

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0145

WASTE DISCHARGE REQUIREMENTS
FOR
IT ENVIRONMENTAL LIQUIDATING TRUST
MONTEZUMA HILLS FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILLS
SOLANO 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 closed Class I landfills and operates an active Class II surface impoundment at the Montezuma Hills Facility in Solano County. From 1979 to 1986, the facility accepted liquids, sludges, and solids from gas and oil exploration and production activities, and the petroleum refining industry for disposal in twelve unlined Class II-1 surface impoundments constructed from onsite soils. Although the wastes were excluded from regulation under the Resource Conservation and Recovery Act (RCRA), they were classified as hazardous pursuant to the California Health and Safety Code and California Code of Regulations (CCR) Title 22. The California Department of Toxic Substances Control (DTSC) jointly regulates this closed facility.
2. The 160-acre Montezuma Hills property is eleven miles southeast of Fairfield and eight miles west of Rio Vista on California State Highway 12, in the eastern half of Section 22, T4N, R1E, MDB&M (Assessor's Parcel Number 48-05-008). Waste treatment, storage, and disposal activities have occurred within 52 acres of the property referred to herein as the facility. Facility location and site maps are shown in Attachments A and B which are incorporated herein and made part of this Order.
3. Between 1980 and 1985, the Discharger constructed two compacted clay barriers and one slurry wall. The surface impoundments were, therefore, surrounded by subsurface barriers installed to inhibit lateral migration of groundwater pollution. However, groundwater pollution persisted outside of the barriers.
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 1991 in response to a 1987 Regional Water Board cleanup and abatement order that was revised in 1991 to amend the time schedules. Closure was conducted in accordance with closure waste discharge requirements (WDRs) adopted by the Regional Water Board in 1990.
5. The site was closed by excavating waste from the Waste Excavation Area (WEA) and consolidating it into a lined Class I landfill within the former surface impoundment area. The WEA was also closed as a Class I landfill. The Class I landfill in the WEA is

designated as Waste Management Unit (WMU) A, and the Class I landfill in the Waste Consolidation Area (WCA) is designated WMU B. Several groundwater extraction wells and recovery trenches were also installed for groundwater cleanup. 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.

6. During 1990, closure activities included the construction of WMU B, a perimeter slurry wall, the collection system for groundwater extraction, and Class II surface impoundments for groundwater evaporation. During 1991, closure activities included the stabilization and consolidation of wastes, the construction of cover systems for both the WMU A and WMU B, installation of the groundwater recovery trenches, and the construction of a surface water control system.
7. During closure, approximately 253,000 cubic yards of mixed hazardous and designated wastes, subsoils, and solidification agents were deposited to WMU B. No wastes remain in WMU A. The Class II surface impoundment, which is used for the consolidation and evaporation of extracted groundwater, is identified as WMU C.
8. The Discharger is currently implementing a detection/corrective action monitoring program due to the presence of inorganic and organic constituents in groundwater both within and outside of the perimeter slurry wall. Groundwater is being extracted from beneath WMU B and at locations throughout the facility and conveyed to the WMU C for evaporation. This is necessary to maintain physical separation between wastes and the underlying upper water-bearing zone, and to control the local groundwater gradient and reduce mounding within the slurry walls. Intrawell constituent of concern (COC) trend analyses are performed by the Discharger on all facility point of compliance groundwater monitoring wells. Constituent concentration trends have been stable or downward at most locations.
9. Previous WDRs Order No. 98-208, adopted by the Regional Water Board on 23 October 1998, also prescribed requirements for operation of the Class II surface impoundment, and post-closure maintenance of the Class I landfill. The Order is being updated to ensure consistency with the Regional Water Board's plans and policies.

WASTES AND THEIR CLASSIFICATION

10. The facility was formerly permitted to receive the following wastes: drilling muds, fluids coincident to gas/oil exploration and production, dilute brines, ballast waste after oil removal and recycle, neutralized aqueous solutions of acidic or alkaline origin, wastewater treatment solids, and storm water runoff from areas used to handle all of these wastes. In 1980, the facility also received waste brine from a chemical manufacturing facility which contained Difolitan, a fungicide. Total waste received during the period of operation was about 4.7 million barrels.
11. Solid wastes at the facility included sludges accumulated from disposal of the wastes described in Finding No. 10 and contaminated soils underlying the impoundments. The solid wastes typically had a high content of soluble calcium, magnesium, sodium,

potassium, chloride, and sulfate. Major metal constituents included arsenic, copper, iron, manganese, and titanium. Organic compounds were found in all pond solids at variable but generally low concentrations. These compounds included benzene, ethylbenzene, trichloroethene, tetrachloroethylene, carbon disulfide, trans-1,2-dichloroethene, benzoic acid, and xylenes.

12. During closure, wastes from four of the former surface impoundments were solidified with dry soil removed from the impoundment levees, and deposited in WMU B. Wastes from remaining WMUs were stabilized and solidified in a variety of ways prior to discharge to WMU B, including mixing the waste with magnesium oxide or cement as a stabilizing agent, or mixing and aerating the wastes prior to transfer to WMU B.
13. The Class II surface impoundment (WMU C) constructed as part of Phase I closure activities is comprised of an east and west cell. WMU C receives and evaporates contaminated groundwater extracted from subsurface trenches throughout the facility and from beneath WMU B. WMU C also receives liquids from the east and west cell Leachate Collection and Removal Systems (LCRSs). WMU C was constructed in the area of former WMU 102, as shown on Attachment B. Due to evapoconcentration, monitoring data for total dissolved solids (TDS) of the groundwater in the Class II surface impoundments has been as high as 350,000 milligrams per liter (mg/L), but more typically ranges from 10,000 to 120,000 mg/L. Contaminated groundwater conveyed to WMU C for evaporation is classified as 'designated waste' using the criteria set forth in CCR Title 27 and the California Water Code.
14. 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."

SITE DESCRIPTION

15. The facility is in the rolling terrain of the Montezuma Hills in southeastern Solano County, and is situated on a topographic high relative to the surrounding land.
16. Land within 1000 feet of the facility is used for grazing and/or grain and hay production.
17. The facility receives an average of 16.8 inches of precipitation per year. The calculated average annual net evaporation from surface impoundments at the facility is about 39 inches.
18. The 1000-year, 24-hour precipitation event for the facility is 5.55 inches based on 80 years of record for the Rio Vista station.
19. The estimated 100-year, mean maximum annual precipitation is 31.1 inches with a probable maximum annual precipitation of 98.4 inches.

20. The facility is not within a 100-year floodplain.
21. The facility is underlain by the Montezuma Formation, a Plio-Pleistocene alluvial deposit, which has been uplifted and dissected by modern surface drainage. The Discharger has informally defined four lithostratigraphic units within the uppermost part of the Montezuma Formation. These units are, from top to bottom, the Organic Silty Clay Unit consisting of 0 to 8 feet of modern soil with minor sand lenses, the Upper Clay Unit with stiff to hard clay (CL) and clay of high plasticity (CH) type soils which extend to about 30 feet in depth, the Middle Sand Unit with 5 to 15 feet of silty sands and sandy silts, and the Lower Clay Unit with predominantly CL and CH soils. Drilling logs indicate that discontinuous sand layers occur within the Lower Clay Unit at depths of 28 to 60 feet below the top of the unit.
22. 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.
23. Surface drainage is northeast to the Big Ditch, a tributary to Lindsey and Cache Sloughs which eventually flow into the Sacramento River within the Sacramento-San Joaquin Delta.
24. The designated beneficial uses of the Sacramento-San Joaquin Delta, as specified in the Basin Plan, are: municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; water contact and non-contact water recreation; warm freshwater habitat; cold fresh water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.
25. The first water bearing formation is designated by the Discharger as the "upper water-bearing unit" that represents the zone from the water table (5 to 20 feet below ground surface) to the top of a lower clay layer (20 to 40 feet below ground surface). The upper water-bearing unit consists of an upper clay layer with an interval of predominately fine-grained soils within 30 feet of the surface and a silty-sand interval that is not present in some parts of the facility. The "lower water-bearing unit" has been defined as the zone from the top of the lower clay unit to approximately 75 feet below ground surface, and contains discontinuous sandy silt to silty sand lenses that range from 0.5 to 5 feet thick. The beneficial uses of groundwater are domestic and municipal supply, process and service supply, irrigation, and stock watering.
26. The Discharger has compiled regional groundwater quality data which show that TDS ranges from 460 to 940 mg/l, chloride from 49 to 360 mg/l, pH from 7.4 to 8.6 and sulfate from 17 to 98 mg/l. On-site monitoring wells used for local background water quality measurements generally show lower maximum values and a narrower range of concentrations. The on-site background wells in the upper water-bearing unit have TDS between 300 and 600 mg/L and chloride between 18 and 84 mg/L. The on-site background wells in the lower water-bearing unit have TDS between 360 and 550 mg/L and chloride between 25 and 85 mg/L for data since 1991.

27. 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.
28. The closest potentially active faults are the Vaca and Montezuma Hills faults, about three miles southwest of the facility. The maximum credible earthquake (MCE) for this fault zone is estimated to have a magnitude of 7.0. The greatest anticipated horizontal ground surface acceleration was calculated by the Discharger to be 0.48g for the MCE at the closest approach of the Vaca and Montezuma Hills faults.

GROUNDWATER IMPACTS AND CORRECTIVE ACTION

29. Leakage from the twelve former Class II-1 surface impoundments polluted groundwater with organic and inorganic constituents. Organic constituents still remaining in groundwater include trichloroethene, chloroform, benzene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethane. Inorganic constituents exceeding background concentrations primarily include total dissolved solids, sulfate, chloride, sodium, and boron. The cleanup of groundwater was addressed in Cleanup and Abatement Order No. 87-124 adopted by the Regional Water Board on 26 June 1987.
30. Historical groundwater level contours in the upper and lower water-bearing units were characterized by a groundwater mound in the south-central part of the disposal facility. At times, groundwater levels intersected the sludges in the former impoundments. Groundwater moved radially outward from the facility, principally north-northwest and southward from the mound location with some movement east and west. The groundwater mound was due to several features including the cutoff and slurry walls around the disposal area, recharge from the impoundments, and the natural topographic relief where the facility is located.
31. Groundwater control features and extraction trenches constructed during closure were designed to establish and maintain a physical separation between wastes in WMU B and the underlying upper water-bearing unit and to reduce the groundwater mound within the perimeter slurry walls. Compliance with the five-foot minimum separation is monitored through a series of piezometers in and around WMU B. Attainment of a groundwater level differential across the slurry wall is evaluated through measurements at paired piezometers/wells in the upper water-bearing unit. Monitoring reports submitted by the Discharger indicate that the groundwater mound internal to the slurry wall has dissipated. 500,000 to 1,000,000 gallons of groundwater have been extracted annually for evaporation in WMU C. As of 2008, cumulative groundwater extracted at the site totals about 26 million gallons.
32. Releases of waste have impacted groundwater both inside and outside of the subsurface cutoff and slurry walls, and in both the upper and lower water bearing units. The facility closure covers and groundwater control features serve to limit the movement of COCs downgradient. Progress toward groundwater corrective action and cleanup is evaluated through routine groundwater monitoring and reporting.

33. During 2001, Regional Water Board staff required the Discharger to address increasing concentrations of inorganic constituents in monitoring well MW-176, and increasing concentrations of TCE and inorganics in MW-143, both located outside of the slurry wall. In response, the Discharger installed pumps in these wells, and installed recovery well RW-8 inside of the slurry wall near MW-176, and installed a pump in MW-144 inside of the slurry wall near MW-143. Pumping is conducted in these wells inside of the slurry wall to prevent an outward gradient from the pumping outside of the slurry wall. To date, groundwater extraction from MW-143 and MW-176 has been effective in reducing concentrations.
34. Groundwater monitoring data indicate that groundwater extraction has been and continues to be effective in reducing concentrations of both organic and inorganic constituents in many of the wells. Review of the groundwater monitoring data for 2007 indicates that 11 wells show decreasing concentrations of inorganic constituents, and 2 wells show increasing concentrations out of a total of 27 Point of Compliance wells. For organic constituents, the data indicate there are 5 monitoring wells, 2 piezometers, and 4 recovery wells with decreasing concentrations and none with increasing concentrations out of a total of 14 wells where organic constituents have been detected. Of the organic constituents, trichloroethene (TCE) is the most prevalent. The following table shows the 2007 concentrations of TCE, and their historical high in that well with the year in parentheses:

Well	2007 TCE (ug/L)	Highest TCE (ug/L)
MW-143	2.6	32 (2001)
MW-154	1.4	6.2 (1995)
MW-163	6.3	15 (1995)
MW-168	1.7	8 (1987)
MW-173	9.6	132 (1990)
PZ-197	7.7	40 (1997)
PZ-198	2.4	23 (1992)
PZ-199	9	11 (2001)
RW-1	40	72 (1995)
RW-3	50	132 (1995)
RW-4	20	38 (1995)
RW-7	4.5	41 (1992)
RW-8	20	20 (2007)

35. 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 MONITORING AND CONCENTRATION LIMITS

36. There are a total of 45 groundwater monitoring wells and 8 recovery wells at the site. There are also numerous piezometers. The Point of Compliance (POC) wells are outside of the slurry wall, and are generally in close proximity to the slurry wall which defines the edge of the waste management units. There are 14 POC groundwater monitoring wells completed in the upper water-bearing unit, and 13 POC groundwater monitoring wells completed in the lower water-bearing unit. There are also two background monitoring wells for each of the two water-bearing units. An additional 14 groundwater monitoring wells (11 shallow and 3 deep) are also sampled, but are not POC wells.
37. The Discharger's May 2007 *Sampling and Analysis Plan* includes methods for calculating concentration limits using background data from the background wells in each of the two groundwater units. For inorganic constituents, the Discharger uses a non-parametric Upper Confidence Limit for data with greater than 50 percent detects, and uses the highest background concentration (that is not an outlier) for data with less than 50 percent detects. For organic constituents, the Discharger uses the laboratory Practical Quantitation Limit as the concentration limit for the Detection Monitoring Program. Section 20400(a) of Title 27 requires concentration limits to be based on background values (except for concentration limits greater than background as described in Finding No. 35 of this Order). Since the organic constituents detected in some of the impacted compliance wells are not naturally occurring and are not detected in the background wells, the concentration limits for these constituents for the Corrective Action Program must also be the laboratory Practical Quantitation Limit. The Discharger is required to update concentration limit annually as required in Monitoring and Reporting Program No. R5-2008-0145.
38. Section 20415(e)(12)(B) of Title 27 requires at least semi-annual monitoring for each monitoring point and background monitoring point. The Discharger has proposed to monitor groundwater semi-annually for each Point of Compliance well in the upper water-bearing unit, and to monitor the background wells, lower water-bearing unit wells, and additional wells annually. Groundwater elevation monitoring is to be conducted quarterly. This monitoring schedule was approved in a revised Monitoring and Reporting Program in May 2006. The Discharger stated that a review of the facility's extensive historical analytical data shows that the concentrations of most groundwater analytes fluctuate seasonally, but overall, the majority of the analytes do not change significantly between sampling events. Furthermore, as stated in Finding No. 49, as of 1 June 2008 the facility's funding for post-closure maintenance and monitoring has a deficit of \$3,469,923. The reduced monitoring from semi-annual to annual in all but the Point of Compliance

wells for the upper water-bearing unit significantly decreases monitoring costs so that funds can be conserved for this facility that currently has no other funding sources.

DESIGN AND OPERATION OF CLASS II SURFACE IMPOUNDMENT

39. WMU C, a Class II surface impoundment, was constructed in the area of former impoundment 102 following the removal of wastes. WMU C is designed for the treatment and disposal, via evaporation, of groundwater collected from the facility extraction trenches. The Class II surface impoundment includes an east cell and a west cell, which are about 1.5 acres each. Each cell has a double composite liner with an intervening LCRS. The outer liner has composite liner consisting of three feet of compacted clay with a maximum hydraulic conductivity of 1×10^{-6} cm/s immediately overlain by a 60-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-E and LCRS-W. The inner liner has two components, a silty clay soil liner and a primary 60-mil HDPE synthetic liner. The following is a list of these liner components, from top to bottom:

- 60-mil HDPE geomembrane layer.
- One-foot silty clay soil layer.
- Geocomposite drainage layer (LCRS).
- 60-mil HDPE geomembrane layer.
- Three-foot compacted clay layer.

Each cell is equipped with an LCRS to monitor performance of the primary liner and ensure elimination of hydraulic head on the secondary liner. Leachate collected by the LCRS is returned to WMU C for evaporation. Construction specifics for WMU C are documented in Section 3.0 of the Phase I As-Built Construction Report.

40. 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.
41. As proposed by the Discharger in the July 2007 *Post-Closure Permit Application* (revised July 2008), this Order requires minimum freeboard of 2.5 feet in each cell of the Class II surface impoundment. 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.

ACTION LEAKAGE RATES FOR CLASS II SURFACE IMPOUNDMENT CELLS

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

“Action Leakage Rate (ALR)” - If leachate generation in the LCRS exceeds 160 gpd for 30 consecutive days or 4800 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 425 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. 98-208 did not contain information regarding the rationale for the required rates of leakage for the ALR or RLR.

43. The Discharger proposed a new ALR in their July 2007 *Post-Closure Permit Application* (revised July 2008). 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. At the request of Regional Water Board staff, the Discharger also applied a factor of safety of 7 (seven), which is greater than the minimum factor of safety of 2 (two) recommended in the guidance. This request was made in part so that the new ALR would be similar to the already approved ALR for the Benson Ridge Facility that is also maintained by the Discharger. The new ALR for each cell is 1,940 gallons per day. Given that the cells are double lined and that the outer liner is a composite liner, 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 Regional Water 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.

DESCRIPTION OF THE CLASS I LANDFILLS

WMU A (Waste Excavation Area)

44. WMU A includes the area of former surface impoundment WMUs 103, 104, 203, 204, 301, 302, 303, and 304 and all other areas within five feet outside of the slurry wall, except for the area within WMU B and WMU C. Wastes from the surface impoundment WMUs were removed and consolidated in WMU B as part of the facility closure. No wastes remain in WMU A. In ascending order, the cover system over WMU A consists of a two-foot

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, and no more than one foot of head on the bottom liner.

compacted subgrade, a two-foot compacted clay cover with a hydraulic conductivity of no more than 1×10^{-6} cm/s, and a one-foot vegetative cover layer.

WMU B (Waste Consolidation Area)

45. In preparation for the receipt of consolidated facility wastes, waste from WMU 101 was removed in 1989. Clay material from an on-site borrow area was placed in loose lifts in the area of the former WMUs 101 and compacted to a minimum of 90 percent. A total of four feet of clay was placed as the foundation for the Waste Consolidation Area (WMU B). WMU B received solidified and stabilized wastes from WMUs 102, 201, 202, and 303 during Phase I closure activities. Solidified and stabilized wastes from WMUs 103, 104, 203, 204, 301, 302, 303, and 304 were consolidated in WMU B during Phase II closure activities. Approximately 253,000 cubic yards of mixed hazardous and designated wastes, subsoils, and solidification agents were deposited to WMU B. During Phase I closure activities groundwater extraction trenches, collection sumps, and conveyance systems were constructed beneath WMU B to maintain the five-foot minimum separation between consolidated wastes and underlying upper water bearing zone. In ascending order, the cover system over WMU B consists of a two-foot compacted foundation layer, a three-foot compacted clay barrier with a hydraulic conductivity no greater than 1×10^{-7} cm/s, a 30-mil PVC synthetic liner layer, a filter fabric layer, and a one-foot vegetated layer.

DESCRIPTION OF GROUNDWATER CONTROL FEATURES

Slurry Wall

46. As part of Phase I closure activities, the slurry wall as shown on Attachment B was extended 2,200 feet and overlapped with previously existing subsurface structures to surround the site. The three-foot wide slurry wall was constructed to extend at least five feet into the lower clay layer beneath the site, approximately 20-25 feet bgs, and 140 to 160 above MSL. Materials used for the wall included bentonite slurry mixed with excavated soil. Upon settling, the completed slurry wall was covered with geotextile and a two-foot soil layer. Slurry wall construction specifics are documented in Appendix G of the *Phase I As-Built Construction Report*, dated February 1991.

Dewatering System

47. As part of the Phase I closure activities, a groundwater control system comprised of seven collection trenches, sumps, and conveyance appurtenances was installed beneath WMU B and within the perimeter slurry walls to dissipate groundwater mounding and maintain a minimum five-foot separation between waste and groundwater during the post-closure period. Construction details for the groundwater control system are documented in Section 4.0 of the *Phase I As-Built Construction Report*. Performance of the groundwater control system is monitored by piezometers in and around WMU B.

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 Montezuma Hills 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 1 June 2008 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 2008 cost estimate (26 years) was based on the time remaining in the 30-year cost estimate that is part of the DTSC Consent Order. As of 1 June 2008, the total of the cost estimate for the Montezuma Hills Facility is \$5,526,278 that includes \$2,951,278 for operations, \$170,000 for equipment replacement, and \$2,405,000 for continuation of existing liability/corporate insurance. As of 1 June 2008, the total funds available for Montezuma Hills were \$2,056,355 indicating a deficit of \$3,469,923. 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 revise WDRs for this facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resources Code, Section 21000 et seq., in accordance with Title 14 CCR, Section 15301.
51. This Order implements:
 - a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition; and*
 - b. The prescriptive standards and performance goals of Title 27 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. 98-208 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 wastes, groundwater extracted as part of the cleanup program, wastes generated and/or collected by on-site leachate collection systems, and on-site liquids 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 dewatering system under the WMU B shall be used to maintain a minimum separation of five feet between wastes or leachates and the highest anticipated elevation of underlying groundwater.
3. The discharge of liquid waste to the Class II surface impoundment shall be limited to leachate from the LCRSs of the surface impoundment and the facility groundwater control systems, and site generated liquids from monitoring, maintenance, and equipment decontamination.
4. Water used for WMUs closure maintenance shall be limited to the minimum amount necessary for dust control and to establish vegetation on the landfill caps.
5. The treatment or disposal of waste shall not cause pollution or a nuisance, as defined in the California Water Code, Section 13050.
6. The discharge shall not cause a degradation of any water supply.

7. The Discharger shall maintain and monitor the WMUs in accordance with the approved IT Corporation Montezuma Hills Facility Closure and Post-Closure Plan, Revision 1.0, dated September 1989, and the amendments as approved by the Regional Water Board and DTSC.
8. There shall be no seepage or overflow from the landfill and surface impoundment.
9. The Discharger shall remove and relocate any wastes which are discharged at this site in violation of these requirements.

PROTECTION FROM STORM EVENTS

10. The drainage control systems and structures for the Class I landfills shall be maintained to prevent inundation or washout due to floods with a 100-year return period. The drainage control systems and structures for the Class II surface impoundment shall be maintained to accommodate the anticipated volume of precipitation under the 1,000-year, 24-hour precipitation conditions, normal seasonal precipitation and must maintain 2.5 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 2.5 feet.
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 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. Leachate removed from the surface impoundment LCRSs shall be placed back into the surface impoundment.
18. 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.

19. The **Action Leakage Rate** (ALR) for each cell of WMU C, the Class II surface impoundment is **1,940 gpd** or 58,200 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.
20. The LCRS shall be operated 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 approximately six inches, the minimum needed to ensure efficient pump operation.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.

26. 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 MAINTENANCE SPECIFICATIONS

27. Surface drainage courses and areas subject to erosion by wind or water shall be maintained to prevent such erosion.
28. Vegetation shall be maintained over each closed WMU. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the WMU vegetative layer thickness.
29. At least two permanent monuments, installed by a licensed land surveyor, shall be maintained 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

30. 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.
31. Liquid collected by the dewatering system beneath the Class I landfill (WMU B) shall be discharged to the Class II surface impoundment.

Class II Surface Impoundment Closure

32. The Discharger shall submit a Report of Waste Discharge prior to closure of the Class II surface impoundment.
33. The closure of the Class II surface impoundment shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.
34. 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.
35. 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. R5-2008-0145, 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. R5-2008-0145 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.

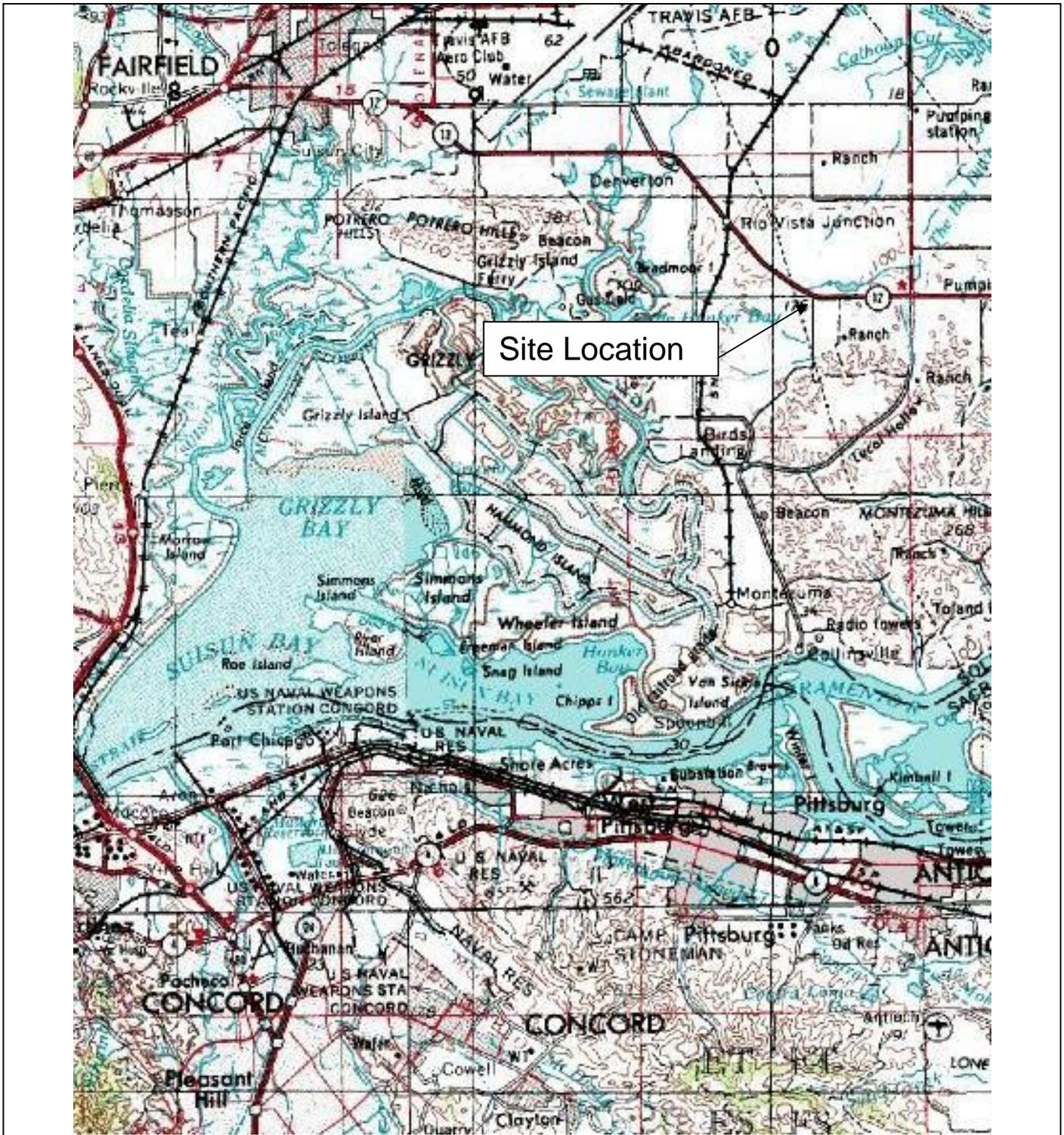
5. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel. All other site operating records required by this Order may be maintained offsite, but must be available to Regional Water Board staff within 48 hours of being requested.
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 California 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 WMUs A, B, and C will not threaten water quality.
11. Prior to construction of additional ground water monitoring wells or piezometers, plans and specifications shall be submitted to Regional Water Board staff for review and approval. All new monitoring wells or piezometers shall be drilled and logged under the supervision of a registered geologist.

12. The Discharger shall comply with all applicable provisions of Chapter 15 of Title 23, Title 27, and applicable portions of Title 22, Parts 66260 through 66265 and 66268 that are not specifically referred to in this Order.
13. 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.
14. 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.
15. The Regional Water Board will review this Order periodically and may revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 September 2008.

PAMELA C. CREEDON, Executive Officer

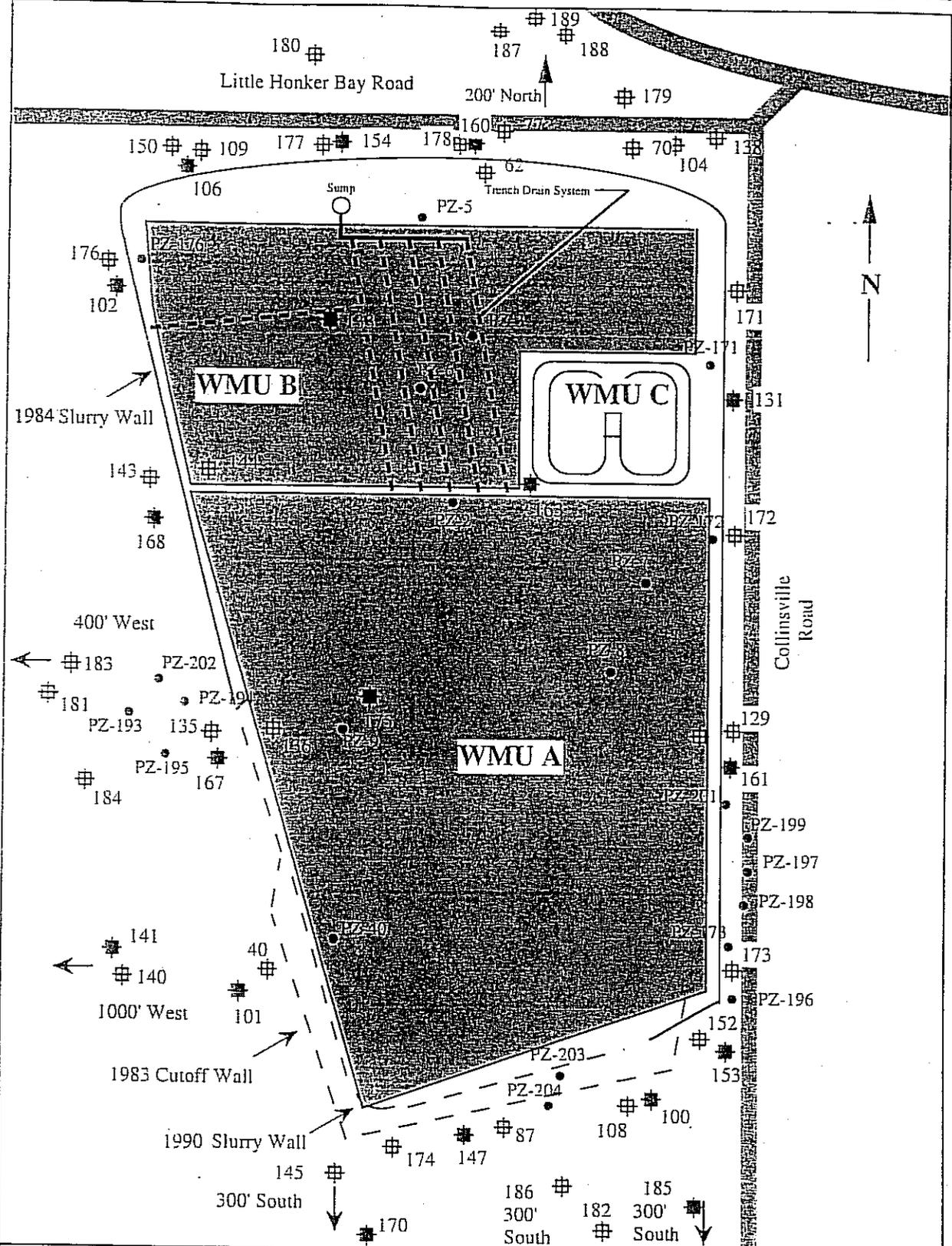
WLB



VICINITY MAP

MONTEZUMA HILLS FACILITY
CLASS I LANDFILLS
& CLASS II SURFACE IMPOUNDMENT
SOLANO COUNTY





Legend

- Monitoring Well
- Deeper wells shaded

WMU Waste Management Unit

Approximate Scale

0 400 Feet

IT MONTEZUMA HILLS FACILITY
 CLASS II SURFACE IMPOUNDMENT
 CLOSED CLASS I LANDFILLS
 Site Map

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0145

FOR
IT ENVIRONMENTAL LIQUIDATING TRUST
MONTEZUMA HILLS FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILLS
SOLANO COUNTY

The Discharger shall comply with this revised Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, as ordered by Waste Discharge Requirements (WDRs) Order No. R5-2008-0145. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the Water Code, 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.

If the Discharger, through a detection monitoring program, or the Regional Water Board finds that there is an additional measurably significant increase in indicator parameters or waste constituents over the water quality protection standards at or beyond the Points of Compliance, the Discharger shall notify the Regional Water Board or acknowledge the Regional Water Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Regional Water Board the results of the resampling and either:

- a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or

- b. a plan to address the increase such that the constituents will achieve compliance with the water quality protection standard (in the event that the exceedance is caused by the spread of the existing release already under corrective action); or
- c. an amended Report of Waste Discharge for the establishment of an evaluation monitoring program, per Section 20415 and 20425 of Title 27, or Section 2550.7 and 2550.9 of Title 23, as appropriate, which is designed to evaluate changes in water quality due to the release from the WMUs (in the event that the exceedance is caused by a new release from a WMU).

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 upper water-bearing unit and in the lower water-bearing unit monitored pursuant to this Monitoring and Reporting Program at least quarterly, and report the results annually, 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, piezometers, and groundwater recovery well, and any wells installed after the adoption of this MRP. This includes all monitoring wells and piezometers listed in Table 2 and 3.

Monitoring wells at the site are divided into two groups based on the depth of the screened interval in the well. Upper water-bearing unit wells are those which are completed above the lower clay layer and are generally 30 feet or less in depth. Lower water-bearing unit wells penetrate the lower clay layer and are generally 50 feet or more in depth. Wells to be monitored during the post-closure period are listed in Table 2 and shown on Attachment B. Upper water-bearing unit wells shall be sampled during the second and fourth quarters of each year. Lower water bearing unit wells, additional wells, and background wells shall be sampled during the second quarter of each year.

Prior to sampling, each monitoring well shall be adequately developed to exclude sediment and adequately purged to provide samples that are representative of water in the saturated zone. 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 from monitoring wells identified in Table 2 and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table (Table 1):

Table 1 - Groundwater Monitoring Program

Monitoring Parameters/Analytes	EPA Analytical Method	Max. Detection Limit (µg/l)*	Monitoring Frequency
Physical			
Depth to Groundwater	---	(to 0.01 ft)	Quarterly
Groundwater Gradient	---	---	Quarterly
Temperature	Field Meter	°C	Semi-Annual/Annual ¹
pH	Field Meter	pH Units	Semi-Annual/Annual ¹
Conductivity	Field Meter	1 µmhos/cm	Semi-Annual/Annual ¹
Monitoring Parameters:			
Total Dissolved Solids	160.1	1,000	Semi-Annual/Annual ¹
Chloride	300	500	Semi-Annual/Annual ¹
Sulfate	300	500	Semi-Annual/Annual ¹
Boron	6010	100	Semi-Annual/Annual ¹
Magnesium	6010	50.0	Semi-Annual/Annual ¹
Constituents of Concern:			
VOCs	8260	0.1	See Footnote ²
Alkalinity	310	1,000	Every 5 Years
Arsenic	6010	1.0	Every 5 Years
Barium	6010	5.0	Every 5 Years
Calcium	6010	50.0	Every 5 Years
Chromium (Total)	6010	2.1	Every 5 Years
Chromium (Hexavalent)	218.6	0.5	Every 5 Years
Copper	6010	2.5	Every 5 Years
Iron	6010	50.0	Every 5 Years
Lead	6010	1.0	Every 5 Years
Manganese	6010	1.0	Every 5 Years
Mercury	7470	0.1	Every 5 Years
Nickel	6010	2.0	Every 5 Years
Potassium	6010	100	Every 5 Years
Selenium	6010	1.0	Every 5 Years
Sodium	6010	200	Every 5 Years
Vanadium	6010	2.0	Every 5 Years
Zinc	6010	5.0	Every 5 Years
* For non-detectable results			

¹ All Upper Point of Compliance Wells shall be monitored semi-annually for Physical and Monitoring Parameters (refer to Table 2 for list of these wells). All other wells to be sampled annually (see Table 2).

² Wells MW-143, 154, 168, and 173 and the groundwater extraction sump shall be monitored for VOCs annually. Any new wells with detected VOCs shall also be monitored annually, until no detectable concentrations are noted for two consecutive years. All other wells shall be monitored for VOCs every 5 years.

Table 2 - Groundwater Monitoring Wells

<i>Upper Point of Compliance Wells Sampled Semi-Annually</i>	<i>Lower Point of Compliance Wells Sampled Annually</i>
<p style="text-align: center;"><u>Shallow Zone</u> MW-40 MW-70 MW-108 MW-109 MW-129 MW-135 MW-143 MW-152 MW-171 MW-172 MW-173 MW-174 MW-176 MW-190</p>	<p style="text-align: center;"><u>Deep Zone</u> MW-100 MW-101 MW-102 MW-106 MW-131 MW-138 MW-147 MW-153 MW-154 MW-160 MW-161 MW-167 MW-168</p>
<i>Additional Wells Sampled Annually</i>	<i>Background Wells Sampled Annually</i>
<p>MW-87 Upper MW-163 Lower MW-175 Lower MW-179 Upper MW-180 Upper MW-181 Upper MW-182 Upper MW-183 Upper MW-184 Upper MW-185 Lower MW-186 Upper MW-187 Upper MW-188 Upper MW-189 Upper</p>	<p style="text-align: center;"><u>Shallow Zone</u> <u>Deep Zone</u> MW-140 MW-141 MW-145 MW-170</p>

Table 3 -Supplemental Groundwater Level Monitoring Points

(PZ = piezometer, MW = monitoring well)

<i>Slurry Wall Water Level Monitoring Points</i>	
<u>Inside</u>	<u>Outside</u>
PZ-171	MW-171
PZ-172	MW-172
MW-130	MW-129
PZ-173/173A	MW-173
PZ-203	PZ-204
PZ-40	MW-40/PZ-40A
MW-136	MW-135
MW-144	MW-143
PZ-176	MW-176
MW-62	MW-190
<i>Recovery Well/Trench Piezometers</i>	
<u>Southeast</u>	<u>West</u>
PZ-196	PZ-193
PZ-197	PZ-194
PZ-198	PZ-195
PZ-199	PZ-202
PZ-201	
<i>Dewatering System Piezometers</i>	
PZ-2	PZ-5
PZ-3	PZ-6
PZ-4	
<i>Additional Piezometers</i>	
PZ-7	
PZ-8	
PZ-9	

2. Class II Surface Impoundment Monitoring

All visible portions of synthetic liners shall be inspected monthly until all free liquid is removed from the surface impoundment as part of closure. If, during the active life of the impoundment, the wastes are removed and the impoundment is cleaned down to the liner, an inspection shall be made of the bottom of the liner prior to refilling of the impoundment. Inspection results or observations shall be forwarded to the Regional Water Board at the next reporting period.

Wastewater contained in the Class II surface impoundment shall be sampled annually in accordance with the groundwater monitoring program listed in Table 1 of this MRP, with the exception of VOCs. Remaining surface impoundment capacity (acre-feet) and freeboard (feet and tenths) shall be recorded monthly and included in the annual report to the Regional Water Board.

3. LCRS/Leachate Monitoring and Annual LCRS Test

The leachate collection and removal systems (LCRS) sumps 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 Table 1 of this MRP, with the exception of VOCs.

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.

4. Dewatering System Monitoring

Water samples from the dewatering system collection sump beneath the landfill shall be collected annually and analyzed for the constituents specified under Groundwater Monitoring. The collection sump shall be inspected monthly for proper operation. All sources and total monthly volumes of water discharged to the Class II surface impoundment shall be recorded and included in the annual report to the Regional Water Board.

5. Surface Water Monitoring

Surface water monitoring shall be conducted in accordance with the facility Storm Water Pollution Prevention Plan.

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 one inch 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 **annually** 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 non-compliance 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. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

Field and laboratory tests shall be reported in the annual monitoring reports. The Annual Monitoring Summary Reports shall be submitted to the Regional Water Board by **15 September** and shall summarize data collected over the previous four quarters.

The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board. Data shall be graphed for the period of record so as to show historical trends at each well. VOCs may be graphed as total VOCs. The report shall include a discussion of the progress toward re-establishment of compliance with waste discharge requirements and water quality protection standard.

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 annual 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

1. Annual Monitoring Summary Report

By **15 September** of each year, the Discharger shall submit the Annual Monitoring Summary Report as specified in the Standard Provisions and Reporting Requirements. The progress of the corrective action program shall be analyzed and described in the Annual Monitoring Summary Report. 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 Monitoring Summary Report shall include groundwater surface elevation (in feet and hundredths, Mean Sea Level) for all monitoring wells and piezometers listed in Tables 2 and 3 and shall be used to determine the velocity and direction(s) of ground water flow. This information shall be displayed on a water table contour map with ground water flow directions for the second quarter of the reporting year. The report shall include east-west and north-south oriented cross sections through the facility boundary to display piezometric contours and vertical flow direction(s).

The Annual Monitoring Summary Report shall include groundwater level measurements obtained from the wells and/or piezometers listed in Table 3 which shall be used to evaluate the effectiveness of the slurry wall and the ground water dewatering system under the waste consolidation area. The annual report shall contain a discussion of the slurry wall performance and shall discuss the effectiveness of the dewatering system in maintaining separation of waste and the upper water-bearing zone.

The Annual Monitoring Summary Report shall include a summary and certification of completion of all Standard Observations for the waste management units (WMUs), for the perimeter of the landfills, and for the receiving waters. The standard observations shall be performed on a monthly basis and shall include those elements as defined in the Standard Provisions and Reporting Requirements. The monitoring reports shall also include copies of the Discharger's inspection reports for the previous 12-month period. A copy of the annual testing of the LCRS for the WMUs shall also be submitted in the annual monitoring report.

2. **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 COC Report may be combined with the Annual Monitoring Summary Report or an Annual Summary Report having a Reporting Period that ends at the same time. The next COC Report is due on 15 September 2012.

3. **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).

4. **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.

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 'COC list' (list of Constituents of Concern required under Title 27 CCR 20390 and/or Title 23 CCR 2550.3) shall include all constituents listed in the groundwater monitoring program (Table 1). The Discharger shall monitor all COCs every five years, or more frequently as required under the corrective action monitoring program.

3. Concentration Limits

Concentration limits shall be calculated from background groundwater data on an annual basis. For detection monitoring, the concentration limits shall be used to determine whether there is an indication of a release detected at a detection monitoring well. For corrective action monitoring, the concentration limits shall be used as a clean-up goals.

The Discharger shall calculate concentration limits for inorganic constituents based on background groundwater data. The Discharger shall calculate concentration limits for organic constituents based on the laboratory detection limit for that constituent. The Discharger shall calculate concentration limits for inorganic constituents using the following methods (as proposed in the May 2007 *Sampling and Analysis Plan*):

- a. For constituents in background that are detected greater than 50 percent of the time in background, the Discharger shall use a non-parametric Upper Confidence Limit (UCL) as follows:
 1. Rank all data from smallest to largest concentration, tying non-detects at the bottom.
 2. Calculate the upper rank value u with the formula:

$$u = p(n + 1) - Z^{1-\alpha}[np(1-p)]^{1/2}$$

where p is the proportion of data that must fall within $Z_{1-\alpha}$ quantile, and n is the total number of observations. Use $p = 0.95$, with the corresponding value of $Z_{1-\alpha} = 1.645$ (this value is to be obtained from data tables for the normal curve).

3. If the calculated rank u is not an integer then linearly interpolate between the concentration of adjacent ranks to find the UCL. Otherwise, the UCL is simply that with the rank of u .
- b. For constituents in background that are detected less than 50 percent of the time in background, the Discharger shall use the highest background concentration that is not an outlier.

The Discharger shall calculate concentration limits for organic constituents based on background groundwater data. Since the organic constituents listed in the MRP do not occur naturally in background groundwater, the concentration limits for organic constituents shall be the laboratory Practical Quantitation Limit.

4. Monitoring Points

Monitoring Points (including background) for groundwater are identified in Table 2.

5. 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. The Points of Compliance wells are identified in Table 2.

6. 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.

Revision of this monitoring program, including changes to monitored parameters and/or monitoring frequencies outlined herein, will be considered pending submission of specific justification and rationale.

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

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

_____ 11 September 2008
(Date)

WLB

INFORMATION SHEET

ORDER NO. R5-2008-0145
IT ENVIRONMENTAL LIQUIDATING TRUST
MONTEZUMA HILLS FACILITY
OPERATION OF CLASS II SURFACE IMPOUNDMENT
AND POST-CLOSURE MAINTENANCE OF CLASS I LANDFILLS
SOLANO COUNTY

IT Environmental Liquidating Trust (hereafter Discharger) maintains closed Class I landfills and operates an active Class II surface impoundment at the Montezuma Hills Facility in Solano County. From 1979 to 1986, the facility accepted liquids, sludges, and solids from gas and oil exploration and production activities, and the petroleum refining industry for disposal in twelve unlined Class II-1 surface impoundments constructed from onsite soils. The 160-acre Montezuma Hills property, including the 52-acre permitted facility is eleven miles southeast of Fairfield, eight miles west of Rio Vista on California State Highway 12 in southeastern Solano County. The facility consists of two closed Class I landfills and an active Class II surface impoundment. These Waste Discharge Requirements (WDRs) are being updated to reflect closure activities. The facility is also regulated by the California Department of Toxic Substances Control (DTSC) under a Hazardous Waste Facility Post-Closure Permit.

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 1991 in response to a 1987 Regional Water Board cleanup and abatement order that was revised in 1991 to amend the time schedules. Closure was conducted in accordance with closure waste discharge requirements (WDRs) adopted by the Regional Water Board in 1990.

The site was closed by excavating waste from the Waste Excavation Area (WEA) and consolidating it into a lined Class I landfill located within the former surface impoundment area. The WEA was also closed as a Class I landfill. The Class I landfill in the WEA is designated as Waste Management Unit (WMU) A, and the Class I landfill in the Waste Consolidation Area (WCA) is designated WMU B. Several groundwater extraction wells and recovery trenches were also installed for groundwater cleanup. 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.

During 1990, closure activities included the construction of WMU B, a perimeter slurry wall, the collection system for groundwater extraction, and Class II surface impoundments for groundwater evaporation. During 1991, closure activities included the stabilization and consolidation of wastes, the construction of cover systems for both the WMU A and WMU B, installation of the groundwater recovery trenches, and the construction of a surface water control system.

During closure, approximately 253,000 cubic yards of mixed hazardous and designated wastes, subsoils, and solidification agents were deposited to WMU B. No wastes remain in WMU A. The Class II surface impoundment, which is used for the consolidation and evaporation of extracted groundwater, is identified as WMU C.

Leakage from the twelve former Class II-1 surface impoundments polluted groundwater with organic and inorganic constituents. Organic constituents still remaining in groundwater include trichloroethene, chloroform, benzene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethane. Inorganic constituents exceeding background concentrations primarily include total dissolved solids, sulfate, chloride, sodium, and boron. The cleanup of groundwater was addressed in Cleanup and Abatement Order No. 87-124 adopted by the Regional Water Board on 26 June 1987.

The Discharger is currently implementing a detection/corrective action monitoring program due to the presence of inorganic and organic constituents in groundwater both within and outside of the perimeter slurry wall. Groundwater is being extracted from beneath WMU B and at locations throughout the facility, and conveyed to a Class II surface impoundment (WMU C) for evaporation in an effort to maintain physical separation between wastes and the underlying shallow water bearing zone, and to control the local groundwater gradient and reduce mounding within the slurry walls.

Surface drainage from the facility is northeast to the Big Ditch, a tributary to Lindsey and Cache Sloughs which eventually flow into the Sacramento River within the Sacramento-San Joaquin Delta.

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