

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

**STAFF SUMMARY REPORT
STAFF: VIC PAL
MEETING DATE: April 9, 2008**

ITEM: 4 B

SUBJECT: Cypress-Amloc Land Company, Hillside Class III Waste Disposal Site, Colma, San Mateo County – Adoption of Updated Waste Discharge Requirements and Rescission of Order No. 97-009

CHRONOLOGY: Waste Discharge Requirements adopted in 1997

DISCUSSION: The Cypress-AMLOC Land Company owns and operates the Hillside Landfill, a non-hazardous waste disposal site located in the town of Colma. The Landfill began operation in 1971 and stopped receiving wastes in 2006. The Landfill received non-garbage wastes consisting of construction and demolition debris, cardboard, glass, paper, landscape wastes, and clean soil or soil with total petroleum hydrocarbon concentrations less than 100 parts per million.

The Revised Tentative Order updates Waste Discharge Requirements (WDRs) to address landfill closure and rescinds existing WDRs, which focus on an operating landfill, rather than a closed one.

Staff has incorporated relevant comments submitted by the Land Company and a geologic consultant for San Bruno Mountain Watch, a local stakeholder group (Appendix B). We anticipate that this item will remain uncontested.

**RECOMMEN-
DATION:** Adoption of the Revised Tentative Order (Appendix A)

FILE NO. 2179.7075(VP)

APPENDICES: A – Revised Tentative Order
B - Correspondence

APPENDIX A
REVISED TENTATIVE ORDER

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

REVISED TENTATIVE ORDER

**UPDATED WASTE DISCHARGE REQUIREMENTS, AND
RECISSION OF WASTE DISCHARGE REQUIREMENTS ORDER NO. 97-009 FOR:**

**CYPRESS-AMLOC LAND COMPANY
HILLSIDE CLASS III WASTE DISPOSAL SITE
COLMA, SAN MATEO COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Water Board), finds that:

DISCHARGER AND LOCATION

1. Operator and discharger named: The Hillside Class III Waste Disposal Site (hereinafter Hillside Landfill) is operated by the Cypress-AMLOC Land Company, hereinafter referred to as the Discharger.
2. Landfill location: The Hillside Landfill is located in the Town of Colma, in San Mateo County (See Figure 1, Site Location Map). The landfill is adjacent to the Cypress Hills Golf Course to the southwest, a mobile home park to the northwest, and the San Bruno Mountain State and County Park to the north and east. Access to the site is through a locked gate at the intersection of Sand Hill Road and Hillside Boulevard.

OPERATIONAL AND REGULATORY HISTORY

3. Operational history: The Hillside Landfill began operation in 1971 and stopped receiving wastes in 2006. The Hillside Landfill is currently awaiting local environmental approval of its closure/post-closure plans from the Town of Colma, which were prepared in 2003 and approved by the California Integrated Waste Management Board (CIWMB) and Water Board staff. Prior to 1971, the site was operated as a burn dump, a pig farm, and a sand quarry. The landfill was operated as a canyon-fill that was constructed in intermediate phases until the current configuration was reached. The permitted landfill disposal area consisted of 57.8 acres.
4. Regulatory history: The landfill has been regulated by the Water Board under Waste Discharge Requirements (WDRs); the first Order No. 80-7 was adopted in February 1980. Order No. 88-019 was adopted by the Water Board on February 17, 1988, and amended Order No. 80-7. Order No. 88-019 updated the groundwater monitoring and waste containment system requirements for landfill operations. Order No. 97-009 was adopted on January 15, 1997, rescinding Order No. 88-019, and updated the

WDRs for the ongoing construction, corrective action, groundwater monitoring and operation and maintenance of the landfill. Order No. 97-009 further required the submittal of a remediation plan for VOC-impacted groundwater detected at the landfill's perimeter.

The landfill is also regulated by CIWMB and the San Mateo County Environmental Health Department under Solid Waste Facility Permit No. 041-AA-0008.

PURPOSE OF ORDER UPDATE

5. This Order updates the landfill's WDRs, reflecting final waste acceptance at the landfill in 2006, and contains time schedules for closure and post-closure of the landfill. The Order rescinds Order No. 97-009 and establishes new requirements and time schedules for implementing an approved final cover.

SITE DESCRIPTION

6. Waste placement: The permitted disposal area is comprised of the following five sub-areas (See Figure 2, Site Plan):
 - Parcel 1 - A closed 15-acre disposal area located in the northern section of the landfill that was used for the disposal of Class III waste, which included demolition wastes, dry paper waste, landscaping wastes, roofing wastes, and general household rubbish. The unit was closed in 1974 with approximately 250,000 tons of in-place wastes. The unit was capped with fine-grained sand and silt taken from the site's soils. Parcel 1 does not have a liner constructed beneath the waste, or a leachate collection system. However, Parcel 1 does have a landfill gas collection system. Parcel 1 also has a final cover that includes five feet of clay and five feet of soil cover installed in 2000-2002. Impacted groundwater quality downgradient of Parcel 1 has improved since the improvements to the landfill gas recovery system in 1999 were implemented, as discussed in the Corrective Action Evaluation Work Plan (March 2007). A portion of the Cypress Hills Golf Course now overlies Parcel 1.
 - Module 1 (also known as Parcel 2) - A closed disposal area of approximately 23.6 acres located in the northeastern section of the landfill that was used for the disposal of various Class III wastes including paper, cardboard, household wastes, construction, demolition and yard wastes. This unit was in operation from the early 1970's until 2006. This waste management unit was constructed with a five-foot thick clay bottom liner creating a containment "bowl" area in one area. A leachate collection system covers the area of Parcel 2 that is located outside of the "bowl". That leachate is collected and sent to the sanitary sewer system under a local permit. Historical monitoring records of leachate levels show that the leachate levels within the "bowl" area have not exceeded the height of the "bowl". Parcel 2 also has a landfill gas extraction system.

- Module 2, Module 3, and Module 4 (also known as Parcel 3) – This area is located in the eastern section of the landfill and occupies approximately 19.2 acres. This area received construction, demolition, wood, yard and paper wastes from 1988 until 2000. Parcel 3 closure construction was completed in 2002, and the operator received closure certification from the CIWMB in 2003. This area was constructed with a composite liner system which consists of 2.5 feet of clay overlain by a 60-mil HDPE geomembrane. This area was constructed with a blanket leachate collection and removal system, with collected leachate sent to the sanitary sewer system under local permit. A landfill gas recovery system was installed and has operated since 1997 with additional landfill gas recovery system improvements implemented during closure construction.
7. Waste types and classification: The landfill is a Class III site, and was designated to receive dry wastes, construction and demolition waste, clean soils, cardboard, glass, paper and landscape wastes. The facility has accepted soil with total petroleum hydrocarbon concentrations less than 100 parts per million. The facility was permitted to receive up to 400 tons of waste per day. Disposal of hazardous wastes, sewage sludge, liquid wastes, food wastes, household garbage, manure, and dead animals were prohibited at the facility.

SITE GEOLOGIC AND HYDROGEOLOGIC SETTING

8. Geology: The Hillside Landfill lies along the southwest base of San Bruno Mountain. The landfill is located on the northeastern edge of a small structural basin bounded by the Santa Cruz Mountains to the southwest and San Bruno Mountain on the northeast. The basin was formed due to strain between the Pacific and North American plates. The bedrock underlying the basin consists of rocks of the Cretaceous Franciscan Formation. To the east, across the Hillside Fault Zone, the bedrock beneath the San Bruno Mountain consists of rocks of the Franciscan Formation overlain by the Late Cretaceous San Bruno Sandstone. The Hillside Landfill construction areas and waste placement, as described in Finding 6, were started following extensive quarry excavation activities, which removed much of the former natural drainage materials prior to waste placement. These excavated drainage “valleys” trend to the west-southwest.
9. Lithology: Lithologic units in the vicinity of the Hillside Landfill include, from oldest to youngest, the Cretaceous Franciscan Formation, Late Cretaceous San Bruno Sandstone and Colma Formation. The Franciscan Formation in the vicinity of the landfill consists of highly recrystallized metagreywacke with minor interbedded black shale, serpentine and greenstone. The metagreywacke and shale are highly jointed and fractured. The San Bruno Sandstone consists predominantly of fine to medium grained, slightly recrystallized sandstone that forms San Bruno Mountain. The sandstone is highly fractured. The San Bruno Sandstone and the Franciscan Formation are subject to landslides. The Colma Formation consists of fine to medium grained sands, silts, and clays deposited within estuarine and stream

environments. The Colma Formation is very permeable with generated rising and falling head permeability tests yielding results from 5.7×10^{-3} to 1.1×10^{-2} cm/sec.

10. Faulting and Seismicity: There are three faults in the vicinity of the Hillside Landfill, the San Andreas Fault, the San Bruno Fault, and the Hillside Fault. The following briefly summarizes the conditions associated with each fault:

- San Andreas Fault: The San Andreas Fault is located approximately 2.7 miles southwest of the Hillside Landfill. It is a seismically active plate boundary between the North American and the Pacific plates. The maximum probable earthquake generated by this fault for the landfill has been estimated by the Discharger to be 8.3 on the Richter scale. Major strike-slip motions along the San Andreas Fault have resulted in the formation of a number of associated faults in the region of the landfill. The Hillside Fault and the San Bruno Faults are among these associated faults.
- Hillside Fault: The Hillside Fault is located within and cuts through the northeast portion of the Hillside Landfill. It consists of a 300 to 3000-foot wide zone of intensely sheared shale, sandstone and melange. The fault appears to be covered by the Pleistocene Colma Formation. Mapping by the Discharger found no Holocene age displacement along the inferred trace of the fault. Investigations by the Discharger of an outcrop at the landfill conducted in 1988 revealed a shear zone from the Hillside Fault that has penetrated the Franciscan Formation but not the Pleistocene Colma Formation. Investigations of the Hillside Fault conducted for the USGS (USGS report by Hengish and Wakabayashi, 1995) suggests that the Hillside Fault has not been active during the Holocene. Additionally, the California Division of Mines and Geology concluded that the fault is Pre-Quaternary.
- San Bruno Fault: The San Bruno Fault is located approximately $\frac{1}{2}$ mile southwest of the Hillside Landfill. The fault is considered to be buried beneath the Colma Formation in the center of the Merced Valley. No displacement of the overlying Colma Formation due to movement along the fault is known. The San Bruno Fault has been dated as Pre-Quaternary and is not considered active by the California Division of Mines and Geology.

11. Surface Water and Groundwater: The following findings relate to the surface water, regional groundwater, and local groundwater in the vicinity of the Hillside Landfill:

- Surface Water: Three major drainages originate from San Bruno Mountain in the vicinity of the Hillside Landfill. Surface water from the northernmost drainage is diverted around the perimeter of the landfill. The central and easternmost drainages also are diverted around

the perimeter of the landfill and pass through the landfill's sedimentation pond (See Figure 2, Site Plan), where the flow is equalized prior to pond overflow discharge to a culvert adjacent to the facility's access road. Runoff from the landfill flows into the Colma Creek Basin through municipal storm drains. The Hillside Landfill lies well above the 100 year flood plain. The 100 year, 24-hour storm event was estimated to be 4.82 inches. The Discharger has applied for, and has obtained, coverage under the State Water Resources Control Board (State Board) Water Quality Order No. 97-03-DWQ, NPDES Permit No. CAS0001 for Industrial Storm Water.

- Regional Groundwater: The Daly City groundwater aquifer is currently located approximately ½ mile southwest of the landfill. The Daly City aquifer measures approximately 1.5 to 2.5 miles wide and 9 miles long, extending southeast from Lake Merced towards the city of San Bruno. In general, groundwater levels in the aquifer are higher along the northeast and southwest boundaries, indicating recharge from precipitation falling on the surrounding mountains or groundwater pumping from the center of the aquifer. The Daly City aquifer underlies two drainage basins: the Merced Valley Groundwater Basin that drains towards the Pacific Ocean, and the Colma Creek Basin that drains into San Francisco Bay. Runoff water near the site flows into the Colma Creek basin. The basin encompasses an area of approximately 14 square miles and overlies the southern half of the Daly City aquifer. The Discharger has estimated that the base of the landfill is 650 feet above the Daly City aquifer. The aquifer is used for both domestic and agricultural purposes. Several irrigation wells are located within a mile of the landfill and extract groundwater from the Daly City aquifer. The closest drinking water well to the Hillside Landfill is located over one mile from the site.
- Local A-Zone Groundwater: A 15 to 25-foot thick saturated zone, called Zone A, occurs with the upper portion of the Colma Formation in the southwest area of the Hillside Landfill, underlying a portion of the Cypress Hills Golf Course. The Discharger has reported that the recharge of A-Zone groundwater is greatly increased by irrigation of the golf course. The general direction of A-Zone groundwater flow is to the southwest, away from the landfill, at an estimated velocity of 3400 to 3700 feet per year.
- Local B-Zone Groundwater: Groundwater beneath most of the Hillside Landfill generally occurs in a thin perched zone at the base of the Colma Formation approximately 150 feet bgs and approximately 10 to 15 feet in depth. This saturated zone is called the B-Zone, and generally follows the topography of the top of the Franciscan bedrock beneath it, which generally serves as an aquitard. The general direction

of B-Zone groundwater flow is to the west-southwest, away from the landfill.

WATER QUALITY AND GROUNDWATER DEGRADATION

12. Background groundwater quality: Water Board Resolution No. 89-39, Sources of Drinking Water”, defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas containing high total dissolved solids (TDS) (greater than 3000 mg/L TDS), high background contaminant levels, or those areas with a low water yield. Background groundwater quality has been determined from (A-Zone) monitoring well E-13 since 1997. Results indicate that groundwater is considered a source of drinking water under Water Board Resolution No. 89-39.
13. Background surface water quality: Surface water upstream of the facility was evaluated in January 2006, in order to determine the baseline background contributions of total suspended solids (TSS) and metal concentrations from the San Bruno Mountain range. The results of this evaluation showed that background metal concentration levels were reported for total Lead (0.001 mg/L), total Aluminum (1.0 mg/L), total Iron (0.96 mg/L), TSS (less than 4 mg/L) and total Manganese (0.014 mg/L).
14. Groundwater degradation: Order No. 97-009 contained findings related to impacted groundwater downgradient of the landfill. Order No. 97-009 states that the Discharger reported that both A-Zone and B-Zone groundwater has been impacted by the landfill. TDS in groundwater in both the A-Zone and B-Zone is less than 3000 and is thus considered a Source of Drinking Water by the Water Board under Resolution No. 89-39. Solid Waste Assessment Test (SWAT) monitoring conducted in 1990 reported that electrical conductivity ranged from 1059 to 1300 micro mhos per centimeter (i.e., TDS ranging from 688 to 845 mg/L), and that low concentrations of volatile organic compounds (VOCs) were detected in groundwater wells downgradient of the landfill with the highest reported concentration for cis-1, 2-Dichloroethene (1, 2-DCE) at 37 ug/L, benzene at 11 ug/L and trichloroethylene (TCE) at 7.8 ug/L. These detected VOCs exceeded drinking water standards. In response to these findings, the Discharger implemented an Evaluation Monitoring Program (EMP), in accordance with Article 5 of Chapter 15 in 1994. An EMP progress report was prepared in 1997. The Discharger implemented corrective actions recommended in the EMP progress report consisting of an augmented landfill gas collection system, and provision of additional cover at Parcel 1. These corrective actions have resulted in decreased VOC concentrations in groundwater.
15. The Discharger submitted a Corrective Action Evaluation Work Plan in March 2007, which presented the results of samples taken from groundwater monitoring wells and evaluated potential remedial alternatives for impacted groundwater. Current groundwater concentrations of TCE, 1, 1-DCA, and cis-1,2-DCE (using a 95% upper

confidence limit for each constituent) are below their respective Maximum Contaminant Levels (MCL).

MONITORING PROGRAMS

16. Groundwater monitoring: The Discharger currently monitors water levels on a quarterly basis in ten monitoring wells located in the A-Zone and B-Zone groundwater at and near the site. Water quality data is currently collected from these ten wells on a quarterly basis.
17. Leachate monitoring: The Discharger has historically monitored leachate levels in five wells. The five leachate wells no longer function, and it is necessary to properly close these wells (LW-1 thru LW-5). A new leachate well is necessary to be installed in the "bowl" area of Parcel 2 to monitor leachate levels within the lined "bowl" area. Leachate levels shall not rise above 403 feet mean sea level (MSL) in the "bowl" area of Parcel 2, and a contingency plan must be implemented that keeps leachate at or below this level.
18. Landfill gas monitoring: The Discharger currently collects 41 landfill gas samples, which are analyzed on a monthly basis and reported on a semi-annual basis to the Bay Area Air Quality Management District.
19. Vadose zone monitoring: The Discharger previously monitored soil moisture on a quarterly basis from five lysimeters (US-1 thru US-5) located below the liner in Parcel 3. Since these lysimeters were installed prior to final cover construction in Parcel 3 in 2002, they are no longer necessary due to the use of down gradient monitoring wells. Lysimeters that are no longer in use are required to be properly closed.
20. Surface Water monitoring: The Discharger currently monitors surface water at the outfall of the sedimentation basin (at location SB-1) and at a location where storm water exits the maintenance yard (at location SB-2). The Discharger evaluated the background surface water quality at the perimeter of the landfill emanating from the San Bruno Mountain range in 2006 as described in Finding 13.

CLOSURE PLANS

21. Portions of the Hillside Landfill have been partially closed pursuant to the Water Board-approved November 1979 closure plan entitled "Final Closure Plan and Solid Waste Management for AMLOC Companies, Inc. Solid Waste Disposal Site". The Discharger has also submitted a November 1992 report entitled "Preliminary and Partial Final Closure and Post Closure Maintenance Plan". This 1992 Plan was revised in March 1993. The Discharger submitted a Final Closure Post-Closure Maintenance Plan to the Water Board in February 1998 as required in Provision C.7 of the Order No. 97-009. A Final Closure Post-Closure Maintenance Plan for all units at the Hillside Landfill was approved by the Water Board in January 2007. The

Discharger is currently awaiting local approval of this Plan under the California Environmental Quality Act (CEQA) by the Town of Colma under its local permitting authority. The Final Post-Closure Maintenance Plan contains final grading and capping plans for all of the landfill, as well as those measures necessary to monitor and maintain the landfill in post-closure maintenance status when after final grading and capping activities are completed. The final cap will be constructed to Class II standards as described in Title 27. It will include a 60-mil HDPE flexible membrane liner underlain by a clay or GCL material, a "geocomposite" drainage layer and "geonet" layers over the side slope areas. The liner is comprised (from bottom to top) of 24 inches of clean fill foundation layer, a 60-mil HDPE flexible membrane liner (FML), and 18 inches of vegetative cover.

FINANCIAL ASSURANCE DOCUMENTATION

22. The Discharger is required to submit to the Water Board, pursuant to the California Code of Regulations (Title 27), an Irrevocable Post Closure Fund, or provide other financial means acceptable to the Executive Officer, to insure closure and post-closure maintenance of the landfill. The Discharger provided financial assurance documentation in December 1993. The Discharger's documentation was approved by CIWMB. Appendix C of the Final Post Closure Maintenance Plan dated December 2003 provides an updated summary of financial assurances for the facility. The Discharger filed a financial assurance update to the CIWMB, as required, on July 28, 2007. The Discharger, using the CIWMB inflation factor for 2006, estimated that landfill closure costs would be approximately \$1 million and that the 30-year post closure costs would be approximately \$1.66 million (both cost estimates were expressed in 2007 dollars). On August 6, 2004, Water Board staff approved Hillside Landfill's Corrective Action Cost Estimate for all Known or Reasonably Foreseen Releases.

BASIN PLAN

23. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Water Board and approved by the State Board, U.S. EPA, and the Office of Administrative Law where required.

BENEFICIAL USES

24. The Basin Plan contains the following related to the Hillside Landfill:
Groundwater Beneficial Uses: The existing beneficial uses of the Merced Valley Groundwater Basin are:
 - Municipal and domestic water supply
 - Agricultural supply

- Industrial service water supply
- Industrial process water supply

At present, there are no known uses of groundwater underlying the landfill site for the above purposes.

Surface Water Beneficial Uses: The existing beneficial uses of Colma Creek include:

- Municipal and domestic supply
- Agricultural supply
- Wildlife habitat
- Industrial supply
- Groundwater recharge

CALIFORNIA ENVIRONMENTAL QUALITY ACT

25. The County of San Mateo adopted a Final Environmental Impact report (EIR) for the expansion of the Hillside Landfill on November 12, 1987, to include Parcel 3 (Modules 2, 3, and 4). The findings from the EIR identified potential adverse impacts associated with the then proposed landfill expansion; however it also identified measures that mitigated these adverse impacts, allowing for expansion of the landfill. Mitigation measures were addressed as the landfill continued operations.
26. In 2006, the Discharger submitted final documentation regarding the facility's Closure and Post Closure Maintenance Plan to the CIWMB, Water Board, and County of San Mateo. This plan includes a new grading and capping plan to finalize the surface contour shaping required for closure construction. The Town of Colma has been designated the lead agency for CEQA review and analysis of this grading plan.
27. The Town of Colma plans to adopt a Mitigated Negative Declaration for the "Hillside Class III Disposal Site Parcel 2 Closure and Amendments to the 1994 Disposal Site Agreement" in the coming months. The Town of Colma prepared an Initial Study under the California Environmental Quality Act (CEQA) and is providing a public comment period prior to adoption.
28. This action is an Order to enforce the laws and regulations administered by the Water Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15301 of the Resources Agency Guidelines.

APPLICABLE POLICY AND REGULATIONS

29. Preparation of this Order is consistent with the following:

- a. State Board Resolution No. 68-16: "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not exceed applicable water quality objectives.
 - b. State Board Resolution No. 92-49: "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304," applies to this discharge.
 - c. Board Resolution No. 89-39 (State Board Resolution No. 88-63): "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Some groundwater underlying and adjacent to the site qualifies as a potential source of drinking water.
 - d. Applicable State Regulations: *Applicable State Regulations include*:
 - (1) California Water Code (CWC), Division 7 Water Quality (Porter-Cologne Water Quality Act)
 - (2) California Code of Regulations, Title 27, Environmental Protection Division 2, Solid Waste
30. Surface drainage from the landfill related to storm water is subject to State Board Order No. 97-03-DWQ, National pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities."

PUBLIC PARTICIPATION AND STAKEHOLDER NOTIFICATION

- 31. Public Notice: The Water Board has notified the Discharger and interested agencies and persons of its intent to update Waste Discharge Requirements for the Discharger and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
- 32. Public Meeting: The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger, its agents, successors, and assigns shall meet the applicable provisions contained in Title 27, Division 2, Subdivision 1 of the California Code of Regulations and Division 7 of the California Water Code and shall comply with the following:

A. PROHIBITIONS

1. No additional waste shall be deposited or stored at this site.
2. The creation of any new waste management units at this landfill is prohibited.
3. The treatment, discharge, storage or any relocation of wastes to or from any waste management unit shall not be allowed to create a condition of pollution or nuisance as defined in the California Water Code (Section 13050 (l) and (m)).
4. The waste management unit shall prevent migration of wastes to adjacent geologic materials, groundwater, or surface water.
5. Leachate from wastes or ponded water that comes into contact with refuse shall not be discharged to waters of the State or of the United States unless specifically authorized under a National Pollution Discharge Elimination System (NPDES) permit.
6. Leachate shall not be discharged from the landfill. Buildup or mounding of leachate levels within the landfill shall be prevented by the leachate extraction as necessary. The depth of leachate shall be kept at levels sufficient to prevent migration of leachate from the landfill.
7. The Discharger shall not excavate within or reconfigure any waste management unit without prior Water Board approval.
8. The Discharger shall not perform any intrusive activities on the landfill surface that have the potential to negatively affect the integrity and proper function of the landfill cap required by this Order, such as digging, trenching, or drilling without prior Water Board approval.
9. The Discharger shall not disc the landfill cap required by this Order. Alternate methods of controlling vegetative growth, which do not affect the integrity of the landfill cap, shall be utilized.
10. Activities associated with any subsurface investigation and cleanup that will cause significant adverse migration of pollutants are prohibited.
11. For landfill closure construction activities, the Discharger is required to apply for, or maintain existing, coverage under the appropriate State Board Storm Water NPDES General Permit.

B. PROTECTION OR GROUNDWATER AND SURFACE WATER

1. The Discharger, or any future owner or operator of the landfill, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:

a. *Surface Waters:*

- (1) Floating, suspended, or deposited macroscopic particulate matter or foam
- (2) Bottom deposits or aquatic growths
- (3) Alteration of temperature, turbidity, or apparent color beyond natural background levels
- (4) Visible, floating, suspended, or deposited oil or other products of petroleum origin
- (5) Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations

b. *Groundwater:*

- (1) Further degradation of groundwater quality
- (2) Increasing the lateral or vertical extent of existing groundwater impacts

C. SPECIFICATIONS

1. All reports submitted pursuant to this Order shall be prepared under the supervision of and signed by a California certified registered civil engineer, professional geologist, or certified engineering geologist.
2. The site shall be protected from any washout or erosion of wastes or cover material and from inundation that could occur as a result of a 100-year, 24-hour precipitation event, or as the result of flooding with a return frequency of 100 years.
3. Internal site drainage from surface sources shall not contact or percolate through the wastes during the life of the site.
4. The existing containment, final constructed drainage, and monitoring systems at the facility shall be maintained as long as the waste poses a threat to water quality.
5. The Discharger shall assure that the landfill and associated structures can withstand conditions generated during the maximum probable earthquake such that human health, property, and the environment are protected.
6. Exterior surfaces of the landfill must be maintained to promote lateral run off and drainage of precipitation away from the landfill without eroding the landfill cover or causing ponding.
7. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water.
8. A minimum of two permanent surveyed monuments near the landfill shall be used to locate and monitor landfill facilities and potential settlement throughout the operation and post-closure maintenance period. Survey data shall be provided by a licensed land surveyor or registered civil engineer.

9. The Discharger shall maintain its waste management units so as to prevent a statistically significant increase in water quality parameters at points of compliance as provided in 27CCR, Section 20420.
10. In order to assure that leachate does not overflow the containment "bowl" in Parcel 2 as described in Finding 17 of this Order, the Discharger shall maintain leachate levels within Parcel 2, as measured in new Leachate Monitoring Well LW-2, to no more than 10 feet above the historic high leachate level of 393 feet MSL.
11. Concentrations of VOCs in groundwater monitoring wells shall not increase in any two consecutive monitoring events. If concentrations increase in two consecutive monitoring events, the discharger shall provide the Water Board an update of the Corrective Action Evaluation Report acceptable to the Executive Officer.

D. PROVISIONS

1. **Leachate Monitoring Well Design Report**

DUE DATE: May 15, 2008

The Discharger shall submit a leachate well design report, acceptable to the Executive Officer, for replacement well LW-6.

2. **Leachate Monitoring Well Installation**

DUE DATE: August 15, 2008

The Discharger shall submit a well completion report, acceptable to the Executive Officer, for installation of well LW-6 following the approved design report in D.1.

Final Grading Plan

DUE DATE: June 15, 2008

The Discharger shall submit a Final Grading Plan, approved by the Town of Colma, acceptable to the Executive Officer. If the Discharger is unable to comply with this schedule, the reasons for non-compliance shall be provided to the Executive Officer prior to the compliance date.

3. **Implement Final Grading Plan and Landfill Capping**

DUE DATE: July 15, 2008

The Discharger is required to commence construction activities for grading and capping in accordance with the specified time schedule. Documentation of the specific activities related to commencing construction (e.g., stockpiling raw materials) shall be provided to the Executive Officer.

5. **Status Report on Final Grading and Capping Plan Implementation**

DUE DATE: October 15, 2008 and June 15, 2009

The Discharger shall file status reports with the Water Board that provides construction status of the Final Grading and Capping Plan prior to the 2008/2009 wet season. The report shall include a description of additional storm water Best Management Practices supplemental to those implemented under the State Board's Construction Activity Storm Water NPDES General Permit.

6. **Complete Final Site Grading and Capping**

DUE DATE: October 15, 2009

The Discharger shall document the completion of all final grading and capping construction and site stabilization activities in a report acceptable to the Executive Officer.

7. **Five-Year Review Report:**

DUE DATE: April 1, 2013

The Discharger shall file a five-year review report in order to document the effectiveness of the approved monitored natural attenuation plan contained in the Discharger's Corrective Action Evaluation Workplan dated March 2007. The five-year review report shall include the following:

- a. A summary and evaluation of groundwater elevation data and a discussion of hydraulic conditions at and in the vicinity of the landfill;
- b. A summary and evaluation of groundwater sampling data collected for the Landfill which includes delineation of the extent of impacts of constituents of concern and discussion, if applicable, of trends in the sampling data;
- c. An overall assessment of investigation data and an evaluation of potential data gaps; and
- d. Recommendations for either additional investigation or corrective action.

8. **Lysimeters and Leachate Monitoring Wells Destruction**

DUE DATE: August 15, 2008

The Discharger shall complete the destruction of the previously used lysimeters (US-1 thru US-5) and non-functioning leachate monitoring wells (LW-1 thru LW-5) and provide a completion report to the Water Board.

9. **Annual Monitoring Reports**

DUE DATE: January 31 of each Year

The Discharger shall file annual self-monitoring reports each year according to the attached Self-Monitoring and Reporting Program, as may be amended by the Executive Officer.

10. Self-Monitoring Program: The Discharger shall comply with the Self-Monitoring Program (SMP) attached to this Order (Part A and Part B) and as may be amended by the Executive Officer. The purpose of the SMP is to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the facility, or any unreasonable impairment of beneficial uses associated with the facility's past or present activities.
11. Operation and Maintenance: The Discharger shall, at all times, properly operate and maintain all facilities, devices or designated features and systems of treatment and/or control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or similar auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order (CWC Section 13263(f)).
12. The Discharger shall produce and submit an iso-settlement map depicting the elevation of the final cover, at least every five years after completing closure of the landfill, in accordance with CCR Title 27, Section 21090(e)(2). The iso-settlement map shall show all areas where differential settlement has occurred since the submittal of the previous map and shall highlight areas of repeated or severe settlement in accordance with CCR Title 27 Section 21090(f)(4).
13. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order. In addition to direct requirements of this Order, the Discharger shall comply with any additional interim requirements the Executive Officer specifies that apply a requirement, under Title 27, that is not yet addressed in this Order.
14. Availability: A copy of these waste discharge requirements shall be maintained by the Discharger and shall be made available to all employees and contractors performing work (maintenance, monitoring, repair, construction, etc.) at the landfill.
15. If the results of leachate monitoring for Parcel 2 at leachate Monitoring Well LW-6 show two consecutive levels greater than 10 feet above historic high leachate levels (i.e., 10 feet above 393 feet MSL) as required in Specification 11, the Discharger shall submit a plan, to the satisfaction of the Executive Officer, that contains appropriate actions to lower leachate levels to below 393 feet MSL.
16. Waste management unit stewardship shall continue following closure according to a Post-Closure Operation and Maintenance Plan approved by the Executive Officer.
17. All monitoring wells shall be constructed in a manner that maintains the integrity of the drill hole, prevents cross-contamination of saturated zones, and produces representative groundwater samples from discrete zones within the groundwater zone each well is

intended to monitor. All investigation and monitoring points shall be backfilled or decommissioned according to applicable federal, state, and local requirements.

18. The Discharger shall install any reasonable additional monitoring devices required to fulfill the terms of any future Discharge Monitoring Program issued, and as may be amended in the future, by the Executive Officer.
19. All borings shall be logged during drilling under the direct supervision of a registered geologist whose signature appears on the corresponding well log. Logs of monitoring wells shall be filed with the Department of Water Resources. All information used to construct the wells shall be submitted to the Water Board upon completion of the wells.
20. All monitoring instruments and devices used by the Discharger to fulfill the approved self-monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
21. All analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136) promulgated by U.S. EPA.
22. The groundwater sampling and analysis program shall ensure that groundwater quality data are representative of the groundwater in the area that is monitored.
23. The Discharger shall notify the Water Board immediately of any failure that threatens the integrity of any containment and control facilities, structures, or devices. Any such failure shall be promptly corrected after approval of the method and schedule by the Executive Officer.
24. All closure activities shall conform to the most recently approved closure plan and be in compliance with all applicable federal, state, and local regulations.
25. Reporting of Hazardous Substance Release: If any hazardous substance is discharged in or on any waters of the State, or discharged where it is, or probably will be, discharged in or on any waters of the State, the Discharger shall report such discharge to the Water Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00). A written report shall be filed with the Water Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.
26. The Water Board considers the property owner and site operator to have continuing responsibility for correcting any problems that arise in the future as a result of waste discharge or related operations or site use.
27. Entry and Inspection: Upon presentation of credentials, the Discharger shall permit the Water Board or its authorized representative:
 - a. Immediate entry upon the premises on which wastes are located or in which any required records are kept;
 - b. Access to copy any records required under the terms and conditions of this Order;

- c. Inspection of any treatment equipment, monitoring equipment, or monitoring methods required by this Order or by any other California State Agency; and
 - d. Sampling of any discharge, leachate, landfill gas, surface water or groundwater governed by this Order.
28. Vested Rights: This order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under Federal, State or local laws, nor do they create a vested right for the Discharger to continue the waste discharge [CWC Section 13263(g)].
29. Revision: This Order is subject to Water Board review and updating, as necessary, to comply with changing State or Federal laws, regulations, policies, or guidelines; changes in the Basin Plan; or changes in the discharge characteristics [CWC Section 13263].
30. Duty to Comply: The Discharger shall comply immediately, or as prescribed by the time schedules presented above, with all Prohibitions, Specifications and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these waste discharge requirements. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary penalties, or in modification or revocation of these waste discharge requirements by the Water Board. (CWC Section 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, and 13350).
31. Severability: Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.
32. Endangerment of Health and Environment: The Discharger shall report any noncompliance that may endanger public health or the environment. Any such information shall be provided orally to the Executive Officer within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours [CWC Sections 13263 and 13267].
33. The Discharger shall immediately notify the Water Board of any changes in site conditions that could cause a contaminant release and/or impair integrity of the landfill, the landfill cap, and/or associated structures, such as structures used for containment and drainage control. Changes in site conditions includes: flooding, ponding, settlement, equipment failure, slope failure, exposure of waste, and deleterious land use activities. The Discharger shall immediately mitigate or make repairs if there is a change in site

conditions and shall prepare and submit a technical report, acceptable to the Executive Officer, documenting the corrective action.

34. Document Distribution: Copies of all formal written correspondence, reports, and documents pertaining to compliance with this Order shall be provided to the following agencies in addition to the Water Board:
 - a. Town of Colma
 - b. San Mateo County Department of Environmental Health
 - c. California Integrated Waste Management Board
35. The Water Board considers the property owner and site operator to have a continuing responsibility for correcting any problems within their reasonable control which arise in the future as a result of this Order. In the event of any change in control/operator or ownership of land or parcel of land, or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall 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.
36. Change in Ownership: The Discharger must notify the Executive Officer, in writing at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new discharger. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the Discharger and the new discharger. This agreement shall include an acknowledgment that the Discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. [CWC Sections 13267 and 13263].
37. Requests for Technical Reports: All technical and monitoring reports required by this Order are requested pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to Section 13268 of the California Water Code.
38. Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Water Board, it shall promptly submit such facts or information (CWC Sections 13260 and 13267).
39. Electronic Reporting Format: In addition to print submittals, all reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Water Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word[®]) and/or by scanning printed text, figures and tables. Upon request by Water Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel[®] or

similar spreadsheet format. This format facilitates data computations and/or plotting that Water Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review.

All electronic files, whether in PDF or spreadsheet format, shall be submitted via the Water Board's file transfer protocol (FTP) site, email (only if the file size is less than 3 MB) or on CD. CD submittals may be included with the print report. Email notification shall be provided to Water Board staff whenever a file is uploaded to the Water Board's FTP site.

40. Rescission of Existing Order: This Order supersedes and rescinds Order No. 97-009.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on **DATE OF BOARD ADOPTION.**

Bruce H. Wolfe
Executive Officer

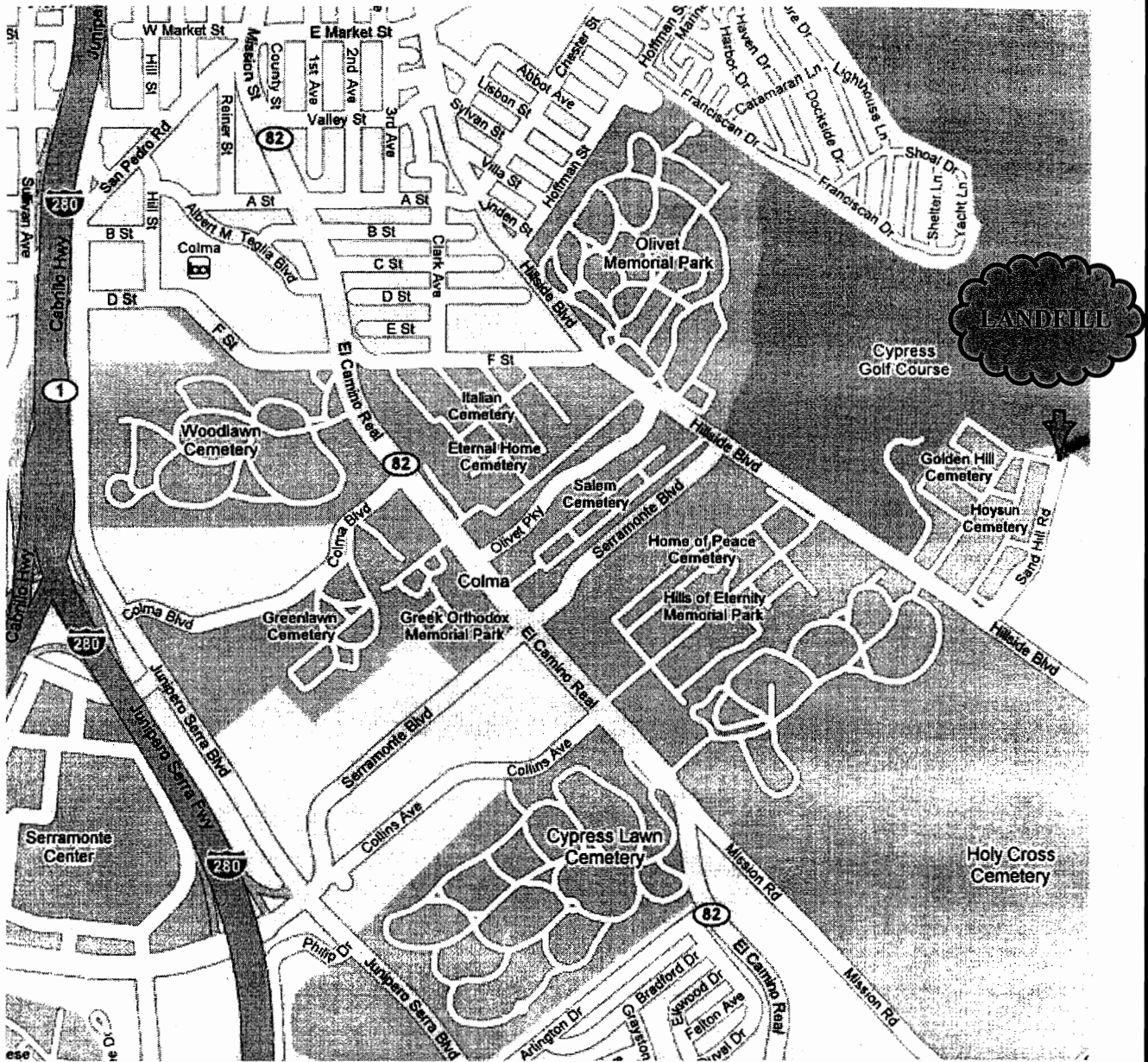
Attachments:

Figure 1: Site Location Map

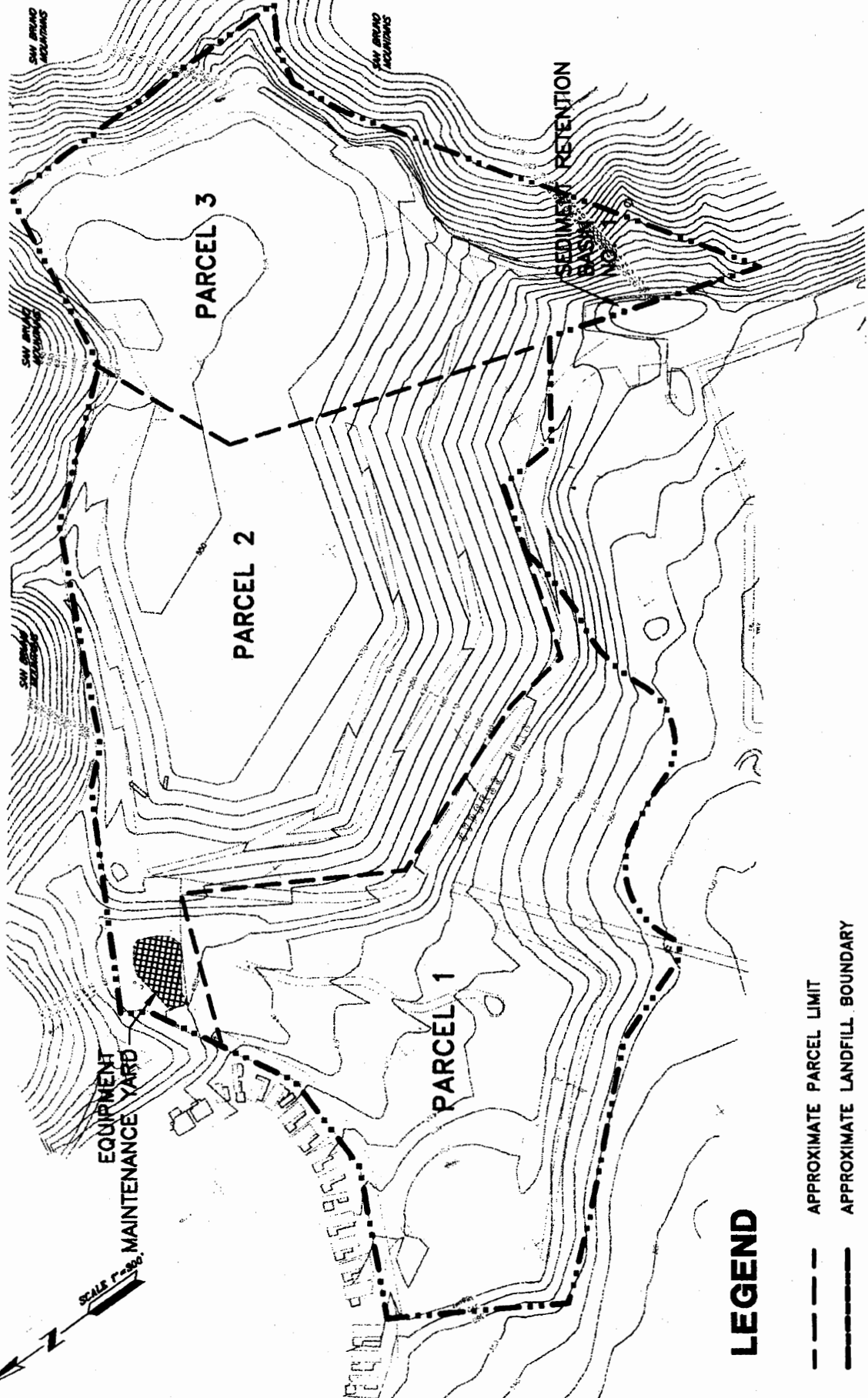
Figure 2: Site Plan

Self-Monitoring Program

Figure 1 - Site Location Map



**Hillside Class III Disposal Site
1 Sand Hill Road
Colma, CA 94014
TEL / FAX: 650.755.6978**



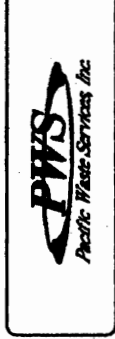
LEGEND

- - - - - APPROXIMATE PARCEL LIMIT
- — — — — APPROXIMATE LANDFILL BOUNDARY

PROJECT NO. 2
 SHEET NO. 100-1.1

COLMA
 HILLSIDE LANDFILL
 COLMA, CALIFORNIA
 SITE PLAN

DATE	BY	DESCRIPTION



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

REVISED SELF-MONITORING AND REPORTING PROGRAM

FOR

**HILLSIDE LANDFILL
CLASS III SOLID WASTE DISPOSAL SITE**

SAN MATEO COUNTY

ORDER NO. *****

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Board's Resolution No. 73-16. This Discharge Monitoring Program is issued in accordance with Title 27 of the California Code of Regulations.

The principal purposes of a self-monitoring and reporting program are: (1) to document compliance with Waste Discharge Requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the discharger in complying with the requirements of Title 27CCR.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA or Standard Methods and in accordance with a sampling and analysis plan approved by the Board.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface water which actually or potentially receives surface or groundwater which pass over, through, or under waste materials or contaminated soils. In this case the groundwater beneath and adjacent to the landfill areas, and the surface runoff from the site are considered receiving waters.
3. Standard observations, at the time of monitoring or in the event of unanticipated discharge, refer to:
 - a. Receiving Waters
 - 1) Floating and suspended materials of waste origin.
 - 2) Discoloration and turbidity: description of color, and size of affected area.
 - 3) Evidence of beneficial use: presence of water associated wildlife.
 - 4) Flow rate.
 - 5) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.

b. Perimeter of the waste management unit.

- 1) Evidence of liquid leaving or entering the waste management unit, estimated size of affected area and flow rate. (Show affected area on map)
- 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 3) Evidence of erosion and/or daylighted waste.

c. The waste management unit.

- 1) Evidence of ponded water at any point on the waste management facility.
- 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 3) Evidence of erosion and/or daylighted waste.
- 4) Standard Analysis (SA) and measurements include:
 - a) pH (EPA Method 9040)
 - b) Electrical Conductivity (EC) (EPA Method 9050)
 - c) Total Dissolved Solids (TDS) (EPA Method 160.1)
 - d) Total Phenols
 - e) Chloride (EPA Method 300)
 - f) Total Organic Carbon
 - g) Nitrate Nitrogen (EPA Method 300)
 - h) Total Kjeldahl Nitrogen
 - i) Water elevation in feet above mean sea level
 - j) Settleable Solids ml/l/hr
 - k) sulfate (EPA Method 300)
 - l) 47 VOCs (EPA Method 8260)

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The Discharger is required to perform sampling, analyses, and observations in groundwater, surface water, and leachate per the general requirements specified in Section 20415 of Title 27.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Water Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

5. Calculation of results.
6. Results of analyses, and laboratory reporting limits for each analysis.

F. REPORTS TO BE FILED WITH THE WATER BOARD

1. Semi-annual self monitoring reports shall be filed on July 31 and January 31 of each year.

The semi-annual self-monitoring reports shall be comprised of at least the following:

a. Letter of Transmittal

A letter transmitting the essential points in each report should accompany each submittal. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Compliance Evaluation Summary

Each self-monitoring report shall include a compliance evaluation summary. The summary shall contain:

1) Groundwater flow and direction: A description and graphic presentation of the velocity and direction of groundwater flow under/around the waste management unit, based upon the past and present water level elevations and pertinent visual observations. The method and time of water level measurement, the type of pump used for purging, pump placement in the well; method of purging, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, well recovery time, and method of disposing of the purge water.

2) Groundwater Quality: A written discussion of the groundwater analyses indicating any change in the quality of the groundwater. Type of sampling pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.

c. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the Waste Discharge Requirements and Title 27 CCR.

d. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

e. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and a duly authorized representative of the laboratory shall sign all reports of such work submitted to the Water Board. For laboratory statements:

1) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA Methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.

2) In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) Information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical reporting limits; the recovery rates; an explanation for any recovery rate that is outside laboratory control limits; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

f. An evaluation of the effectiveness of the leachate detection/collection, monitoring, control, and removal facilities, which includes an evaluation of leachate buildup within the disposal units, a summary of leachate volumes removed from the units, and a discussion of the leachate disposal/treatment methods utilized.

g. An evaluation of the effectiveness of the groundwater underdrain detection, monitoring, control, and removal facilities, which includes an evaluation of fluid buildup within this system, a summary of fluid volumes removed, and a discussion of the disposal/treatment methods utilized.

h. A summary and certification of completion of all standard observations for the waste management unit, the perimeter of the waste management unit, and the receiving waters.

i. Tabular and graphical summaries of the monitoring data obtained during the previous year; the report should be accompanied by a compact disk, MS-EXCEL format, tabulating the year's data.

2. The Annual Monitoring Report shall be submitted to the Board no later than January 31 covering the previous monitoring year. The report shall include, but is not limited to the following:

a. A Graphical Presentation of Analytical Data per Title 27CCR. For each Monitoring Point, submit in graphical format the laboratory analytical data for all samples

taken. Each such graph shall plot the concentration of one or more constituents over time for a given Monitoring Point, at a scale appropriate to show trends or variations in water quality. All graphs for a given constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. On the basis of any aberrations noted in the plotted data, the Executive Officer may direct the Discharger to carry out a preliminary investigation, the results of which will determine whether or not a release is indicated or is increasing;

- b. A tabular summary of all the monitoring data obtained during the previous year;
- c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the Waste Discharge Requirements and Title 27CCR;
- d. A written summary of the groundwater analysis from the previous year indicating any change in the quality of the groundwater;
- e. An evaluation of the effectiveness of the leachate monitoring/control facilities;
- f. An evaluation of the approved monitored natural attenuation remedy for impacted groundwater including an analysis of the effectiveness of the groundwater monitoring program.

G. CONTINGENCY REPORTING

A report shall be made by telephone of any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the Board within five days thereafter. This report shall contain the following information:

- a. map showing the location(s) of discharge;
- b. the approximate flow rate;
- c. the nature of effects; i.e. all pertinent observations and analyses; and
- d. corrective measures underway or proposed.

H. WELL LOGS

A boring log and a monitoring well construction log shall be submitted for each sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted within 45 days after well installation.

PART B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. Facilities Monitoring- Observe quarterly and report annually

The Discharger shall inspect all facilities to ensure proper and safe operation. The facilities to be monitored shall include, but not be limited to:

1. Leachate Collection and Removal Systems;
2. Surface water retention basins;
3. Landfill subdrain/groundwater removal system;
4. Interior landfill drainage/berm system;
5. Leak detection system (where applicable);
6. Leachate management facilities and secondary containment; and
7. All other surface water runoff containment structures.

B. Photo Documentation of Facilities Monitoring- Observe quarterly and report annually

The Discharger shall provide photo-documentation of conditions at locations that include, but are not limited to the landfill facilities listed in Part A above. Locations from which photographs are taken should be permanent stations such that they can be used for successive reports.

C. On-Site Observations

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
V-1 thru V-'n'	Located on the waste disposal area as delineated by a 600 foot grid network.	Standard observations for the waste management unit.	Monthly observations, Report semi-annually
P-1 thru P-'n'	Located at equidistant intervals not exceeding 1000 feet around the perimeter of the waste management unit.	Standard observations for the perimeter.	Monthly observations, Report semi-annually

A map showing visual and perimeter compliance points (V and P stations) shall be submitted by the Discharger along with the semi-annual monitoring report.

D. Seepage Monitoring

Seepage monitoring stations include any point or points at which seepage is found occurring from the disposal area. The landfill perimeter shall be monitored according to the following: with the results reported quarterly.

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
S-1 thru S-'n'	At any point(s) at which seepage is found occurring from the disposal area	Standard observation for the perimeter and standard analysis other than "I" (perform analysis once per seep)	Daily until remedial action is taken and seepage ceases.

2. DESCRIPTION OF SAMPLING LOCATIONS AND SCHEDULE OF MONITORING

A. Surface Water Monitoring

The Discharger shall monitor the water that is discharged from the sedimentation basin outfall (SB-1). SB-1 is the sedimentation basin outfall located in the northeast portion of the landfill, adjacent to the entrance road.

Surface water station SB-1 shall be sampled monthly if water is being discharged within two hours of the beginning of the first storm or as soon as sufficient water is available for sampling from the outfall of the sedimentation basin. The sampling event results shall be reported semi-annually. SB-1 shall be sampled according to Table 1 with the sampling frequency exception noted above.

Surface water station SB-2 is the storm water discharge point of the Maintenance Yard and shall be sampled monthly if water is being discharged within two hours of the beginning of the a qualified rainfall event. The sampling results should be reported semi-annually. SB-2 shall be sampled according to Table 1, only for a qualified rainfall event.

B. Groundwater Monitoring

Groundwater samples and water level measurements are to be collected semi-annually from groundwater wells E-2, E-3, E-8, E-9A, E-9B, E-10, E-11, E-12A, E-12B, E-13, E-14A, E-14B, E-15A, E-15B, E-16A, and E-16B and are to be analyzed according to Table 1.

Groundwater wells E-9A, E-9B, E-10, E-11, E-12A, and E-12B monitor downgradient groundwater below Parcel 1. Groundwater well E-2 is located just west of the Sedimentation Basin. Groundwater well E-8 is located at the southern border of the landfill, and monitors downgradient groundwater.

NOTE: Formerly monitored Groundwater wells: E-1, E-3, E-4, E-5, E-6, E-7, G-1, and SU-1 have been abandoned and properly closed.

C. QA/QC Groundwater Sample Monitoring

The Discharger shall collect duplicate, field blank and equipment blank groundwater samples for each monitoring event. The duplicate sample shall be monitored for pH, chloride, TDS, nitrate, sulfate, and VOCs; the field and equipment blank for VOCs by EPA Method 8260; and, the trip blank for VOCs by EPA Method 8240 or 8260.

D. Leachate Monitoring

The following leachate collection sump L-1 shall be monitored as indicated below.

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
L-1	Leachate control facilities including sump	Volume of leachate built up at the base of landfill and volume removed	Leachate will be collected from sump L-1 by a dedicated automated leachate pump.

The leachate sump shall be pumped to the lowest possible level daily, and will be verified to have been pumped dry weekly. The leachate collection and removal systems shall be inspected weekly.

Leachate levels shall be monitored on a monthly basis in Leachate Monitoring Well LW-6.

Leachate in Well LW-6 shall be analyzed for chemical constituents on a semi-annual basis according to Table 1.

For the leachate monitoring sump, the Discharger shall include in the semi-annual report:

- a) A measurement of the estimated volume of leachate collected, and method of leachate disposal.
- b) Leachate shall be analyzed for chemical constituents according to Table 1

E. Groundwater Collection Sump

Groundwater collection sump GW-1 is a sump for a dendritic groundwater collection system which was installed underneath Module 2, Module 3 and Module 4. The sump is capable of being manually pumped if the analytical data indicates a release has occurred. GW-1 is to be sampled and analyzed semi-annually according to Table 1. The volume of groundwater recovered from the groundwater sump GW-1 shall be recorded monthly.

The Discharger shall report a measurement of the estimated monthly volume of groundwater recovered, and analytical results of the groundwater quality in the semi-annual report.

Attachments: Table 1
Hillside Landfill Monitoring Station Location Map

TABLE 1

**SELF-MONITORING AND REPORTING PROGRAM –
LIST OF ANALYTICAL PARAMETERS FOR THE HILLSIDE LANDFILL**

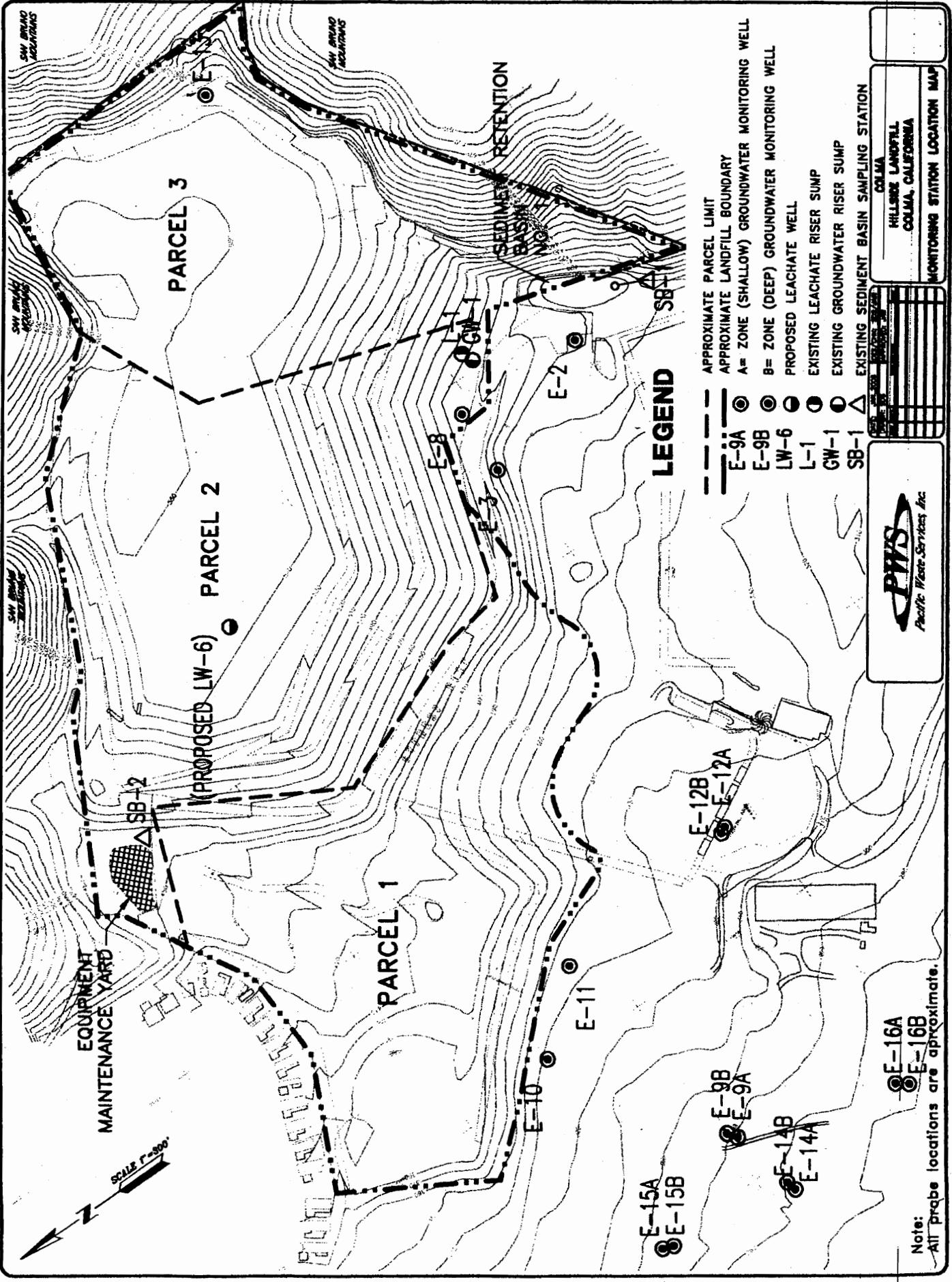
2.A. Surface Water Monitoring: stations SB-1 and SB-2

2.B. Groundwater Monitoring: wells and sumps E-2, E-3, E-8, E-9A, E-9B, E-10, E-11, E-12A, E-12B, E-13, E-14A, E-14B, E-15A, E-15B, E-16A and E-16B

2.D. Leachate Monitoring: collection sump L-1, and well LW-6

2.E. Groundwater Collection Sump: GW-1

PARAMETERS	EPA METHOD	SAMPLING FREQUENCY
pH	9040	Semi-annually
Electrical Conductivity	9050	"
Chloride	300	"
Total Organic Carbon	4152	"
TDS	180.1	"
Kjeldahl Nitrogen	351.2	"
Nitrate as nitrogen (NO3-N)	353.2	"
Total Phenols	420.1	"
Sulfur (SO4)	375.4	"
VOCs	8260	"
Calcium	6010	"
Magnesium	6010	"
Sodium	8010	"
Iron	6010	"



LEGEND

- APPROXIMATE PARCEL LIMIT
- - - APPROXIMATE LANDFILL BOUNDARY
- ⊙ E-9A
- ⊙ E-9B
- ⊙ LW-6
- ⊙ L-1
- ⊙ GW-1
- ⊙ SB-1
- ⊙ B= ZONE (DEEP) GROUNDWATER MONITORING WELL
- ⊙ A= ZONE (SHALLOW) GROUNDWATER MONITORING WELL
- ⊙ PROPOSED LEACHATE WELL
- ⊙ EXISTING LEACHATE WELL
- ⊙ EXISTING GROUNDWATER RISER SUMP
- ⊙ EXISTING SEDIMENT BASIN SAMPLING STATION

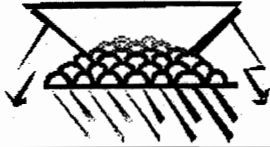


HILLSIDE LANDFILL
COLMA, CALIFORNIA
MONITORING STATION LOCATION MAP

E-16A
E-16B

Note:
All probe locations are approximate.

APPENDIX B
CORRESPONDENCE



Steven Bond and Associates, Inc.

CONSULTING GEOLOGISTS, GROUNDWATER AND WATER QUALITY EXPERTS

P.O. Box 7023, Santa Cruz, CA 95061 v:(831) 458-1662, f:(831) 536-1021 bondassociates@mc.com

14 March 2008

Mr. John Muller, Chair

San Francisco Bay Regional Water Quality Control Board

Mr. Vic Pal

submitted by email to vpal@waterboards.ca.gov

1515 Clay St. Suite 1400

Oakland, CA 94612

Subject: March 2008 Tentative Order, Waste Discharge
Requirements for Hillside Landfill, Colma, San Mateo
County

I am writing to comment on the proposed Order "Tentative Order – Waste Discharge Requirements for the Hillside Landfill, Colma, San Mateo County" on behalf of San Bruno Mountain Watch, of San Mateo County.

I have reviewed the subject Order and the associated technical reports, as well as other related documents and maps including the monitoring data of the past ten years. I am a professional Geologist licensed in California, a Certified Engineering Geologist, and a Certified Hydrogeologist. In the past two years I've conducted several technical inspections of the subject facility. My resume' is attached.

I have focused my comments on the issues associated with groundwater quality and groundwater monitoring for the Hillside Landfill. I have attached six figures and a table to illustrate the discussion in the text. These attachments are integral

components of this letter report, and this report is not complete absent these figures.

The background facts are:

- (1) Prior to the construction of the Hillside landfill, the topography of the landfill site was defined by two creek valleys descending from San Bruno Mountain separated by a ridge trending down gradient to the west-southwest. (Refer to Figures 2, 3, and 4)
 - (2) The creek valleys were in-filled (buried) presumably to facilitate the construction of the landfill.
 - (3) The origin of the materials used to bury the valleys are unknown with any certainty. They are likely from local cut and cover activities as well as miscellaneous debris.
 - (4) Groundwater flow has been reported by the Discharger, in past years, as moving from northeast to southwest in two layers (zones: A-zone and B-zone). More recently, with the inclusion of six new wells installed as part of a consent decree, the Discharger reports the groundwater moving to the south. (Refer to Figure 1)
 - (5) The facility groundwater monitoring system is comprised of a network of wells which are completed in natural geologic materials, and completed in fill material. The wells are randomly located within the boundaries of the the buried valleys as well as outside the valleys on the ridges bordering and separating the valleys.
 - (6) Although the Discharger has submitted previous studies displaying the landfill and the 1956 USGS topographic contours, the Discharger has not ever addressed these buried features.
 - (7) The six new wells referred to in (5) are not included in the tentative Order's Self Monitoring and Reporting Program.
 - (8) Item 11 and item 16 in the Tentative Order states that groundwater occurs in the Colma Formation, a local natural geologic body, and that the Discharger monitors groundwater in the two quasi layers zone A and zone B within the Colma
-

Formation.

- (9) The Order makes no mention of monitoring wells being placed or screened within fill material. The Order incorrectly attributes placement of wells within the Colma Formation where these wells are screened within fill material; examples: e-9a, e-10, as well as e-11 and e-12a. Wells e-11 and e-12a appear to be screen across the Colma Formation and fill material.

I find a point of contention regarding the path of groundwater flow. The groundwater at the facility is not adequately monitored due to inaccurately defined hydrostratigraphy. Although the Order assumes that the geologic structure is a quasi layer-cake system referred to as the A-zone and the B-zone, (Order items 11, 12, 14, and 16). If accurate, the stratigraphy is much more complex, it is dissected by two creek valleys, two canyons which have since been buried and the landfill constructed atop the fill materials. Consequently, the two buried creek valleys influence the the subsurface movement of groundwater as primary zones of preferential flow.

The subsurface "porous media" is more permeable near the contact of these in-filled valleys, especially along the base of the natural channels where coarse materials such as boulders and gravels naturally accumulate in hilly and mountainous drainages. Accordingly, groundwater flows down through these permeable sections causing increased groundwater flow towards these features. Therefore, groundwater is locally drawn to the buried channels. Using the groundwater elevation data collected historically by the Discharger, and consistent with that data, groundwater contours can be drawn to show preferential groundwater flow in the buried valleys. (Refer to Figure 3 and Figure 4).

Of the four wells in contact with the base or banks of the buried valleys (e-9a, e-10, e-11, and e-12a), three have exhibited groundwater pollution. Wells screened in the Colma Formation where ridges once were, and wells screened in the fill material

well above the bottoms of the buried valleys are not in the flow path of the pollution identified near e-11 and are either dry, or do not show evidence of pollutants.

Discussion of attached figures

1. Figure 1 is two examples of groundwater flow contour maps as reported by Hillside Landfill operators. Groundwater flow has been reported by the landfill operator, in past years, as moving from northeast to southwest in two layers (zones: A-zone and B-zone). More recently, with the inclusion of six new wells installed as part of a consent decree, the operator reports the groundwater moving to the south.
 2. Figure 2,a, depicts the facility ground surface map overlaid atop an aerial photograph of the facility and region, Figure 2,b. shows the same facility map overlaid atop the USGS topographic map with 1956 elevation contours, and Figure 2,c shows the facility translucent atop the USGS map with the now buried valleys delineated in blue dashed lines. Even though the 1956 USGS maps have been incorporated into previous studies submitted by the Discharger, they have failed to note these features let alone address them.
 3. Figure 3 establishes the relationship between the landfill parcel and sample points map with the facility topographic map, the USGS topographic map, and introduces groundwater elevation contours based on recent groundwater measurement reported by the Discharger (Table 1) that also are consistent with preferential flow to and through the buried valleys.
 4. Figure 4 clarifies the relationship between the facility monitoring wells, the 1956 topography, the traces of the
-

buried creek valleys and groundwater contours consistent with both the Dischargers data and preferential flow to the buried valleys.

5. Figure 5 is an oblique view of the Hillside Landfill and Cypress Golf Course depicting the 1956 topography overlaid by current aerial photography. This figure illustrates the relationship between well locations with pre-landfill ground surfaces and with present day ground surfaces.
 - A. Figure 6 is two cross-sections showing the extent and depth the buried canyon fill-materials relative to the wells along the cross-sections.

CONCLUSIONS

- A. Groundwater flow is influenced by the presence of valleys buried below the Hillside Landfill. Consequently, pollutants discharged into groundwater from the landfill will be likewise influenced.
 - B. Of the four wells in contact with the base or banks of the buried valleys (e-9a, e-10, e-11, and e-12a), three have exhibited groundwater pollution.
 - C. The Order incorrectly characterizes the hydrogeology as quasi layer-cake flow through two layers (zones). The hydrostratigraphy is complicated by the presence of the buried valleys.
 - D. The Order incorrectly attributes well placement and groundwater monitoring wells with fill material as being placed in the Colma Formation.
 - E. The existing network of groundwater monitoring wells is
-

not designed to detect the flow of pollutants in groundwater from the landfill along the preferential flow paths associated with the buried valleys.

- F. The historical groundwater level data is consistent with the interpretation of preferential groundwater flow through the buried valleys.
- G. The six new wells e-14a, 14b, e-15a, e-15b, e-16a, e-16b, are not addressed in the Order and should be included in the monitoring program. These new wells have provided useful and unique flow data which is otherwise not available.
- H. At a minimum, to validate the groundwater monitoring system, two additional monitoring wells must be placed in the flow path of groundwater leading away from the landfill. These wells need to be placed some distance west of the landfill and screened across the bottom of the channel at or near the center of the buried valleys.

Sincerely



Steve Bond PG, CEG, CHG
President, Steven Bond and Associates, Inc.

cc: Ken McIntire, San Bruno Mountain Watch, Brisbane, CA
Chris Sproul, Environmental Advocates, Oakland, CA
Brian Gaffney, Law Offices, San Francisco, CA

FIGURE 1
Examples of Groundwater Level Contour Maps Reported by Hillside Landfill

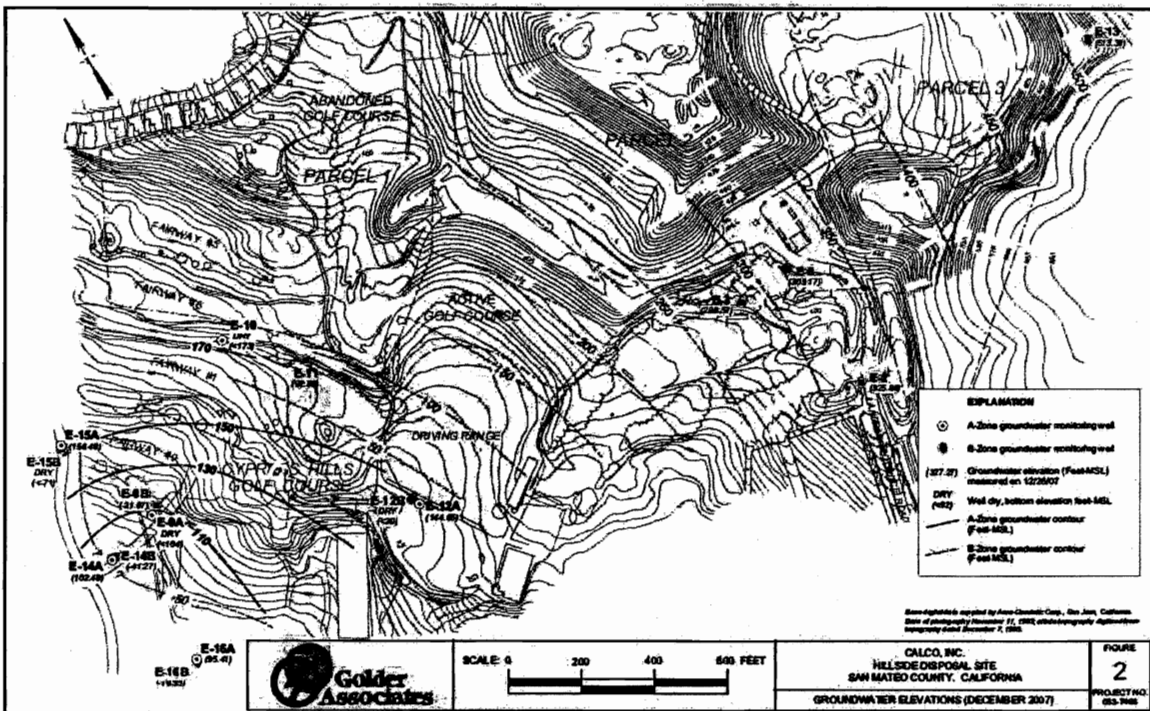
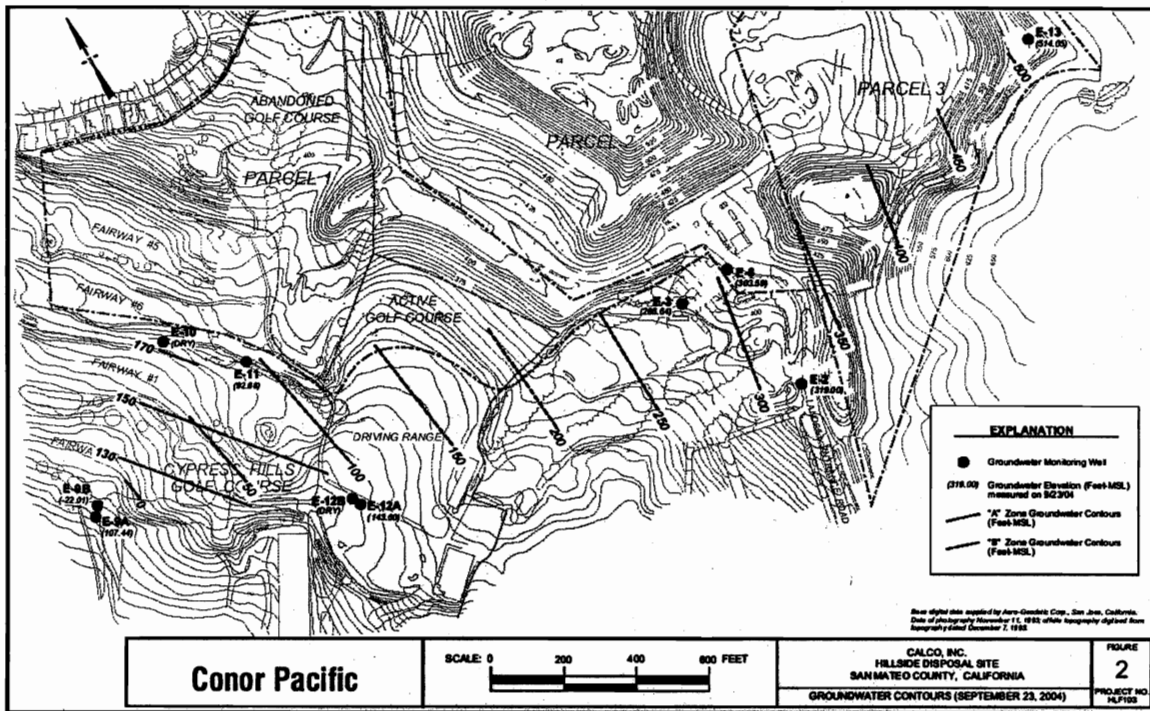
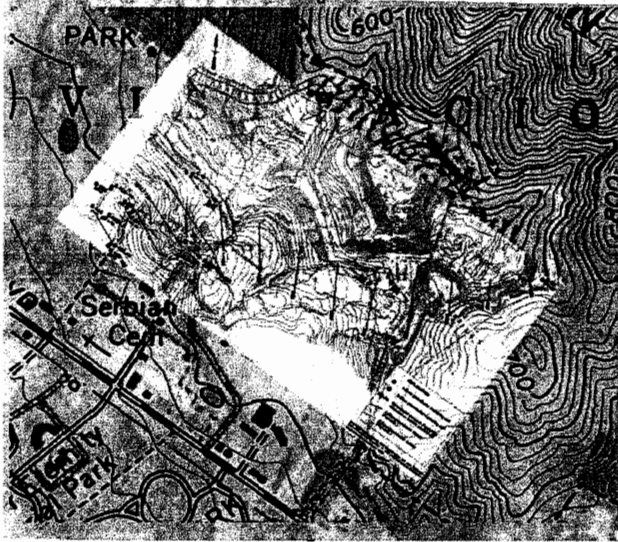


FIGURE 2

2.a



2.b



2.c

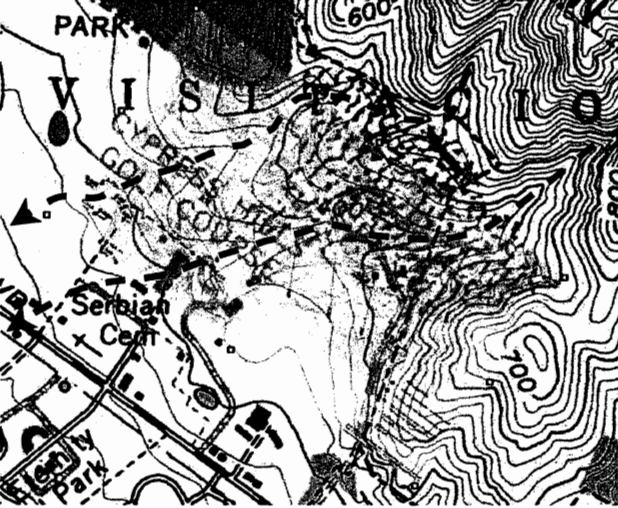


FIGURE 4

4.a



5.a



Hillside Landfill, Colma, Tentative March 2008 WDR's

FIGURE 5



Oblique view of Hillside Landfill and Cypress Golf Course showing 1956 topography over-laid with current aerial photography

FIGURE 6

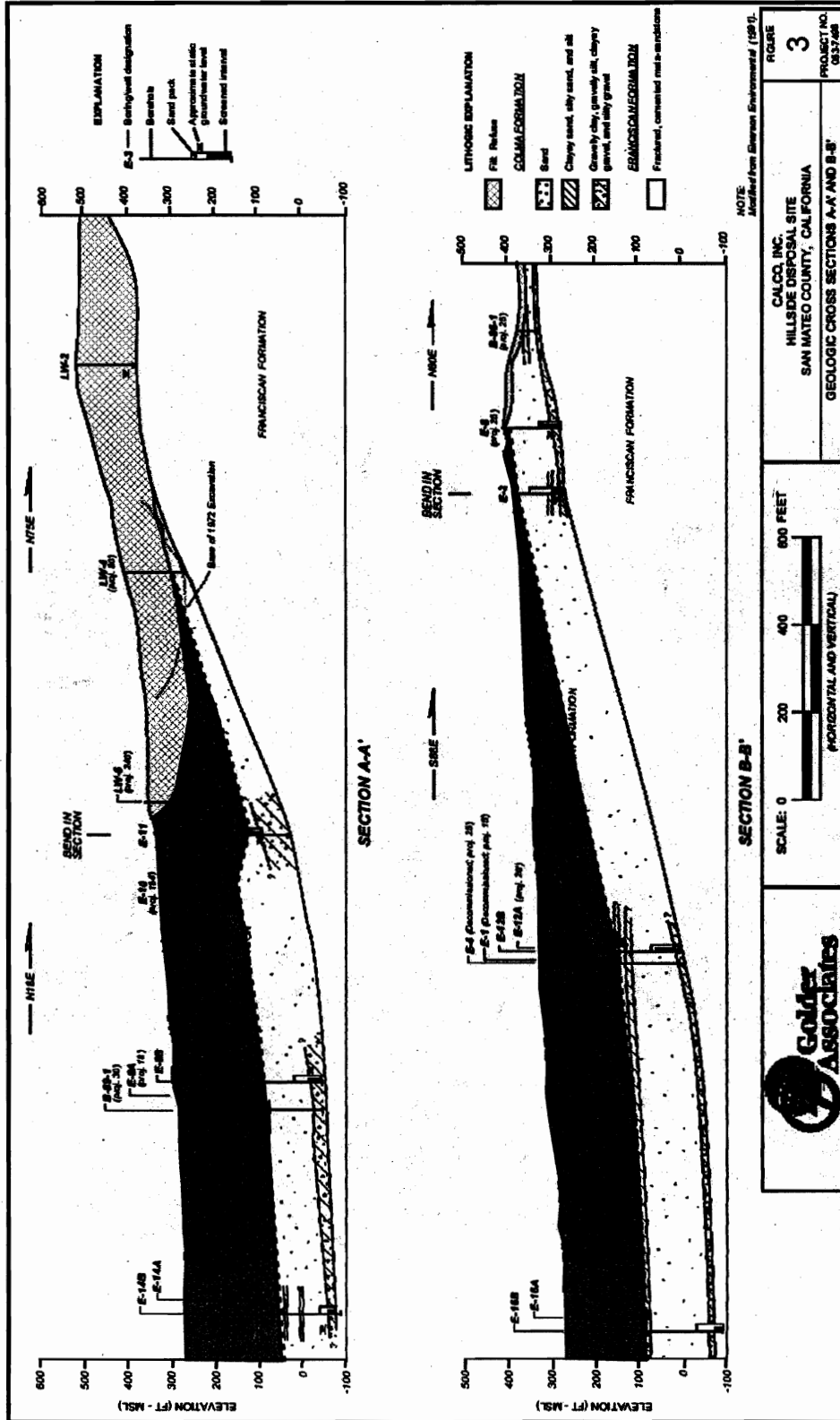


TABLE 1: HILLSIDE LANDFILL, COLMA, SAN MATEO COUNTY

Groundwater Monitoring Data

Report date	Report name	collection date	TOC el msl	BOC el msl	total depth well	boring depth	total depth datum	screen length	screen top	screen bottom	325.93	332.89	322.16	321.84	530	267	267	284	284	268	268
			2	3	8						10	11	12a	12b	13	E-14a	E-14b	E-15a	E-15b	E-16a	E-16b
			102.8	113.7	116.1						123.03	91.89	126.16	19.44	505.5	99	-73	146	-66	83.5	-82
			431999	q32000	q32001						152.9	241	194	382.4	26.5	168	340	138	350	184.5	350
											q32004	q32004	q32004	q32004	q32004	DGWQR	DGWQR	DGWQR	DGWQR	DGWQR	DGWQR
																20	20	20	20	20	20
																148	320	116	329	163	330
																168	340	136	349	183	350
1-Dec-97	1997.03	5-Sep-97	319.4	315.7	315.7						122.38	91.83	146.14	NW	512.56	-	-	-	-	-	-
10-Dec-98	1998.03		324.04	203.66	312.76						179.23	93.69	147.65	NW	516.37	-	-	-	-	-	-
25-Oct-99	1999.03	17-Aug-99	323.64	293.71	310.15						174.41	93.24	149.21	NW	518.42	-	-	-	-	-	-
20-Nov-00	2000.03	16-Aug-00									132.59	92.53	149.35	NW	518.52	-	-	-	-	-	-
16-Sep-01	2001.03	11-Sep-01	324.4	285.7	305.08						NW	93.05	148.03	NW	515.65	-	-	-	-	-	-
10-Dec-02	2002.03	11-Sep-02	324.2	286.54	304.44						122.15	93.28	146.38	19.81	516.22	-	-	-	-	-	-
2-Dec-03	2003.03	9-Sep-03	321.02	287.57	291.32						NW	92.87	144.61	NW	514.72	-	-	-	-	-	-
20-Dec-04	2004.03	22-Sep-04	319	286.64	288.92						NW	92.88	143.6	NW	507.05	-	-	-	-	-	-
28-Feb-06																					
16-Jul-06	2006 Q2 SMP	30-May-06	324.75	289.39	NW																
14-Jul-06	DGWQR *	30-31 May 06			104.09																
31-Oct-06	2006 Q3 SMP	30-Aug-06																			
15-Nov-06	?				104.21																
27-Jan-07	2006 Q4 SMP	5-Dec-06	320.51	289.57	NW																
27-Mar-07	Hillside Eval	5-Dec-06	321.01	289.57	NW																
30-Apr-07	Q1	27-Feb-1 Mar 07	326.19	289.33	290.19																
27-Jul-07	2007 Q2	26-Dec-07	326.41	289.12	289.75																
10-Nov-07	2007 Q3	29-Aug-07	326.77	288.99	289.43																
23-Jan-08	2007 Q4	26-Dec-07	325.43	288.57	288.5																

Underline indicates measurement reported in the SMR as depth to water. And, then is calculated in the spread sheet cell to elevation MSI.
 NR: not reported in the SMR / the SMPs do not report NR either the toc or the depth to water
 * (DGWQR): Downgradient Groundwater Quality Investigation Report, Hillside Disposal Site, Colma, California
 ** (CAE): Corrective Action Evaluation, Hillside Disposal Site, Colma, California, 27 March 2007

February 25, 2008
Project No. 100-1.95

Mr. Vic Pal, Water Resources Control Engineer
California Regional Water Quality Control Board,
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA. 94612

Re: Tentative Waste Discharge Requirements,
Hillside Landfill

Dear Mr. Pal:

I have reviewed the Tentative Waste Discharge Requirements and have the following comments regarding background information, and implementation requirements.

SITE DESCRIPTIONS, 6. Waste Placement, Parcel 1 (page 2). As further information, improved final cover including 5 foot thickness of clay and 5 foot minimum thickness of soil cover was installed in 2000/2002 as additional corrective action measures.

CLOSURE PLANS, 21. (page 8) In the last sentence of this section it describes the final cover layers in general, however it does not include the clay or GCL material under the 60-mil HDPE flexible membrane and the geocomposite drainage layer and geonet layers over the side slope areas.

ORDER – A. PROHIBITIONS, 10. (page 11). States “For landfill closure construction activities, the Discharger is required to apply for coverage under the appropriate State Water Resources Control Board Storm Water NPDES General Permit.” We understood that by CALCO (the permitted landfill operator) providing all construction except for the liner materials installation that the current NOI, Storm Water NPDES General Permit would be acceptable and there was no need to pursue a new NOI, Storm Water NPDES General Permit.

ORDER – D. PROVISIONS, 8. Lysimeters and Leachate Monitoring Wells Destruction (page 14). This section has listed a Due Date of May 15, 2008. This is 2 months prior to the July 15, 2008 due date requirement for completing Leachate Monitoring Well Installation in D. Provision, 2. There is need to use a drill rig to properly destroy leachate monitoring wells, by removing well casing well below the final cover subgrade to avoid any casing impacts on final cover system resulting from future landfill settlement. We would like to have the same drill rig

that drills the new leachate monitoring well be used to remove casing of the leachate monitoring wells being destroyed. As a result, we respectfully request a change in the compliance date from May 15, 2008 to July 15, 2008 for D. Provision, Section 8.

Please advise if you have any questions about these comments.

Respectfully submitted,
Pacific Waste Services, Inc.

James Wyse, P.E.
President

Enclosure

CC: Jeff Terry, Manager CALCO

