



## KERN COUNTY WASTE MANAGEMENT DEPARTMENT

Douglas E. Landon, Director  
2700 "M" Street, Suite 500  
Bakersfield, CA 93301-2372  
(661) 862-8900  
(800) 552-KERN (option 6)  
Fax: (661) 862-8905  
<http://www.kerncountywaste.com>

October 31, 2012

### VIA FACSIMILE AND U.S. MAIL

Mr. Dane S. Johnson, P.G.  
Senior Engineering Geologist  
California Regional Water Quality  
Control Board - Central Valley Region  
1685 "E" Street  
Fresno, CA 93706

**RE: China Grade Sanitary Landfill; Kern County  
Comments on Tentative Waste Discharge Requirements**

Dear Mr. Johnson:

Thank you for providing Kern County Waste Management Department (KCWMD) the opportunity to provide comments on the Tentative Waste Discharge Requirements (WDRs) dated October 2, 2012, for the China Grade Sanitary Landfill.

KCWMD's comments regarding the Tentative Waste Discharge Requirements are presented below. For ease of Central Valley Water Board review, each section of specific language as stated in the tentative document is displayed in italics followed by KCWMD's comments.

## WASTE DISCHARGE REQUIREMENTS

### **FINDINGS:**

- The facility is on a 117-acre property on Landfill Road, Bakersfield. The facility contains one closed unlined 58-acre waste management unit (Unit) as shown in Attachment B, which is incorporated herein and made part of this Order by reference. The Facility is comprised of Assessor's Parcel Numbers (APN) 436-010-02 and -03 and 436-062-05, -06, -07, and -09.*

Comment: KCWMD has revised the property boundary and requests that this finding be revised to read:

The facility is on a 211.99-acre property on Camino Grande Drive, Bakersfield. The facility contains one closed unlined 58-acre waste management unit (Unit) as shown in Attachment B, which is incorporated herein and made part of this Order by reference. The Facility is comprised of Assessor's Parcel Numbers (APN) 436-010-02, -03, and -36, 436-061-12, 436-062-05, -06, -07, and -09, and 436-090-21.

Attachment B is missing three of the eight existing landfill gas (LFG) perimeter monitoring wells and the facility boundary is incorrect (see attached figures).

23. *The first encountered groundwater ranges from 515 feet to 560 feet below the native ground surface. Groundwater elevations range from about 170 feet MSL to 365 feet MSL.*

Comment: Groundwater level is falling 4 feet per year; this has resulted in a water level drop from 204 feet MSL to 172 feet MSL in the last eight years (CG2-13). Over this same time depth to groundwater has increased from 521 feet below ground surface (bgs) to 553 feet bgs.

24. *Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 350 and 500 micromhos/cm, with total dissolved solids (TDS) ranging between 250 and 330 milligrams per liter (mg/L).*

Comment: In 2003, background well CG1-07 was installed and quarterly sampling began in the first quarter of 2004. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 441 and 597 micromhos/cm, with total dissolved solids (TDS) ranging between 298 and 350 milligrams per liter (mg/L).

KCWMD proposes four Additional Findings to read as follows:

New finding Number 1: The China Grade SLF is located within the boundaries of the Kern Bluff Oil Field. Oil production is found within four zones: Kern River, Miocene, Transition-Santa Margarita and Vedder pools. The Kern River pool is the shallowest with oil sands beginning at depths between 900 and 1,100 feet bgs. As of 2006, two wells were actively used for water disposal in both the Kern River and the Transition-Santa Margarita pools. A total volume of 1,002,175 barrels of waste water was disposed into the Kern River pool in 2006.

New finding Number 2: To comply with California Code of Regulations (CCR), Title 27, KCWMD installed eight monitoring wells (CG2-15 to CG2-22) around the China Grade Sanitary landfill in April 2008. Methane has been detected in two of the perimeter monitoring wells. These two wells, CG2-20 and CG2-21 are located at the edge of waste and have had repeated detections of methane above the 5% limit set by Title 27. Given the close proximity of waste to the existing permitted boundary, it is unlikely landfill gas in this area can be completely controlled. Therefore, KCWMD is in the process of purchasing a portion of the adjacent property (APN 436-062-040) to provide adequate buffer from the landfill.

New finding Number 3: In February 2007, the KCWMD submitted a Corrective Action Plan (CAP) as part of an amended RWD. The proposed corrective action was monitored natural attenuation with landfill gas extraction as a source control measure.

New finding Number 4: In a letter dated October 4, 2012, the Central Valley Water Board concluded the CAP adequately addresses the requirements of CCR Title 27 Section 20005 et seq.

38. *Title 27, Section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layer:*
- a. *Two-foot soil foundation layer.*
  - b. *One-foot soil low flow-hydraulic conductivity layer, less than  $1 \times 10^{-6}$  cm/s or equal to the hydraulic conductivity of any bottom liner system*
  - c. *Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).*
  - d. *One-foot soil erosion resistant/vegetative layer.*

Comment: KCWMD would like to see this finding deleted entirely for the following reasons:

- Final closure construction was completed in 2009, there is no need to reiterate the prescriptive cover standards
  - Prescriptive standards are covered within regulatory requirements and are stated in any prepared Closure/Post-closure Maintenance Plan.
40. *Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.*

Comment: KCWMD would like to see this finding revised to read:

Title 27 allows for an approved engineered alternative final cover, which provides an alternate design to allow a correspondingly low, moisture flow-through rate throughout the post-closure maintenance period.

41. *During 2010, the discharger constructed the final cover in accordance with the Final Closure and Post-Closure Maintenance Plan.*

Comment: The Construction Quality Assurance Report was approved on October 12, 2010, by the State Water Board.

45. *Title 27, Section 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Final Closure and Post-Closure Maintenance Plan includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2012 dollars is \$5,033,500. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation.*

Comment: In the 2011 Inflation Factor Report submitted to CalRecycle, KCWMD revised the landfill post-closure maintenance cost estimate per Title 27 Section 22236; and requests that this finding be revised to read:

Title 27, Section 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Final Closure and Post-Closure Maintenance Plan includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2012 dollars is \$5,139,151. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation.

46. *Title 27, Section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger's cost estimate for corrective action of all known or reasonably foreseeable releases, adjusted for inflation, is \$415,935. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of the cost estimate adjusted annually for inflation.*

Comment: In the 2011 Inflation Factor Report submitted to CalRecycle, KCWMD revised the landfill corrective action cost estimate per Title 27 Section 22236; and requests that this finding be revised to read:

Title 27, Section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger's cost estimate for corrective action of all known or reasonably foreseeable releases, adjusted for inflation, is \$531,136. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of the cost estimate adjusted annually for inflation.

49. *Based on the threat and complexity of the discharge, the facility is determined to be classified 2B as defined below:*
- d. *Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."*
  - e. *Category B complexity, defined as, "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."*

Comment: On October 29, 2012, the KCWMD requested the China Grade SLF threat and complexity classification be changed to 3B (see attached letter). However, KCWMD would like to see this finding deleted entirely for the following reasons:

- These categories are subject to change;
- Currently, a group of stakeholders is working with the State Water Resources Control Board to completely modify this fee system.

## **ATTACHMENT A and B**

Comment: Attachment B (Site Map) is missing landfill gas perimeter monitoring points CG2-15, -16, and -19. In addition, the facility boundary is incorrect on both Attachment A (Location Map) and Attachment B.

## **MONITORING AND REPORTING PROGRAM**

### **A. MONITORING**

*The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section E of the WDRs. All monitoring shall be conducted in accordance with the approved October 2002 Sample Collection and Analysis Plan, which includes quality assurance/quality control standards.*

Comment: In August 2009, KCWMD submitted an updated Sample Collection and Analysis Plan to the Central Valley Water Board. KCWMD believes the updated plan should be used for monitoring.

#### **4. Facility Monitoring**

##### **d. Standard Observations**

*The Discharger shall conduct Standard Observations at the landfill in accordance with this section of the MRP. Standard observations shall be conducted weekly during the wet season (1 October to 30 April) and monthly during the dry season (1 May to 30 September).*

Comment: KCWMD believes Standard Observations should be conducted monthly for the following reasons:

- the site is in its third year of post closure maintenance
- the site is stable and well-vegetated
- the site is located in a dry climate
- monthly monitoring is more than adequate

### **B. REPORTING**

#### **Required Reports**

##### **1. Semiannual Monitoring Report**

- d) *Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, and leachate.*

Comment: KCWMD believes that this statement needs clarification. Item "d)" should be revised to read as follows:

A table containing monitoring data for all monitoring points and constituents detected during the reporting period for groundwater, unsaturated zone, and leachate.

**2. Annual Monitoring Report:**

- c) *All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.*

Comment: KCWMD has not included all historical monitoring data in its annual monitoring reports, nor do we believe this is necessary. Submitting all historical data in each annual report would be especially cumbersome and wasteful, particularly the added costs for KCWMD and the Central Valley Water Board to store the additional paperwork. California Water Code Section 13267 states that "the burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." KCWMD does not believe that the cost for this is worth the need.

The annual reports include a tabular presentation of the previous year's monitoring results and a graphical presentation of the previous ten years' monitoring results for detected constituents. In addition, KCWMD semiannually uploads new monitoring reports and analytical laboratory reports to the State Water Resources GeoTracker data system.

KCWMD believes this requirement should read:

- c) All monitoring data with detectable results for the reporting period shall be submitted in tabular form as well as in digital file format...
- f) *A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete landfill module will be filled.*

Comment: KCWMD requests that this item be deleted entirely from this MRP. The final closure construction was completed in 2009. Filling is no longer occurring at the site.

- h) *The results of the annual testing of leachate collection and removal systems required under Standard Facility Specification E. 14 of the SPRRs.*

Comment: KCWMD requests that this item be deleted entirely from this MRP. The site does not have a leachate collection and removal system.

- i) *Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.*

Comment: Currently, KCWMD compares values of the monitoring parameters with the concentration limits, and reports upon the results in the Annual Report. KCWMD also prepares periodic WQPS reports proposing revised concentration limits.

KCWMD does not revise concentration limits in our annual monitoring reports, nor do we believe this is necessary. Providing "updated concentration limits for each parameter in each well" in each annual report would be especially cumbersome and wasteful, particularly the added costs for KCWMD to prepare and evaluate the new data. It would also provide another level of review at the Central Valley Water Board, requiring additional resources for review and approval of the limits each year. California Water Code Section 13267 states that "the burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." KCWMD does not believe that the cost for this is worth the need.

KCWMD requests that this item be deleted entirely from this MRP.

5. ***Major Storm Event Reporting:*** *Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A of this MRP, above.*

Comment: The words "any" and "significant" are vague and subjective, and should be defined. Notification of Central Valley Water Board staff of "any damage or significant erosion" would cause an undue burden on KCWMD staff, as well as Central Valley Water Board staff. Currently, "major storm event reporting" is included with each semi-annual monitoring report. KCWMD believes that this current level of reporting is adequate. Please revise Item 5 above to read as follows:

**Major Storm Event Reporting:** Following major storm events capable of causing damage or significant erosion, the Discharger immediately shall notify Central Valley Water Board staff of damage or erosion that could impair the integrity of the waste containment facility. The discharger shall report on the damage or erosion and subsequent repairs in the semi-annual monitoring report covering the period in which the damage occurred.

## TABLE II

### UNSATURATED ZONE DETECTION MONITORING PROGRAM

#### SUCTION LYSIMETERS

Comment: The site has five suction lysimeters (CG1-03, -04, -06, CG2-09, and -11). During recent monitoring events there has been insufficient pore water present to sample or the sediments are too dry to transmit liquid. Therefore, the analysis in Table II cannot be performed. KCWMD will continue to monitor these lysimeters and will analyze when sufficient water is present.

### INFORMATION SHEET

*The County of Kern (hereinafter Discharger) owns and maintains the China Grade Sanitary Landfill (facility) about six miles northeast of Bakersfield. The 117-acre facility contains one closed unlined 58-acre waste management unit.*

Comment: KCWMD has revised the property boundary. Please revise this paragraph to read:

The County of Kern (hereinafter Discharger) owns and maintains the China Grade Sanitary Landfill (facility) about six miles northeast of Bakersfield. The 211.99-acre facility contains one closed unlined 58-acre waste management Unit.

Thank you for providing KCWMD the opportunity to comment on the Tentative Waste Discharge Requirements, and Monitoring and Reporting Program dated October 2, 2012 for the China Grade Sanitary Landfill.

Sincerely,



Michael R. Burston, P.G.  
Supervising Engineer



## KERN COUNTY WASTE MANAGEMENT DEPARTMENT

Douglas E. Landon, Director  
2700 "M" Street, Suite 500  
Bakersfield, CA 93301-2372  
(661) 862-8900  
(800) 552-KERN (option 6)  
Fax: (661) 862-8905  
<http://www.kerncountywaste.com>

October 29, 2012

Mr. Dane Johnson, P.G.  
Sr. Engineering Geologist  
California Regional Water Quality  
Control Board, Central Valley Region  
1685 "E" Street  
Fresno, CA 93706

**RE: Request for Change of Annual Fee Assessment for Waste Discharge  
Requirements for the China Grade Sanitary Landfill  
WDR Order No. R5-2007-0091**

Dear Mr. Johnson:

The Kern County Waste Management Department (KCWMD) is submitting this letter to request a change in the current Waste Discharge Requirements (WDR) fee assessment for the China Grade Sanitary Landfill (SLF). KCWMD has implemented source control measures at the closed landfill and monitoring data indicates that the release from the landfill has had minimal impact on groundwater quality. The concentrations of detected VOCs have been below the definition of a release since 2009.

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) assesses WDR fees based on the categorization of the discharge's threat to water quality (TTWQ) and complexity (CPLX) ratings. The Central Valley Water Board defines a TTWQ "Category 2" as "those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance." A "Category 3" TTWQ is defined as "those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2." The landfill is categorized as "2B" where the TTWQ "Category 2" has been assigned by the Central Valley Water Board, while the CPLX "Category B" applies to all Class 3 landfills.

KCWMD is requesting a change in the TTWQ assessment from "Category 2" to "Category 3" because the impact on groundwater has neither violated water quality objectives nor impaired the designated beneficial uses of ground or surface waters due to the nature and extent of the release from the closed landfill described hereafter. No compound from the release has been detected in concentrations exceeding primary drinking water standards since 1999, and then only three were detected above the Maximum Contaminant Level.

## Background

The China Grade SLF is owned by the County of Kern and operated by KCWMD. The landfill is a municipal solid waste landfill approximately six miles northeast of Bakersfield, in Sections 1 and 12, T29S, R28E, MDB&M. The total facility property encompasses approximately 212 acres with one unlined waste management unit (Unit) covering approximately 58 acres with an active landfill gas (LFG) collection and recovery system (Figure 1).

The landfill was converted from a burn dump to a sanitary landfill in 1970 and operations were suspended in 1974. The landfill reopened in 1983 and ceased operations in April of 1992. On June 16, 2000, the Central Valley Water Board issued Order No. 5-00-155 which classified the landfill as a Class III landfill as defined in Title 27, California Code of Regulations, §20005, et seq. (Title 27). A LFG collection and recovery system consisting of 19 vertical extraction wells feeding an enclosed flare system by blower components has been in operation since October 2002 for source control.

KCWMD submitted an Evaluation Monitoring Program (EMP) report to the Central Valley Water Board for review in August 2006. KCWMD submitted an Engineering Feasibility Study (EFS) to the Central Valley Water Board for review in November 2006. The EFS recommended Monitored Natural Attenuation (MNA) as the most technically and economically feasible corrective action to remediate impact to groundwater from the release from the Unit. KCWMD prepared an Amended Report of Waste Discharge (ROWD) formally recommending MNA as the remedial corrective action for the landfill. The ROWD was submitted to the Central Valley Water Board for review in February 2007. On October 4, 2012, the Central Valley Water Board approved the EMP, EFS for corrective action, along with the CAP submitted as part of the amended ROWD.

Eight perimeter LFG wells were installed in 2008 to comply with Title 27 requirements. Final closure construction activities were completed in 2009. KCWMD submitted the Construction Quality Assurance (CQA) Closure Construction Report to the Central Valley Water Board on October 14, 2010. The landfill was officially closed upon the approval of the CQA Closure Construction Report by the Central Valley Water Board on October 12, 2010.

## Groundwater Monitoring

The monitoring system at the China Grade SLF consists of seven groundwater monitoring wells, eight lysimeters, and three neutron and gas-probe wells. Monitoring wells CG1-02 and CG1-07 are up-gradient of the Unit. Monitoring wells CG1-01, CG1-05, and CG2-08 are cross-gradient along the landfill boundary. Monitoring wells CG2-01, CG2-12, and CG2-13 are down-gradient of the Unit along the Point of Compliance. Monitoring well CG2-07 is completed in a perched water-bearing zone down-gradient of the point of compliance. Monitoring well CG1-01 has not been operational since early

1994 because of a stuck pump. Monitoring wells CG1-02, CG1-05, and CG2-08 cannot be sampled because of insufficient depth of water in the wells, and monitoring well CG2-01 cannot be sampled because naturally occurring crude oil has accumulated in the well.

Groundwater samples are collected from monitoring wells CG1-07, CG2-07, CG2-12, and CG2-13. The eight lysimeters are designated CG1-03, CG1-04, CG1-06, CG2-04, CG2-05, CG2-06, CG2-09, and CG2-11. Lysimeters CG1-04, CG2-03, CG2-05, and CG2-06 have been destroyed. Attempts are made to sample the lysimeters, but historically, only CG2-04 has produced samples for chemical analysis. However, no samples have been obtained from CG2-04 since 2001.

The combination neutron and landfill gas probes (CG1-06, CG2-09, and CG2-11) are adjacent to the corresponding lysimeters and are sampled periodically. Petroleum hydrocarbons have been detected in soil cuttings and/or groundwater samples from compliance wells CG2-01, CG2-12, and CG2-13, and the replacement water supply well.

#### Threat to Water Quality (TTWQ)

A Category 3 TTWQ is defined as "those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2". The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic, municipal, agricultural, and industrial supply.

The landfill is in the Kern Bluff oil field. It is predominantly bordered by open, non-irrigated rangeland and by oil production facilities. Over 80 oil wells have been drilled within one mile and six oil wells are within the landfill property boundary. Water disposal in the Kern Bluff oil field included disposal to the Kern River Formation at depths of 200 to 350 feet bgs, or 440 feet to 590 feet above msl. Some of the injection was stratigraphically and structurally above the zone containing groundwater monitored at China Grade SLF.

Monitoring data from the landfill indicates that the release from the landfill has had minimal impact on groundwater quality. Detections of VOCs that have occurred sporadically in samples from monitoring wells near the Unit are believed to be associated with low levels of LFG migration. Historical concentrations of detected VOCs have been very near or below the definition of a release and while three exceeded their respective primary drinking water standard before 1999, none has since. The three compounds that did exceed their MCLs, benzene, methylene chloride, and PCE, did so a combined four times, all in 1999. There has been no evidence of a release since 2009, with only one VOC (Freon 12) detected in one well (CG2-14) since 2006.

Of the six VOCs detected at the China Grade SLF since 2000, three (bis-2-ethylhexyl phthalate, diethyl phthalate, and PCE) have only been detected once in the past 12 years. All have been at trace levels with no detections since 2006 (Charts 1-3). Detections of Trichlorofluoromethane have occurred in two wells over the past 12 years. All have been at trace levels with no detections since 2007 (Chart 4). Detections of Acetone, a standard laboratory cleaning solvent, are suspect due to the fact that they have occurred only once in three different wells over the past 12 years (Chart 5).

The only regularly VOC detected over the past 12 years at the China Grade SLF has been dichlorodifluoromethane (Freon 12). There is no Maximum Contamination Limit (MCL) in either federal or state drinking water standards for Freon 12. The chronic (lifetime) health advisory limit is 1,000 µg/L. The maximum concentration of Freon 12 detected in any well at the landfill was 5.4 µg/L in well CG2-12 in 2004. Chart 6 illustrates the detections of Freon 12 over the past 12 years in wells CG2-12, CG2-13, and CG2-14. Freon 12 was last detected in well CG2-12 in 2004. The last detection in well CG2-14 was in 2009. Freon 12 detections in well CG2-13 have been at trace levels since 2009.

The non-statistical analysis of target VOCs for the most recent monitoring period ending June 30, 2012 indicates a single detection of Dichlorodifluoromethane (Freon 12) in well CG2-13 detected at non-quantifiable (trace) concentrations in that well since 2009. No other VOCs were detected in well CG2-13 or any other well samples in the first half of 2012.

### Conclusions

A review of groundwater data indicates that concentrations of VOCs have been below the definition of a release at the landfill since 2009. Groundwater analytical data indicate that the release at the China Grade SLF has not impaired the designated beneficial uses of groundwater. Neither MCLs nor secondary drinking water standards have been exceeded since 1999.

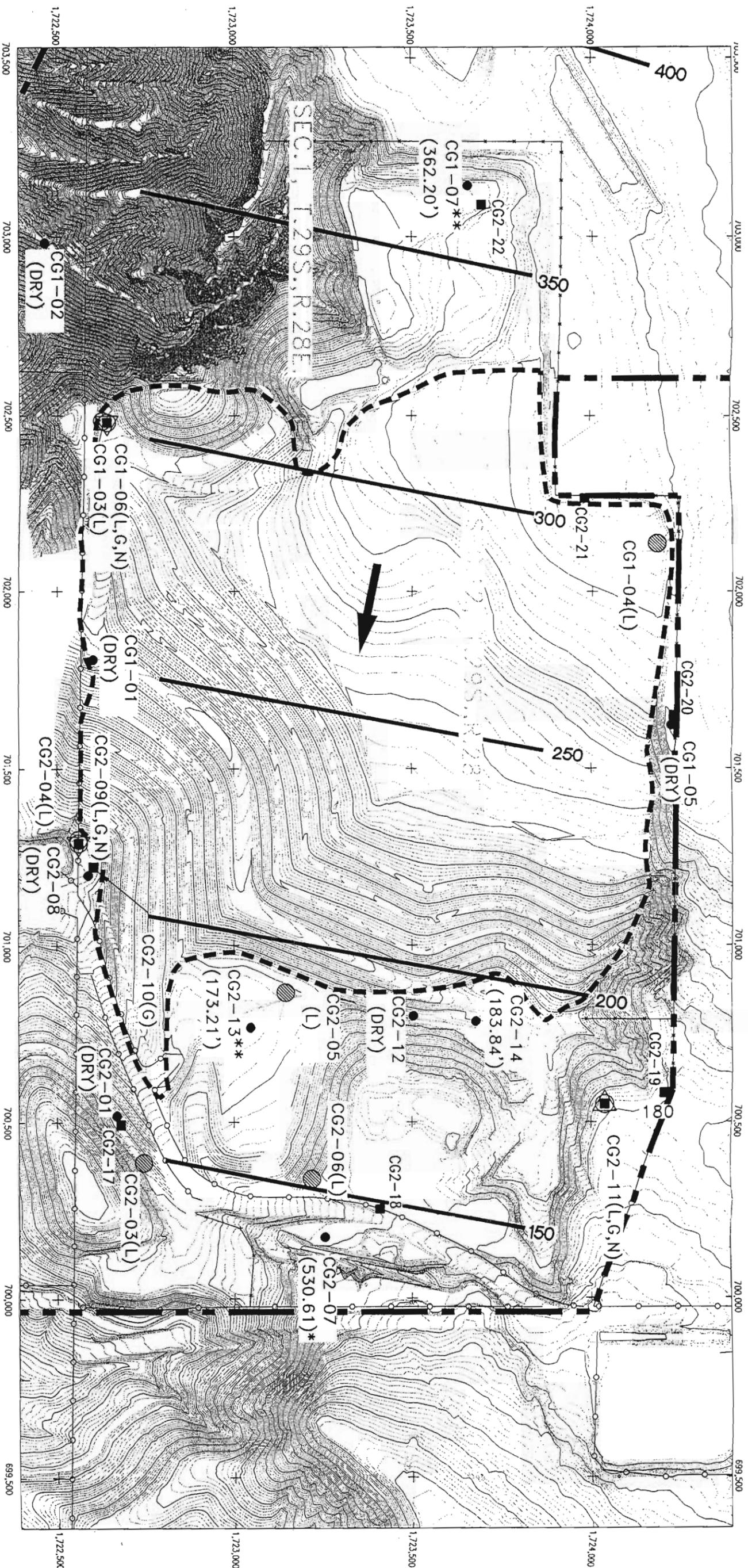
For these reasons, KCWMD requests that due to the nature and extent of the release, the TTWQ assessment should be reduced from "Category 2" to "Category 3" with a resultant assessment of "3B" for the China Grade Sanitary Landfill.

Thank you for your consideration of this request.

Sincerely,



Michael R. Burston, P.G.  
Supervising Engineer



**LEGEND**

- GROUNDWATER MONITORING WELL
- LANDFILL GAS MONITORING WELL
- LYSIMETER (L)
- ▽ NEUTRON PROBE (N)
- ⊙ DESTROYED LYSIMETER
- GROUNDWATER ELEVATION—FEET
- 240'— LINE OF EQUAL GROUNDWATER ELEVATION
- APPROXIMATE LIMIT OF REFUSE
- PROPERTY BOUNDARY
- GENERALIZED GROUNDWATER FLOW DIRECTION

JANUARY 18, 2012

GENERALIZED FLOW DIRECTION: SOUTHERLY

GENERALIZED GRADIENT: 0.08 FT/FT

CONTOUR INTERVAL: 50 FT

NOTE: \* WELL CG2-07 IS IN A PERCHED WATER ZONE AND WAS NOT CONSIDERED IN DETERMINING GROUNDWATER FLOW DIRECTION  
 \*\* ELEVATION CALCULATED USING WELL'S DEVIATION SURVEY



FOR ILLUSTRATION PURPOSES ONLY

TOPO YEAR: 4-2011

LAST PLOTTED	3/29/2012
LAST REVISED BY	GONZALEZJE
PROJECT ENGINEER	E. GREENWOOD
PROJECT TECH.	A. ESTRADA

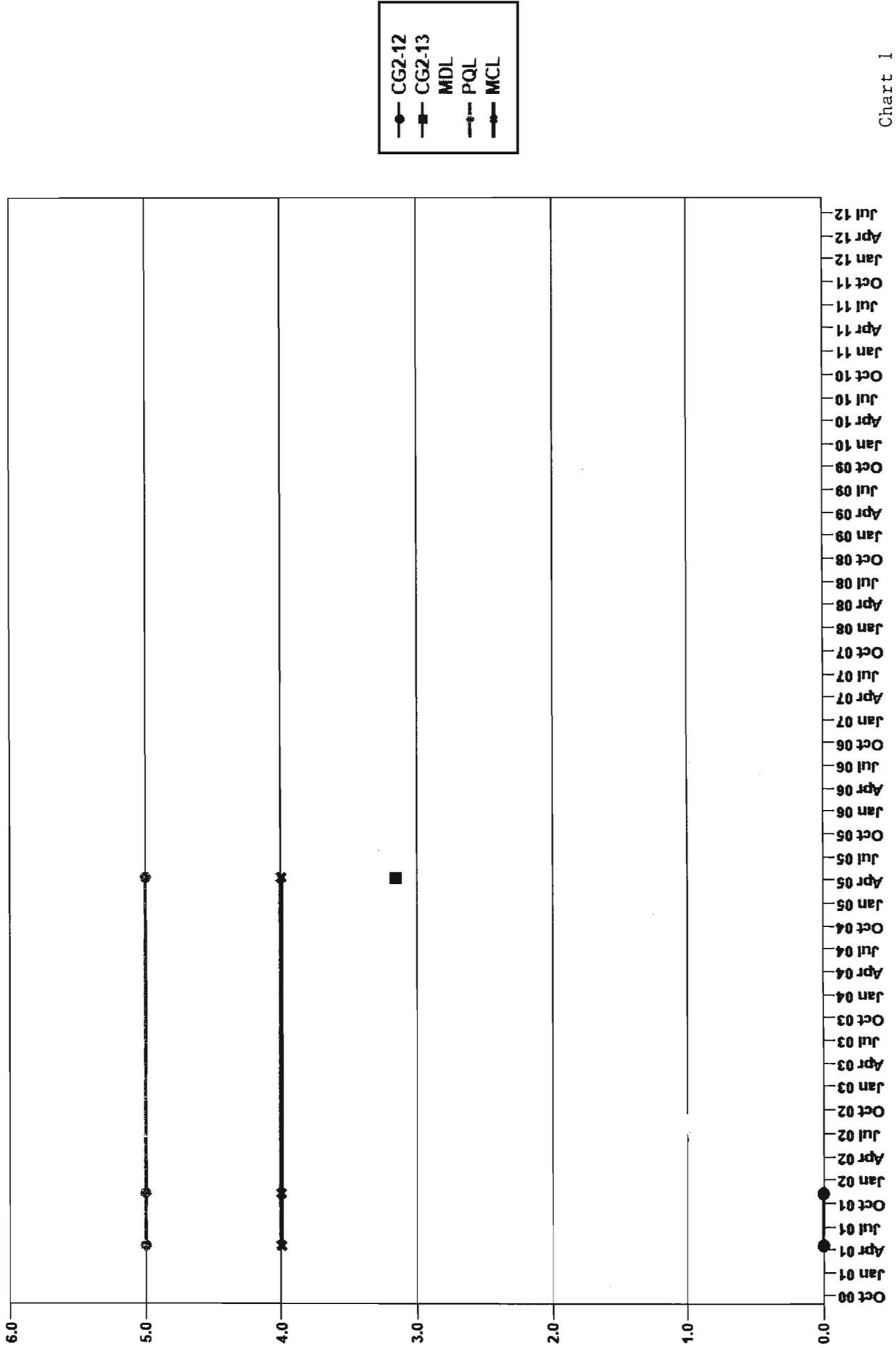
COUNTY OF KERN  
**WASTE MANAGEMENT DEPARTMENT**  
 BAKERSFIELD, CALIFORNIA

SCALE	1"=300'
APPROVED BY	E.G.
DRAWN BY	JG/SD
PLOTTED	3/29/2012
FILE NO.	15009401.DWG

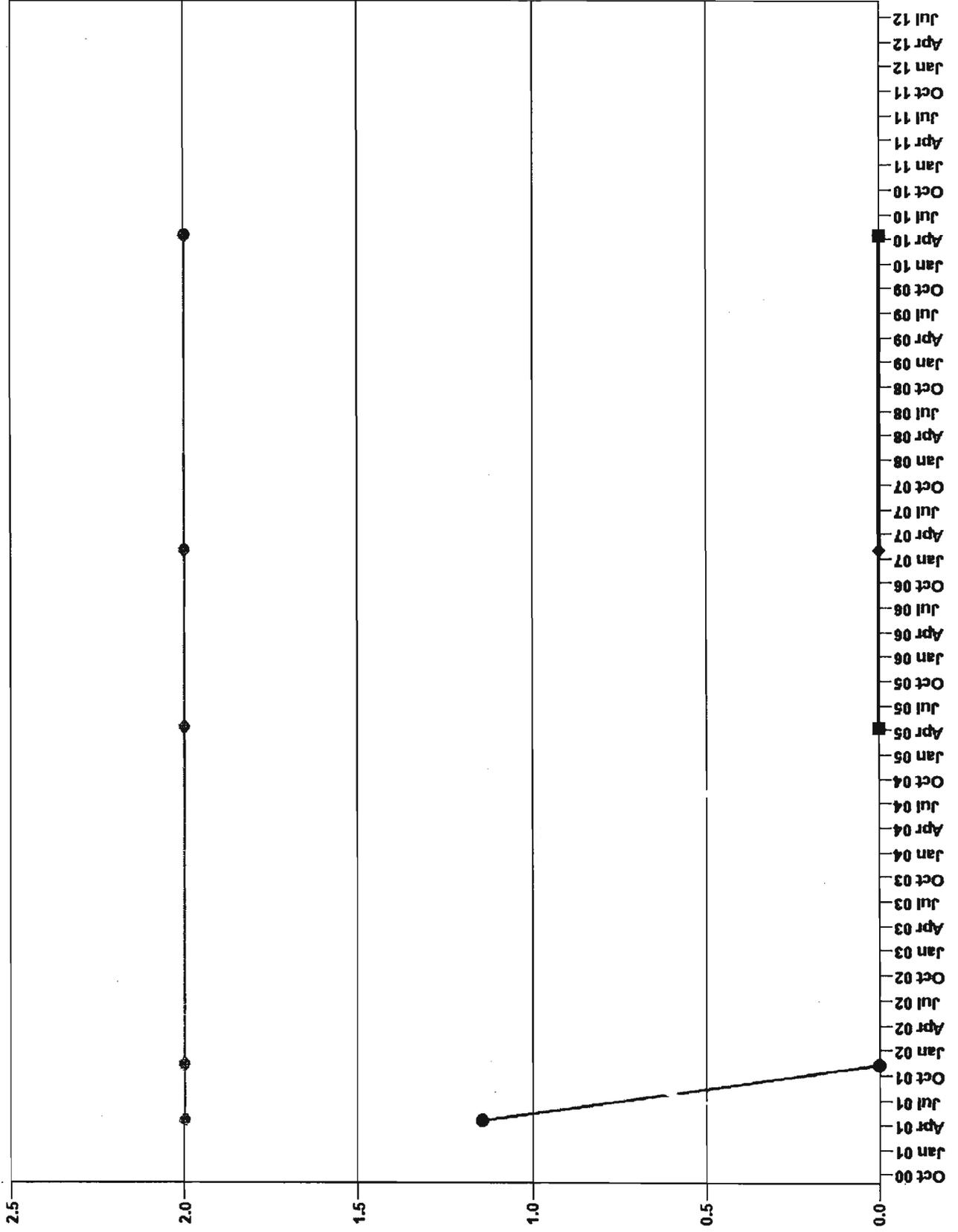
CHINA GRADE SANITARY LANDFILL  
 GROUNDWATER ELEVATION MAP

FIGURE 1

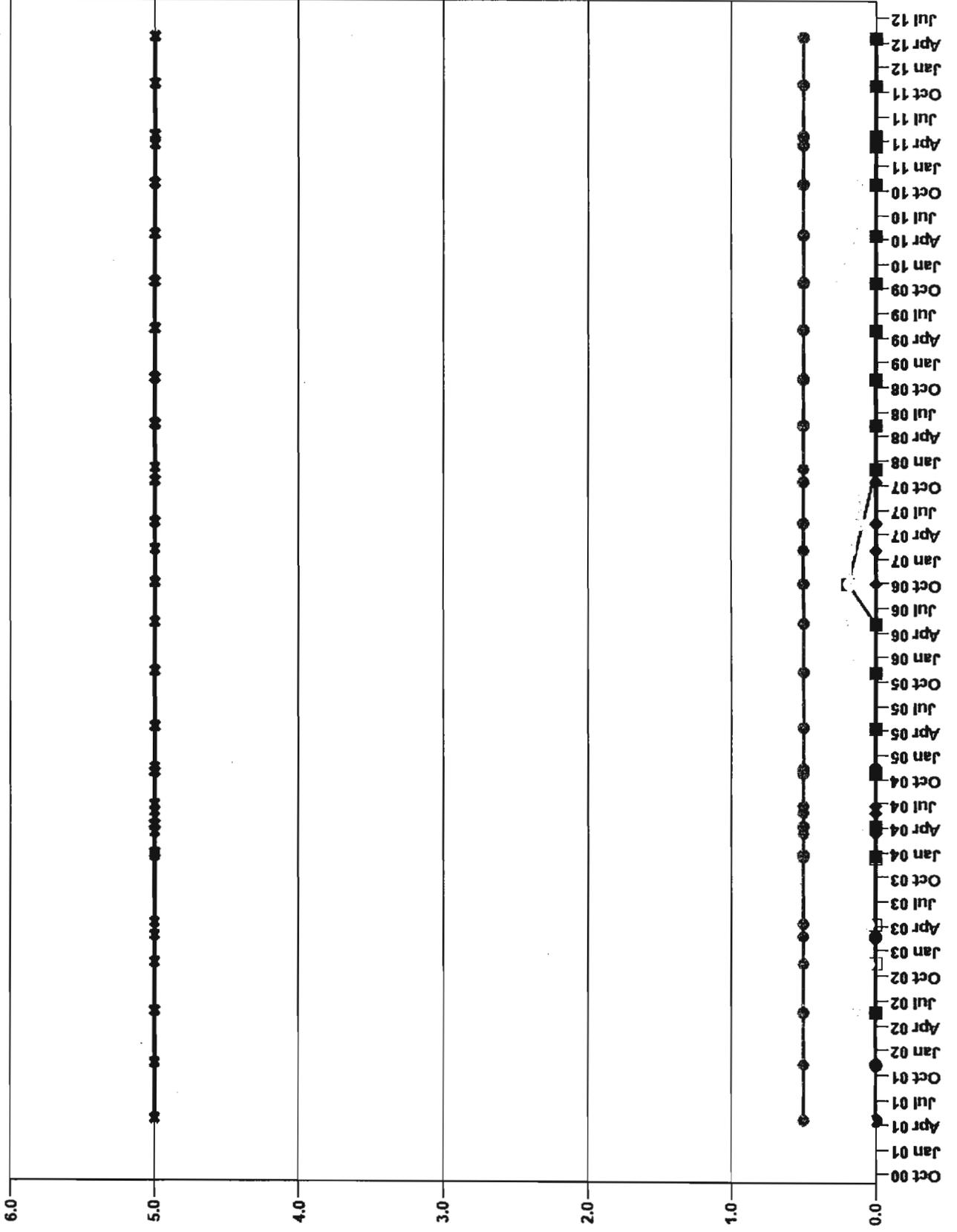
China Grade Sanitary Landfill  
 Historical Data  
 bis(2-Ethylhexyl)phthalate (ug/L)



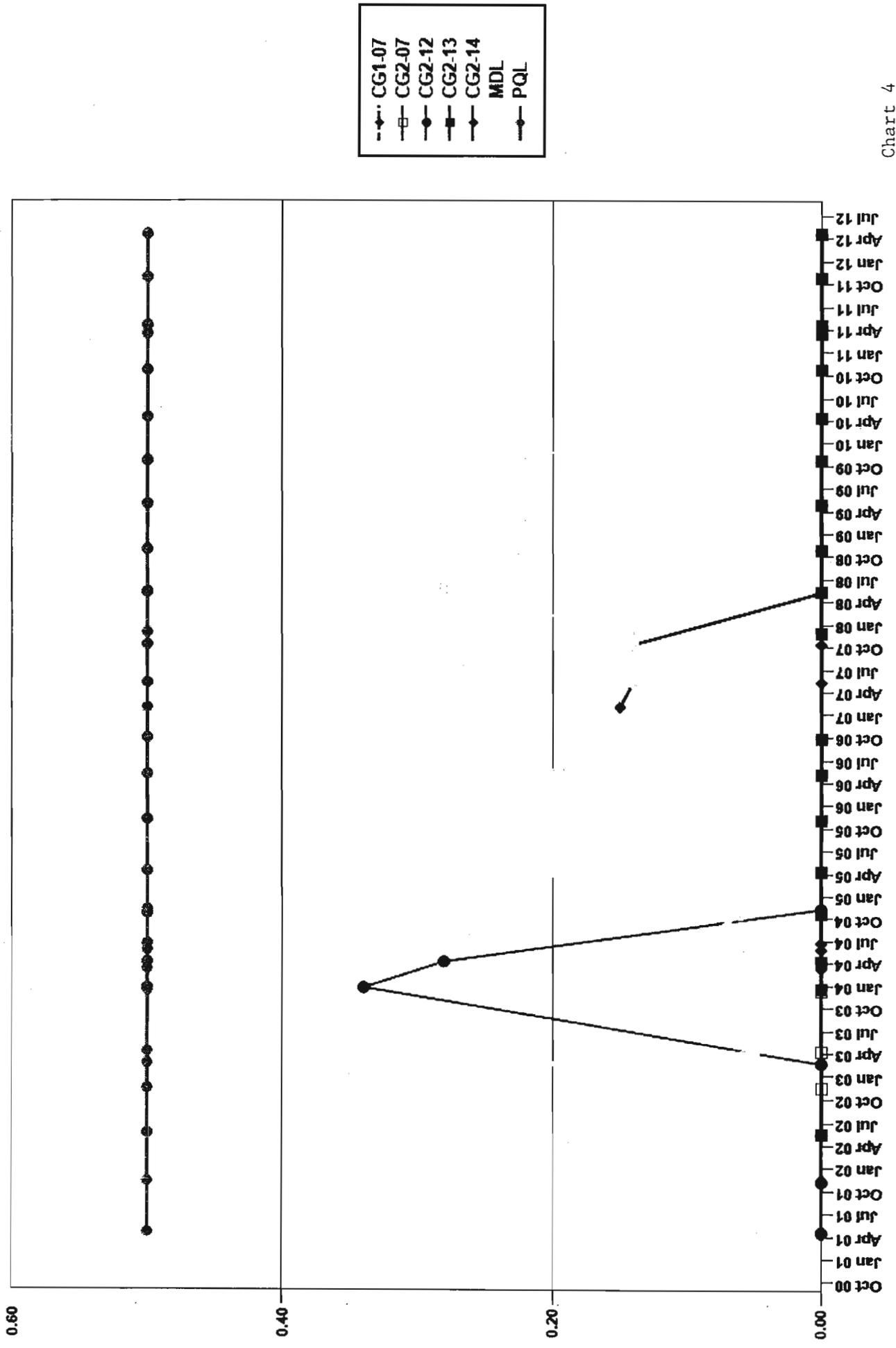
China Grade Sanitary Landfill  
 Historical Data  
 Diethyl Phthalate (ug/L)



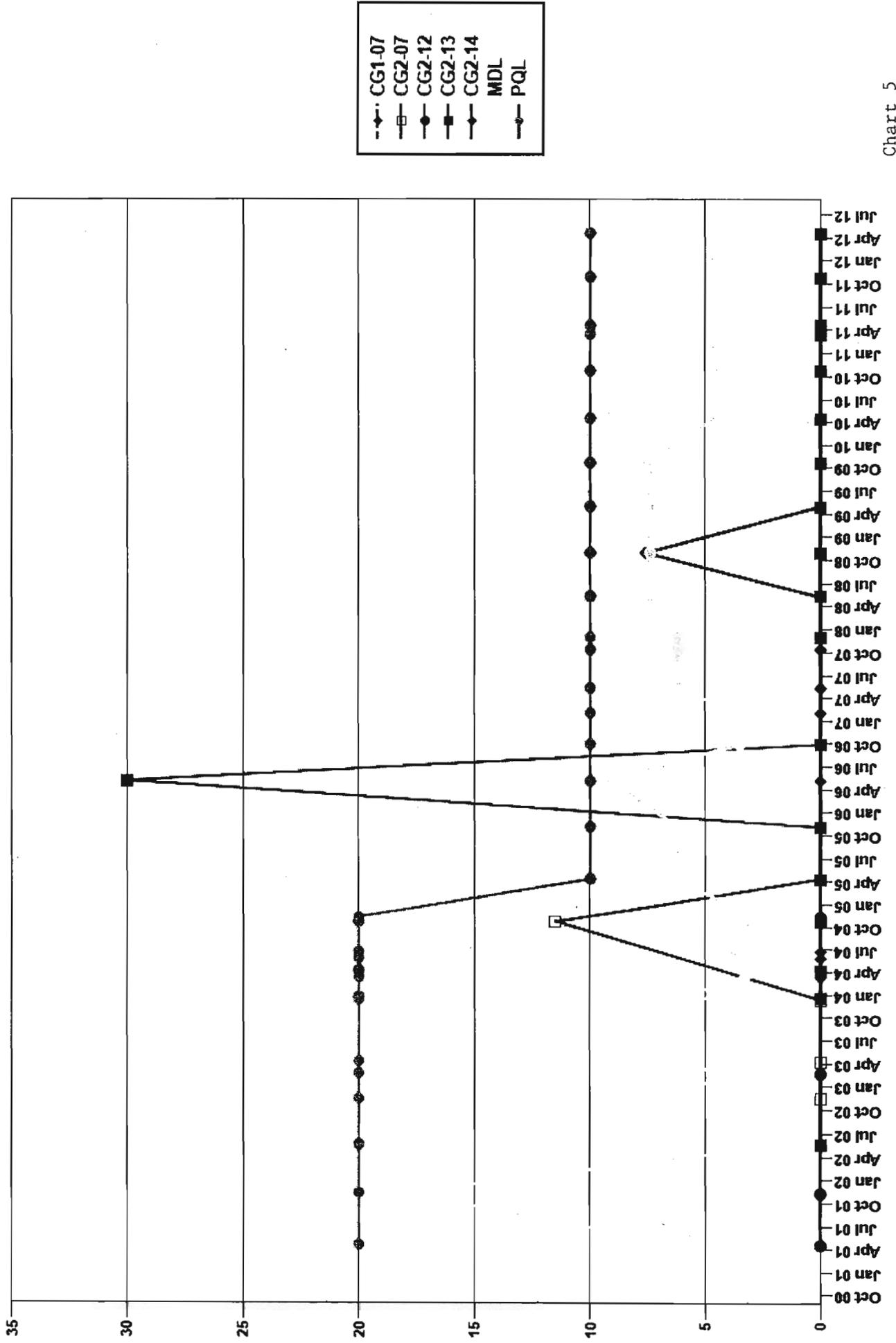
China Grade Sanitary Landfill  
 Historical Data  
 Tetrachloroethene (PCE) (ug/L)



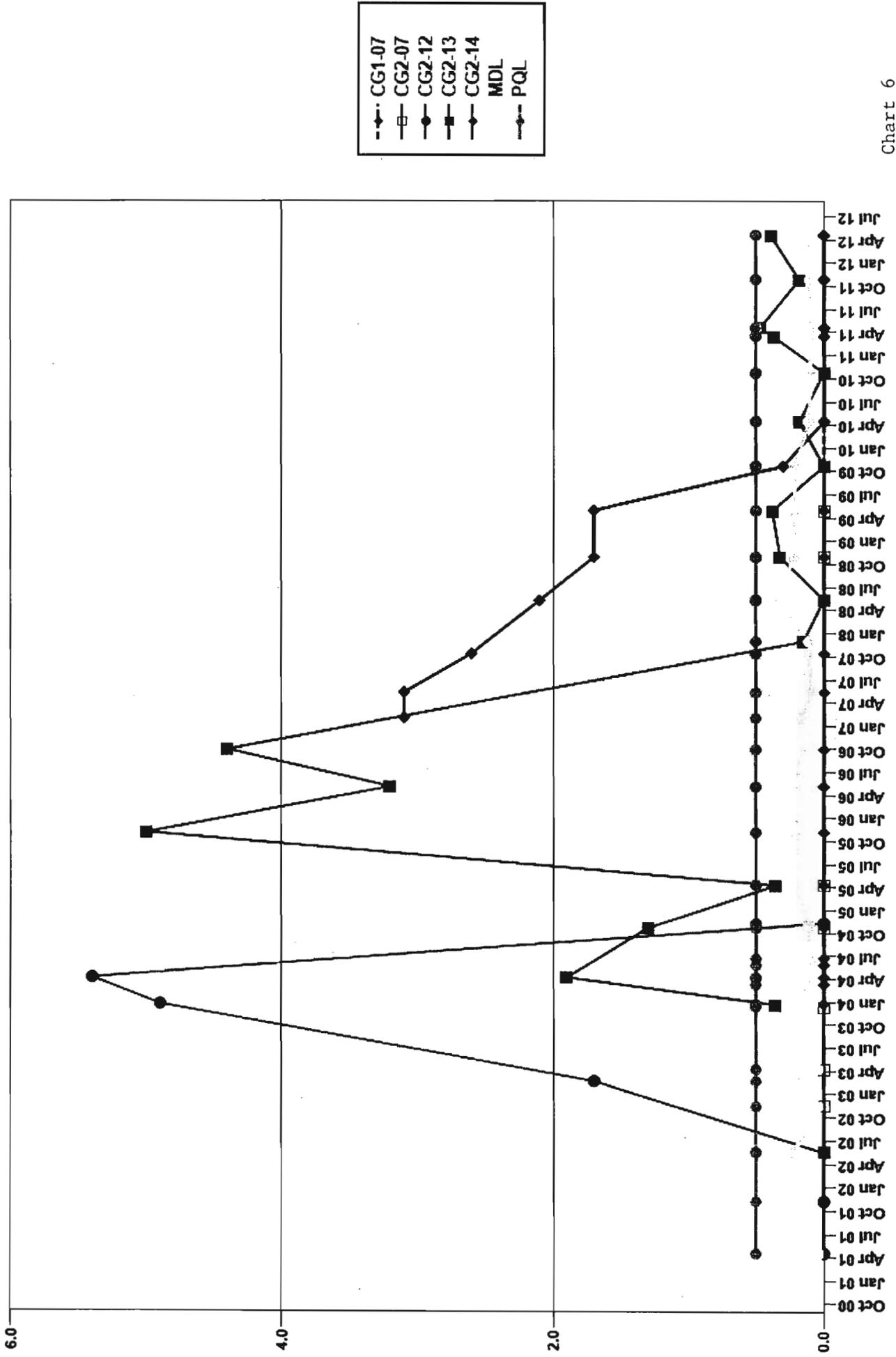
China Grade Sanitary Landfill  
 Historical Data  
 Trichlorofluoromethane (ug/L)



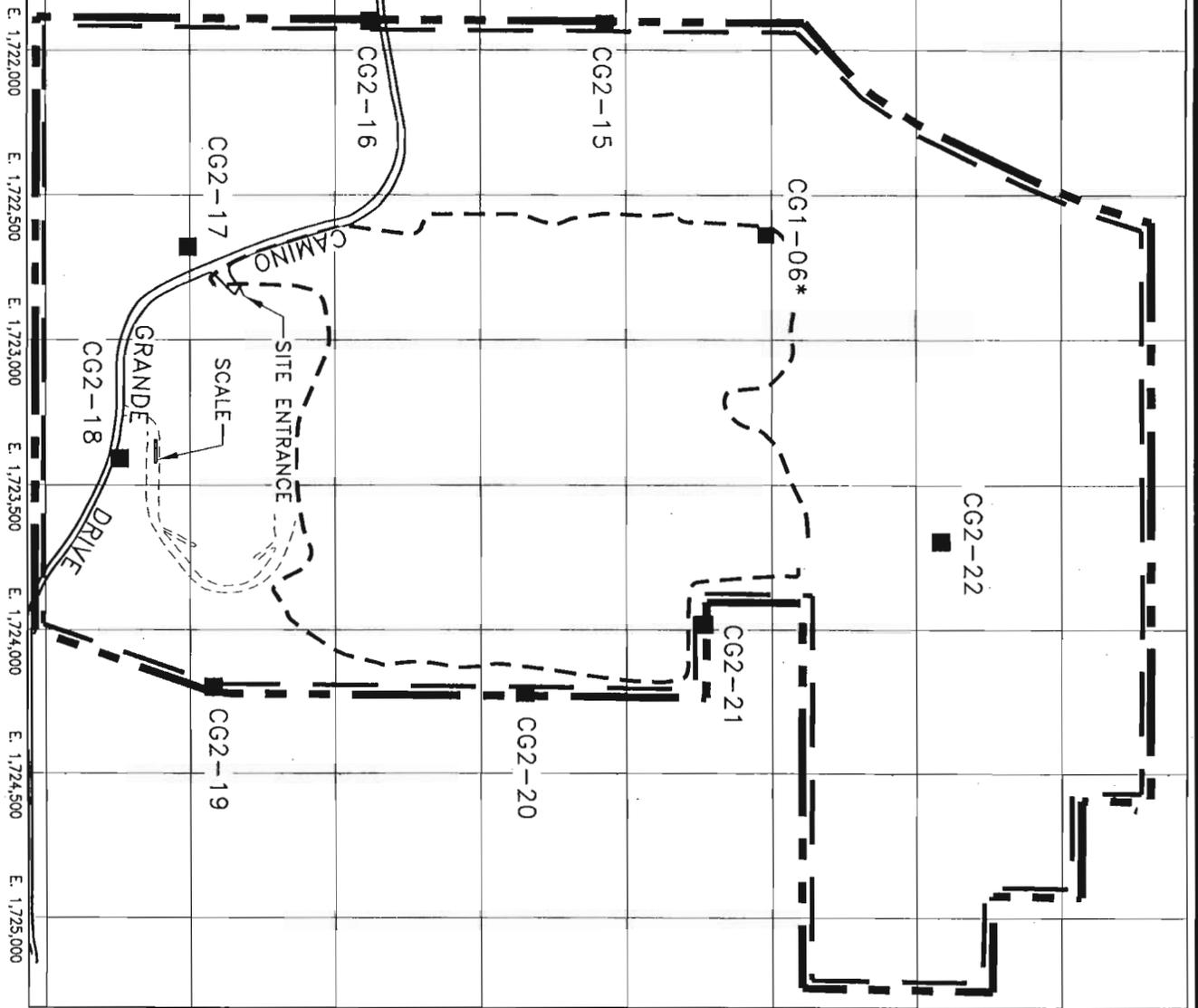
China Grade Sanitary Landfill  
 Historical Data  
 Acetone (ug/L)



China Grade Sanitary Landfill  
 Historical Data  
 Dichlorodifluoromethane (ug/L)



N. 700,000    N. 700,500    N. 701,000    N. 701,500    N. 702,000    N. 703,500    N. 703,500    N. 703,500



N. 700,000    N. 700,500    N. 701,000    N. 701,500    N. 702,000    N. 702,500    N. 703,000    N. 703,500

PLOT DATE: 10/8/12  
 REVISED BY: GONZALEZ  
 DAC ENGINEER: E.H.  
 DAC TECHNICIAN: A.E.

KERN COUNTY  
 WASTE MANAGEMENT DEPARTMENT  
 STATE OF CALIFORNIA

CHINA GRADE SANITARY LANDFILL  
 LFG PERIMETER MONITORING WELLS

FOR ILLUSTRATION PURPOSES ONLY

**LEGEND**

- PROPERTY BOUNDARY
- - - REFUSE LIMIT
- - - PERMITTED FACILITY BOUNDARY
- LANDFILL GAS MONITORING WELL
- \* OPTIONAL MONITORING WELL

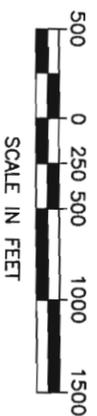
**NOTE**

WHERE CONTIGUOUS, BOUNDARY LINES ARE SEPARATED FOR ILLUSTRATIVE PURPOSES.



FIGURE

1



**LEGEND**

- PROPERTY BOUNDARY (211.99 ACRES)
- PERMITTED FACILITY BOUNDARY (211.99 ACRES)
- PAVED ROAD
- PARCEL
- 12** SECTION NUMBER
- T.29S/R.28E-MDB&M TOWNSHIP/RANGE-MOUNT DIABLO BASE & MERIDIAN
- PROPOSED ACQUISITION (24.29)

OVERLAPPED BOUNDARY LINES ARE OFFSET FOR ILLUSTRATIVE PURPOSES

**ASSESSOR'S PARCEL NUMBER AND OWNER**

- 436-010-02 COUNTY OF KERN (GENERAL HOLDINGS)
- 436-010-03 COUNTY OF KERN (GENERAL HOLDINGS)
- 436-010-36 COUNTY OF KERN (GENERAL HOLDINGS)
- 436-010-37 CANYONS LLC
- 436-061-12 COUNTY OF KERN (BROWN)
- 436-061-13 BROWN FAMILY TRUST EL AL
- 436-061-15 KEITH & MACK OIL CO.
- 436-062-01 USA/BERNAL ALEJANDRO & K M EXEMPTION TRUST
- 436-062-04 BERNAL ALEJANDRO & K M EXEMPTION TRUST
- 436-062-05 COUNTY OF KERN
- 436-062-06 COUNTY OF KERN
- 436-062-07 COUNTY OF KERN
- 436-062-09 COUNTY OF KERN
- 436-062-19 MAGEE INVESTMENT CO.
- 436-062-25 BEAR MOUNTAIN LIMITED
- 436-062-26 OXY USA INC.
- 436-090-17 FELICE LEE & LINDA TRUST
- 436-090-18 BRIXEY THELMA
- 436-090-19 NEWBERRY FAMILY TRUST
- 436-090-20 SADJAS TRUST

**FOR ILLUSTRATION PURPOSES ONLY**

•ACREAGE PROVIDED BY DEEDS OR ASSESSORS MAPS  
MAY NOT REPRESENT SURVEYED INFORMATION

LAST PLOTTED	10/30/2012
LAST REVISED BY	ESTRADAA
DC&C ENGINEER	EMILE HADDAD
TECHNICIAN	CHRISTINA QUIROZ

COUNTY OF KERN  
**WASTE MANAGEMENT**  
DEPARTMENT  
BAKERSFIELD, CALIFORNIA

SCALE	1"=1000'	CHINA GRADE SANITARY LANDFILL	MAP
DATE	10/26/2011	APNS AND PROPERTY OWNER MAP	1

AERIAL PHOTO: 2008