR in their June 2007 *Post-Closure Permit Application* report. The new ALR is based on site-specific data from construction as-builts and the 1992 United States Environmental Protection Agency guidance document *Action Leakage Rates for Leak Detection Systems, Supplemental Background Document for the Final Double Liners and Leak Detection Systems Rule for Hazardous Waste Landfills, Waste Piles, and Surface Impoundments*. Using equations in the guidance document and the recommended assumption of one hole per acre of liner¹, the Discharger performed calculations for a new ALR for each of the two cells of the Class II surface impoundment. The new ALR for the North Cell is 1,748 gallons per day (gpd), and the new ALR for the South Cell is 1,931 gpd. Given that the cells are double lined, and that the North Cell where groundwater is stored during the majority of the year is effectively triple-lined, the increased ALR should not cause an undo threat to groundwater quality. This Order requires the Discharger to immediately take steps to locate and repair leak(s) in the liner system and notify the Board if an ALR is exceeded, and to cease discharge and submit a time schedule for installation of a new liner if repairs do not result in a leakage rate less than the ALR. A requirement for an RLR is not continued since there is no guidance for one, and both action and repair requirements can be given based on an ALR.

DESIGN OF CLASS I LANDFILL

43. The Discharger's 8 October 1990 *Closure and Post-Closure Plans Revision 2.0* proposed consolidation of the wastes into onsite landfills. Wastes were excavated from each of the three former surface impoundments, treated to below hazardous levels by mixing the waste with cement and fly ash, and consolidated into the two northern surface impoundments as a landfill with a composite liner system and a composite cover. The landfill cover contains a drainage system, and the composite liner system is equipped with an LCRS. The closure "package" meets the requirements of an engineered alternative (under Section 20080 of Title 27) to the required siting criteria. The landfill construction and the treatment of wastes to concentrations below hazardous levels prior to placement assures protection equivalent to the siting criteria of a Class I landfill. The engineered alternative was adopted by the Regional Water Board in WDRs Order No. 91-136.

¹ Equations provided in USEPA guidance assume one hole per acre of liner with a hole size of 0.005 square inches, or 3.2 square millimeters.

44. The components of the final cover for the Class I landfill include, from top to bottom:

- A one-foot vegetative soil layer.
- A geotextile layer.
- A geonet drainage layer.
- A 40-mil HDPE geomembrane layer.
- A one-foot compacted clay layer.
- A two-foot foundation layer containing select treated waste.

45. The components of the liner system for the Class I landfill include, from top to bottom:

- A geocomposite drainage layer (LCRS).
- A 40-mil HDPE geomembrane layer.
- An existing two-foot compacted clay layer.

There is also an additional 40-mil HDPE geomembrane “protective apron” layer over the liner system that extends from the anchor trench to eight feet down the interior slope.

46. The LCRS of each Class I landfill unit drains to a sump (LCRS-1 and LCRS-2). Other than minor amounts of condensate, no liquids or leachate have been found in the sumps to date.

WASTE EXCAVATION AREA

47. The Waste Excavation Area is located to the south of the Class II surface impoundments where wastes, clay liner material, and some impacted native soils were excavated from the largest of the former surface impoundments for consolidation in the Class I landfill units. Following excavation, a final cover was placed over this area consisting of the following, from top to bottom:

- A one-foot vegetative soil layer.
- A one-foot compacted clay layer.
- A foundation layer.

FINANCIAL ASSURANCES

48. Following the bankruptcy of the former IT Corporation, DTSC and IT Environmental Liquidating Trust entered into a Consent Order on 1 June 2004 (Docket No. HWCA P1-03/04-001). The primary purpose of the Consent Order was to require financial assurance for post-closure maintenance and corrective action at the Benson Ridge

Facility, and three other similar facilities owned by the former IT Corporation. The Consent Order provides a five-year schedule for IT Environmental Liquidating Trust to come into full compliance with financial assurance obligations.

49. The Discharger submitted a June 2007 cost estimate for post-closure maintenance of the facility. The cost estimate included costs for corrective action of the existing release to groundwater from the former Class II-1 surface impoundments. The duration of the costs for the 2007 cost estimate (27 years) was based on the time remaining in the 30-year cost estimate that is part of the DTSC Consent Order. The total of the cost estimate for the Benson Ridge Facility is \$4,411,026 that includes \$1,748,526 for operations, \$165,000 for equipment replacement, and \$2,497,500 for continuation of existing liability/corporate insurance. As of 1 May 2007, the total funds available for Benson Ridge were \$1,040,201 indicating a deficit of \$3,370,825. The Discharger has been working with DTSC to resolve this deficit, and discussions have included solutions that are currently confidential. This Order requires the Discharger to maintain financial assurance in accordance with Title 27, but does not contain more specific requirements regarding the deficit since this would represent a duplication of effort and could create conflicts with work already underway at DTSC through their Consent Order.

CEQA AND OTHER CONSIDERATIONS

50. This action to update WDRs for this facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.), in accordance with Title 14 CCR, Section 15301.
51. This Order implements:
- a. The Basin Plan.
 - b. The prescriptive standards and performance goals of Title 27 of the California Code of Regulations, effective 18 July 1997, and subsequent revisions.
52. Section 13267 of the California Water Code states, in part, “(a) *A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region*” and “(b) (1) *In conducting an investigation..., the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which*

the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify evidence that supports requiring the person to provide the reports.”

53. The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. IT Environmental Liquidating Trust is responsible for the discharges of waste at the facility subject to this Order and is, therefore, subject to CWC Section 13267(b).

PROCEDURAL REQUIREMENTS

54. All local agencies with jurisdiction to regulate land use, solid waste disposal, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
55. The Regional 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.
56. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
57. Any person adversely affected by this action of the Regional Water Board may petition the State Water Resources Control Board to review the action. The petition must be received by the State Board within 30 days of the date of issuance of this Order. Copies of the law and regulations applicable to filing the petition will be provided on request.

IT IS HEREBY ORDERED pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 98-047 is rescinded and that IT Environmental Liquidating Trust and its agents, assigns and successors, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS:

1. The acceptance of any off-site waste for discharge at this facility is prohibited. Waste disposed at this facility shall be limited to existing on-site waste, groundwater extracted as part of the cleanup program, waste generated and

collected by on site leachate collection systems, and on-site liquid from monitoring, maintenance and equipment decontamination.

2. The discharge of additional waste to the landfill unit is prohibited.
3. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
4. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.
5. The discharge of wastes into the Class II surface impoundment to a point where evapoconcentration causes wastes to exceed the criteria for hazardous wastes is prohibited.
6. The discharge of waste within 100 feet of surface waters, excluding any storm water diversion structures around the waste management units, is prohibited.
7. 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 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,
 - b) are 'restricted hazardous wastes', or
 - c) impair the integrity of containment structures

is prohibited.

B. DISCHARGE SPECIFICATIONS:

GENERAL SPECIFICATIONS

1. Wastes shall only be discharged into, and shall be confined to, the waste management units specifically designed for their containment as stated in this Order.
2. The discharge of liquid waste to the Class II surface impoundment shall be limited to leachate from the LCRSs of the surface impoundment and Class I landfill, polluted ground water extracted from beneath the facility, and site generated liquids from monitoring, maintenance, and equipment decontamination.

3. Water used for waste management units closure maintenance shall be limited to the minimum amount necessary for dust control and to establish vegetation on the landfill caps and the vegetative cover atop closed waste management units.
4. The treatment or disposal of waste shall not cause pollution, or nuisance as defined in the California Water Code, Section 13050.
5. The discharge shall not cause a degradation of any water supply.
6. The Discharger shall maintain and monitor the waste management units in accordance with the approved Closure and Post Closure Plan, Revision 2.0, dated October 1990 and the amendments as approved by the Regional Water Board and the California Department of Toxic Substances Control.
7. There shall be no seepage or overflow from the landfill and surface impoundment.
8. The Discharger shall remove and relocate any wastes which are discharged at this site in violation of these requirements.

SUPERVISION AND CERTIFICATION OF CONSTRUCTION

9. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual, prior to waste discharge, as meeting applicable prescriptive Title 27 standards and that the landfill and surface impoundment will meet Title 27 performance goals.

PROTECTION FROM STORM EVENTS

10. Surface impoundments and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required two feet of freeboard.
11. 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 1,000-year, 24-hour precipitation conditions.

12. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.
13. Annually, prior to the anticipated rainy season but no later than **31 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through the wastes.

SURFACE IMPOUNDMENT SPECIFICATIONS

14. At no time shall the freeboard of the surface impoundment be less than 2.8 feet for the north cell and 2.6 feet for the south cell, as described in Finding No. 39 of this Order.
15. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
16. The surface impoundment shall be designed, constructed and maintained to prevent scouring and/or erosion of the liner and other containment features at points of discharge to the impoundment and by wind-caused wave action at the waterline.
17. The Discharger shall reduce the rate of groundwater pumping if the Class II surface impoundment has more than 10 AF of water in it as of **1 November** of each year. The Discharger shall cease groundwater pumping for at least two months if the Class II surface impoundment has more than 13.5 AF of water in it as of **1 November** of each year. After two months (1 January), the Discharger may request groundwater pumping to be continued at a reduced flow rate.
18. Leachate removed from a surface impoundment LCRS shall be placed back into the surface impoundment.
19. If the depth of fluid in an LCRS sump exceeds the level where leachate would back up into the drainage layer, then the Discharger shall immediately cease the discharge of waste, excluding leachate, to the surface impoundment and shall notify the Regional Water Board in writing within seven days. Notification shall include a timetable for remedial action to repair the upper liner of the impoundment or other action necessary to reduce leachate production.

20. The **Action Leakage Rate** (ALR) for the north cell of the Class II surface impoundment is **1,748 gpd** or 52,440 gallons over a 30-day period. The ALR for the south cell of the Class II surface impoundment is **1,931 gpd** or 57,930 gallons over a 30-day period. If leachate generation in an LCRS of the Class II surface impoundment exceeds the required ALR, the Discharger shall immediately take steps to locate and repair leak(s) in the liner system and notify the Regional Water Board. If repairs do not result in a leakage rate less than the required ALR, the Discharger shall immediately cease the discharge of waste, including leachate, to the surface impoundment and notify the Regional Water Board. The notification shall include a timetable for remedial action to repair the upper liner of the surface impoundment or action necessary to reduce leachate production.
21. The LCRS shall be designed constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in the LCRS sump shall be kept at six inches, the minimum needed to ensure efficient pump operation.
22. The LCRS shall be designed and operated to function without clogging through the scheduled closure of the surface impoundments. The surface impoundments shall be equipped to facilitate annual testing to demonstrate proper operation as required by §20340(d) of Title 27.
23. If leakage is detected by the unsaturated zone monitoring system of a surface impoundment, then the Discharger shall immediately notify the Regional Water Board in writing in seven days. Notification shall include a timetable for remedial action to repair the liners of the impoundment.
24. The depth of the fluid in the leachate sump of the Class II surface impoundments shall be kept at the minimum needed for efficient pump operation (given the pump intake height and cycle frequency), and shall not allow leachate to back up onto the secondary liner system outside of the sump area.
25. Leachate generation by a surface impoundment LCRS shall not exceed 85% of the design capacity of (a) the LCRS, or (b) the sump pump. If leachate generation exceeds this value and/or if the depth of the fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately cease the discharge of waste, excluding leachate, to the impoundment and shall notify the Regional Water Board in writing within **seven days**. Notification shall include a timetable for a remedial action to repair

the upper liner of the impoundment or other action necessary to reduce leachate production.

26. Sediment or solids that accumulate in the Class II surface impoundments shall be removed when necessary to maintain the designed storage capacity. Sludge and solids removal shall be accomplished in a manner that ensures the continued integrity of liners and leachate collection systems in accordance with the facility's operations plan. Prior to disposal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27.
27. Following sediment/solids removal from the Class II surface impoundments, the liner system shall be inspected for damage within 30 days and any damage shall be repaired within 60 days prior to the discharge of additional wastewater.

General Landfill Closure Specifications

28. 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.
29. Vegetation shall be planted and maintained over each closed landfill and surface impoundment. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative thickness.
30. Closed landfill and surface impoundment shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

Class I Landfill Closure

31. The closed Class I landfill unit shall be graded to a minimum of 3% and not more than 5:1 slope and maintained to prevent ponding.
32. Liquid collected by the LCRS in the landfill shall be discharged to the Class II surface impoundment. The source of the collected liquid shall be investigated and any repairs, if necessary, to eliminate liquid sources to the landfill shall commence within 60 days after removing liquids from the landfill LCRS. A technical report on the investigation and remediation shall be submitted to the

Regional Water Board within 90 days after removing liquids from the landfill LCRS.

33. Vadose zone monitoring devices shall be maintained beneath each cell of the Class I landfill.

Class II Surface Impoundment Closure

34. The Discharger shall submit a Report of Waste Discharge prior to closure of the Class II surface impoundment.
35. The closure of the Class II surface impoundment shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.
36. The closed Class II surface impoundment shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.
37. At closure of the Class II surface impoundment, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a WMU approved by the Regional Water Board. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill pursuant to applicable sections of Title 27.
38. If (1) residual wastes including sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, are classified as nonhazardous pursuant to Title 22, CCR, Division 4, Chapter 30; (2) containment features of the impoundment meet Class II landfill construction standards and performance goals as defined by Title 27; (3) all liquid wastes are removed or treated to eliminate free liquids; and (4) residual moisture does not exceed the moisture-holding capacity of residual wastes, even under closure conditions, then the Class II surface impoundment may be closed as a landfill pursuant to Title 27 CCR.

C. FINANCIAL ASSURANCE

1. The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable

releases from the surface impoundments. The Discharger shall also maintain an irrevocable closure fund or other means for clean closure of the Class II surface impoundments.

2. The Discharger shall adjust the financial assurance funds required by Financial Assurance C.1 annually to account for inflation and any changes in facility design, construction, or operation.
3. The Discharger shall comply with all financial assurance requirements in the Consent Order entered into with DTSC on 1 June 2004 (Docket No. HWCA P1-03/04-001).

D. PROVISIONS:

1. The Discharger shall comply with Standard Provisions and Reporting Requirements, dated September 2003, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. The Discharger shall comply with Monitoring and Reporting Program No. R5-2008-0062, 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, leachate from waste management units, the vadose zone and surface waters, throughout the active life of waste management units and the post-closure maintenance period. A violation of Monitoring and Reporting Program No. R5-2008-0062 is a violation of these waste discharge requirements.
3. All technical and monitoring reports required by this Order or the MRP shall be submitted pursuant to Section 13267 of the California Water Code.
4. 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.

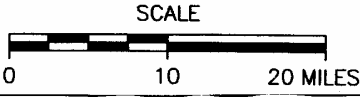
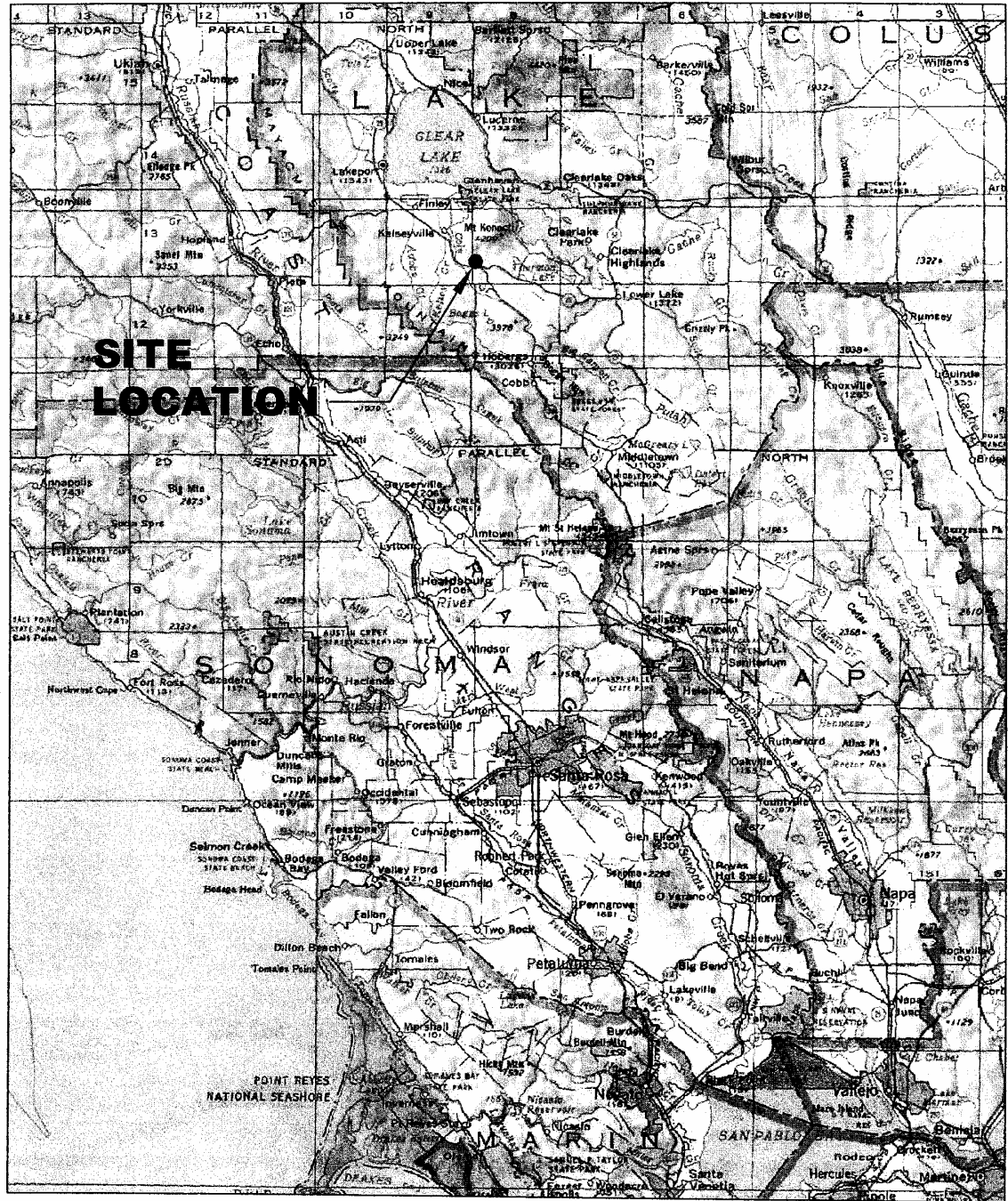
5. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
6. The Discharger shall notify the Regional Water Board in writing of any proposed change in ownership or responsibility for maintenance or operation of the landfill and the surface impoundment. The Discharger shall also notify the Regional Water Board of a material change in the character, location, or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended RWD and any technical documents that are needed to demonstrate continued compliance with these WDRs.
7. The Discharger shall, in a timely manner remove and relocate any wastes discharged at this facility in violation of this Order and of the Water Code.
8. The Discharger shall maintain legible records of the volume and type of each waste discharged to the Class II surface impoundment and the manner and location of discharge until the end of the post-closure maintenance period. These records shall be available for review by representatives of the Regional Water Board and of the State Water Resources Control Board at any time during normal business hours. At the end of the post-closure maintenance period, copies of these records shall be sent to the Regional Water Board upon request.
9. The Discharger shall immediately notify the Regional 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.
10. The post-closure maintenance period shall continue until the Regional Water Board determines that remaining wastes in all landfill and surface impoundment will not threaten water quality.
11. 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

Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision VIII.A.5 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.

12. For the purpose of resolving any disputes arising from or related to the California Water Code, any regulations promulgated thereunder, these WDRs, or any other orders governing this site, the Discharger, its parents and subsidiaries, and their respective past, present, and future officers, directors, employees, agents, shareholders, predecessors, successors, assigns, and affiliated entities, consent to jurisdiction of the Courts of the State of California.
13. The Regional Water Board will review this Order periodically and may revise requirements when necessary.

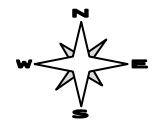
PAMELA C. CREEDON, Executive Officer, do certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 25 April 2008.

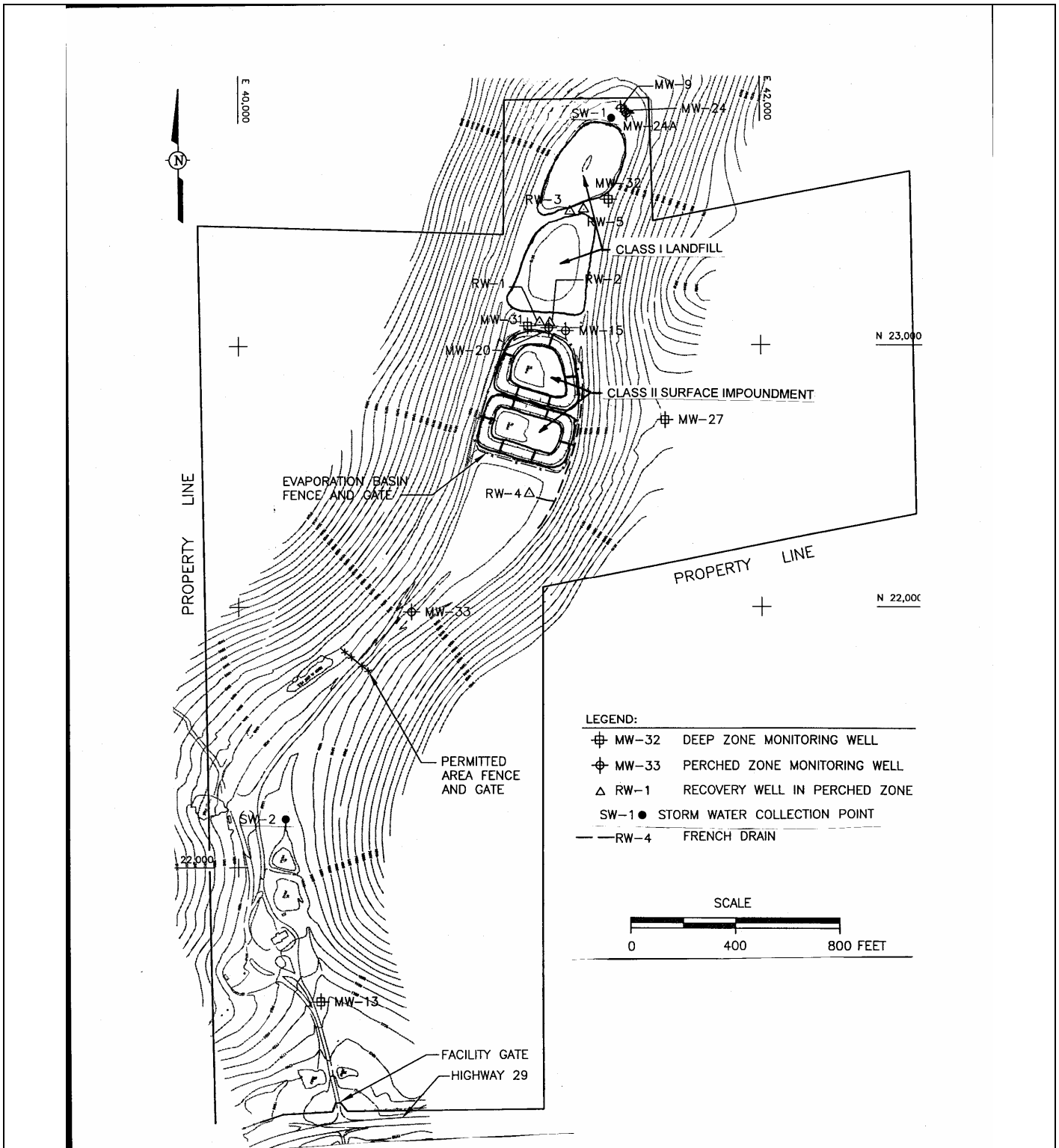
PAMELA C. CREEDON, Executive Officer



Source:
June 2007 *Post-Closure Permit Application*, IT Environmental Liquidating Trust, Figure No. 1

VICINITY MAP
BENSON RIDGE FACILITY
CLASS I LANDFILL
& CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY



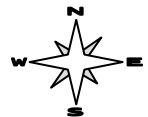


Source:

June 2007 *Post-Closure Permit Application*, IT Environmental Liquidating Trust, Figure No. 5 (modified)

SITE MAP

**BENSON RIDGE FACILITY
CLASS I LANDFILL
& CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY**



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0062
FOR
IT ENVIRONMENTAL LIQUIDATING TRUST
BENSON RIDGE FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILL
LAKE COUNTY

Compliance with this Monitoring and Reporting Program (MRP), and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. R5-2008-0062 (WDRs). Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements dated September 2003, constitutes noncompliance with the WDRs and with California Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, in accordance with Monitoring Specifications in Standard Provisions and Reporting Requirements (2003). All point-of-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, surface water monitoring points, unsaturated zone monitoring devices, and leachate monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in the tables of this MRP.

The Discharger may, upon approval, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

The Discharger shall conduct inspections and monitoring as described in the summary table below. Detailed monitoring and inspection requirements are provided in the following sections.

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of §20415 of Title 27 in accordance with a Monitoring Program approved by the Executive Officer. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

The Discharger shall determine the groundwater flow rate and direction in the perched water-bearing zone and in the deep water-bearing zone monitored pursuant to this Monitoring and Reporting Program at least quarterly, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells. Quarterly water level measurements shall be taken from each monitoring well and groundwater recovery well, and any wells installed after the adoption of this MRP.

The monitoring wells in the perched zone are recovery wells RW-1 through RW-5, monitoring well MW-33 located at the southern end of the site; MW-15 and MW-20 located between the landfills and the surface impoundments; MW-9, MW-24, and MW-24A located just north of the landfills. The monitoring wells in the deep zone are MW-13 located south of the facility, and MW-31 and MW-32 located adjacent to the landfills, and MW-27 located on top of a ridge to the east of the site.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. 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:

Groundwater Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Groundwater Elevation	feet & hundredths, MSL	Quarterly	Semiannually
Temperature	°C	Semiannually	Semiannually
Specific Conductance	umhos/cm	Semiannually	Semiannually
pH	pH number	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Boron	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
<u>Constituents of Concern:</u>			
Alkalinity	mg/L	5-years	5-years
Arsenic	mg/L	5-years	5-years
Chromium (total)	mg/L	5-years	5-years
Chromium (hexavalent)	mg/L	5-years	5-years
Iron	mg/L	5-years	5-years
Manganese	mg/L	5-years	5-years
Mercury	mg/L	5-years	5-years
Nickel	mg/L	5-years	5-years
Vanadium	mg/L	5-years	5-years
Zinc	mg/L	5-years	5-years
Acetone	ug/L	5-years	5-years

Groundwater Monitoring			
Carbon Disulfide	ug/L	5-years	5-years
Methylene Chloride	ug/L	5-years	5-years
Xylenes	ug/L	5-years	5-years
2-Butane	ug/L	5-years	5-years

2. Surface Water Monitoring

Surface water flows from on and around the surface impoundment shall be sampled at the point(s) where they leave the facility boundary, during the first storm of the rainy season of each year which produces significant flow, and during at least one other storm event during the wet season. Samples shall be collected from all stations and analyzed at the frequency and for the monitoring parameters specified the table below.

Surface water monitoring shall be submitted with the corresponding semi-annual groundwater monitoring and shall include evaluation of potential impacts of the facility on surface water quality and compliance with the Water Quality Protection Standard.

Surface Water Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Temperature	°C	Twice per year	Semiannually
Specific Conductance	umhos/cm	Twice per year	Semiannually
pH	pH number	Twice per year	Semiannually
Turbidity	NTU	Twice per year	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Twice per year	Semiannually
Boron	mg/L	Twice per year	Semiannually
Sulfate	mg/L	Twice per year	Semiannually
Sodium	mg/L	Twice per year	Semiannually
Chloride	mg/L	Twice per year	Semiannually
<u>Constituents of Concern:</u>			
Alkalinity	mg/L	5-years	5-years
Arsenic	mg/L	5-years	5-years
Chromium (total)	mg/L	5-years	5-years
Chromium (hexavalent)	mg/L	5-years	5-years
Iron	mg/L	5-years	5-years
Manganese	mg/L	5-years	5-years
Mercury	mg/L	5-years	5-years
Nickel	mg/L	5-years	5-years
Vanadium	mg/L	5-years	5-years
Zinc	mg/L	5-years	5-years
Acetone	ug/L	5-years	5-years
Carbon Disulfide	ug/L	5-years	5-years
Methylene Chloride	ug/L	5-years	5-years

Surface Water Monitoring			
Xylenes	ug/L	5-years	5-years
2-Butane	ug/L	5-years	5-years

3. Surface Impoundment Monitoring

Surface impoundment monitoring shall be conducted in accordance with the table below:

Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Flow	gallons	Monthly	Semiannually
Freeboard	feet and tenths	Monthly ¹	Semiannually
Remaining Capacity	acre-feet	Monthly	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Boron	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
<u>Constituents of Concern:</u>			
Alkalinity	mg/L	5-years	5-years
Arsenic	mg/L	5-years	5-years
Chromium (total)	mg/L	5-years	5-years
Chromium (hexavalent)	mg/L	5-years	5-years
Iron	mg/L	5-years	5-years
Manganese	mg/L	5-years	5-years
Mercury	mg/L	5-years	5-years
Nickel	mg/L	5-years	5-years
Vanadium	mg/L	5-years	5-years
Zinc	mg/L	5-years	5-years
Acetone	ug/L	5-years	5-years
Carbon Disulfide	ug/L	5-years	5-years
Methylene Chloride	ug/L	5-years	5-years
Xylenes	ug/L	5-years	5-years
2-Butane	ug/L	5-years	5-years

¹ Monthly freeboard monitoring and after any storm event of greater than three inches in 24 hours.

4. LCRS/Leachate Monitoring and Annual LCRS Test

The leachate collection and removal systems (LCRS) sump shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry LCRS, the Dischargers shall immediately sample the leachate and shall continue to sample and report the leachate results at the frequencies listed in the table below. Leachate monitoring will be incorporated into all future expansions.

All LCRS shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these tests shall be reported to the Regional Water Board and shall include comparison with earlier test made under comparable conditions.

LCRS/Leachate Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Total Flow	gallons	Monthly	Semiannually
Flow Rate	gallons per day	Monthly	Semiannually
Specific Conductance	umhos/cm	Monthly	Semiannually
pH	pH number	Monthly	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Boron	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
<u>Constituents of Concern:</u>			
Alkalinity	mg/L	5-years	5-years
Arsenic	mg/L	5-years	5-years
Chromium (total)	mg/L	5-years	5-years
Chromium (hexavalent)	mg/L	5-years	5-years
Iron	mg/L	5-years	5-years
Manganese	mg/L	5-years	5-years
Mercury	mg/L	5-years	5-years
Nickel	mg/L	5-years	5-years
Vanadium	mg/L	5-years	5-years
Zinc	mg/L	5-years	5-years
Acetone	ug/L	5-years	5-years
Carbon Disulfide	ug/L	5-years	5-years
Methylene Chloride	ug/L	5-years	5-years
Xylenes	ug/L	5-years	5-years
2-Butane	ug/L	5-years	5-years

5. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of §20415 of Title 27. Unsaturated zone samples shall be collected from the lysimeters beneath the Class II surface impoundment cells. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in the following table.

Unsaturated Zone Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameter</u>			
Specific Conductance	umhos/cm	Semiannually	Semiannually
pH	pH number	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Boron	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Sodium	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually

6. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess any damage to the drainage control system, the groundwater monitoring equipment (including wells, etc.), the surface impoundment liner system, and shall include the Standard Observations contained in Section XII.S of the Standard Provisions and Reporting Requirements. The inspection shall also verify that the Class II surface impoundment has sufficient capacity for the 100-year wet season. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events (greater than three inches in 24 hours). Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

B. REPORTING

The Discharger shall report all required monitoring data and information, and results of all required facility inspections **semiannually** as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs. 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. Historical and current monitoring data shall be graphed in each semiannual report. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries. Data shall also be submitted in an acceptable digital format.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted semiannually.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Field and laboratory tests shall be reported in the semiannual monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

REQUIRED MONITORING REPORTS AND SUBMITTAL DATES:

1. Semiannual Monitoring Reports

Semiannual monitoring reports shall include all water quality data and observations collected during the reporting period and submitted as required. At a minimum, the sampling and data collection required in the tables of this Monitoring and Reporting Program, Standard Provisions and Reporting Requirements (2003), and Waste Discharge Requirements shall be reported. The second semiannual and the Annual Monitoring Summary Report (see below) shall be submitted as one report.

2. Annual Monitoring Summary Report

The Discharger shall submit an Annual Monitoring Summary Report covering the previous monitoring year. The report is due by 1 March of each year and can be included in the same report as the semiannual report due on the same date. The annual report shall contain the information specified in Standard Provisions and Reporting Requirements (2003), Section VIII.B of the "*Reports to be Filed with the Board*", including, but not limited to the requirement to plot the concentration of select constituents graphically for at least the past five years. The Annual Report shall also include the results of the annual LCRS testing required by Section A.4 of this MRP.

3. Constituents of Concern (COC) 5-Year Report

The Dischargers shall submit reports of the results of groundwater monitoring for the Constituents of Concern every five years, or more frequently if required. The groundwater monitoring for COC Report shall alternate between the fall and spring seasons. The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a Reporting Period that ends at the same time. The next COC Report is due on 1 September 2008 for samples collected during the first half of 2008.

4. Response to a Release

If the Discharger determines that there is either significant statistical evidence of a release (*i.e.* the initial statistical comparison or non-statistical comparison indicates, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified) or physical evidence of a release, the Discharger shall immediately notify the Regional Water Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven days of such determination and implement the "Response to Release" section of the Standard Provisions and Reporting Requirements (2003).

5. Facility Monitoring Report

By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs, as required in Section A.6.a of this MRP, above.

6. Submittal Dates

Groundwater, Unsaturated Zone, and Leachate Monitoring Reports			
Reporting Type	Sampling Frequency and Data Reported	Reporting Period	Report Date Due
Semiannual Monitoring Reports	Daily, Weekly, Monthly, Quarterly, and Semiannually	1 January – 30 June 1 July – 31 December	1 September 1 March

Annual Monitoring Summary Report	1 March
Facility Monitoring Report	15 November
Response to a Release	as necessary
Water Quality Protection Standard Report	as necessary

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points. The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. Any modifications to the Water Quality Protection Standard shall be submitted for review and approval.

The Water Quality Protection Standard shall:

- a. Identify **all distinct bodies of surface and groundwater** that could be affected in the event of a release from a 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 groundwater monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

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.

2. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in the tables for each monitored medium.

3. Monitoring Parameters

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in the tables for each monitored medium.

4. Monitoring Points

Monitoring Points for groundwater, surface water, and vadose zone detection monitoring shall be as follows, and as shown on Attachment B:

Perched Groundwater: RW-1, RW-2, RW-3, RW-4, RW-5
MW-9, MW-15, MW-20, MW-24, MW-24A, MW-27, MW-33

Deep Groundwater: MW-13, MW-31, MW-32

Surface Water: Background: SW-1
Detection: SW-2

Vadose Zone: LS-1, LS-2, LS-3, LS-4

5. 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 §20415(e)(8) of Title 27; or
- b. By an acceptable alternate statistical method in accordance with §20415(e)(8)(E) of Title 27.

Concentration Limits shall be based a set of background monitoring data adequate for the statistical analysis to be used.

6. Point of Compliance

The point of compliance for the Concentration Limits at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

7. Compliance Period

The Compliance period is the number of years equal to the active life of the facility plus the closure period. Each time the Water Quality Protection Standard is exceeded (i.e., a release is discovered), the surface impoundment begins a Compliance Period on the date the Regional Water Board directs the Dischargers to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the surface impoundment has been in continuous compliance for at least one year as required by Title 27 Section 20430(g).

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain 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 Dischargers shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

25 April 2008

(Date)

INFORMATION SHEET

ORDER NO. R5-2008-0062
IT ENVIRONMENTAL LIQUIDATING TRUST
BENSON RIDGE FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILL
LAKE COUNTY

IT Environmental Liquidating Trust (hereafter Discharger) maintains a closed Class I landfill and operates an active Class II surface impoundment at the Benson Ridge Facility in Lake County. From 1979 to 1984, the facility accepted liquid, sludge, and solid wastes from the geothermal industry in the Geysers area for disposal in three Class II-1 surface impoundments equipped with two-foot compacted clay liners. The site is located about 3 miles southeast of Kelseyville and four miles south of Clear Lake. The Class I landfill consists of two separate units covering about 4.5 acres, and has a composite liner system and a composite final cover. The Class II surface impoundment was constructed with two independent cells covering about 3.2 acres, and is double lined.

The facility was formerly owned and operated by IT Corporation until their bankruptcy proceedings were completed in 2004, at which time the IT Environmental Liquidating Trust was formed to handle the ongoing monitoring and maintenance using the existing financial assurance mechanism (insurance policies). The former IT Corporation completed closure of the site in 1992 by consolidating wastes from the former Class II-1 surface impoundments into an onsite Class I landfill located in two of the former surface impoundments. No outside wastes have been accepted at the facility since 1984. The active Class II surface impoundment was constructed as part of site closure to contain and evaporate impacted groundwater, leachate from the landfill and surface impoundment, and purge water from the onsite monitoring wells. The closed facility is jointly regulated by the California Department of Toxic Substances Control (DTSC).

The facility was formerly regulated by the Toxic Pits Cleanup Act (TPCA) of 1984. The TPCA required that a Hydrogeological Assessment Report be submitted and the closure of three surface impoundments that had leaked. The former surface impoundments were closed in accordance with Waste Discharge Requirements (WDRs) Order No. 91-136; an 8 October 1990 *Closure and Post-Closure Plan Revision 2.0*; a 23 December 1987 *Hydrogeological Assessment Report* (HAR); and a 1 June 1987 *Waste Characterization Report*. WDRs Order No. 91-136 directed the Discharger to close the existing Class II-1 surface impoundments and to construct a new Class II surface impoundment for evaporation of extracted groundwater and landfill leachate. Closure construction was completed in December 1992 and the facility is now in post-closure with an active Class II surface impoundment for evaporation of impacted groundwater.

The Discharger estimated that there are approximately 85,000 cubic yards of geothermal drilling muds and geothermal production wastes within the existing landfills. Laboratory analyses of waste samples from the former surface impoundments have reported occurrences of hazardous levels of arsenic, vanadium, and mercury. The Discharger treated the waste to below hazardous levels and stabilized the waste with mixtures of cement and fly ash prior to being placed within the Class I landfill; however, DTSC still regulates the wastes in the Class I landfill as hazardous. The Discharger closed the facility by consolidating wastes contained within the three former Class II-1 surface impoundments into a two-celled Class I landfill with a composite liner and a composite final cover. About 103,100 cubic yards of solidified waste and unusable existing clay liners were transferred to the Class I landfill which consists of two independent units covering about 4.5 acres. A double-lined Class II surface impoundment was constructed with two independent cells and receives leachate collected from its own leachate collection and removal system (LCRS), the Class I landfill's LCRS, polluted ground water recovered from beneath the facility, and on-site generated liquids from monitoring, maintenance, and equipment decontamination. The total area of the two cells of Class II surface impoundment is about 3.2 acres.

Leakage from the three former Class II-1 surface impoundments polluted the perched groundwater body directly beneath the three former surface impoundments with inorganic constituents including total dissolved solids, sulfate, chloride, sodium, and boron. The cleanup of groundwater was addressed in Cleanup and Abatement Order No. 91-107 adopted by the Regional Water Board on 26 April 1991. Groundwater has been extracted from the perched zone from five recovery wells (RW-1 through RW-5) since 1992. To date, approximately 8 million gallons of groundwater has been extracted. Monitoring data indicate that groundwater extraction has resulted in significant reductions in the concentrations of the constituents of concern. Extraction has resulted in concentrations either below or near the concentration limits in recovery wells RW-3 through RW-5. Concentrations in RW-2, and particularly in RW-1 are generally still well above the concentration limits, but have seen substantial reductions with concentrations ranging from about 10 percent to 40 percent of what they were when extraction began. Concentrations are continuing to decline, although the rate of the decreases has slowed with time.

Previous WDRs Order No. 98-047, adopted by the Regional Water Board on 27 February 1998, also prescribed requirements for operation of the Class II surface impoundment, and post-closure maintenance of the Class I landfill. This Order is being updated to ensure consistency with the Regional Water Board's plans and policies.

Surface water drainage is to McIntire Creek, which is tributary to Cole Creek, which flows into Clear Lake.

WLB: 4/25/2008