

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. R9-2010-0123
FOR THE

BRADLEY PARK LANDFILL
SAN MARCOS
SAN DIEGO COUNTY

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

- 1. Legal and Regulatory Authority:** This Monitoring and Reporting Program (M&RP) conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (Division 7, commencing with Water Code section 13000) including section 13267; (2) applicable state and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the *Water Quality Control Plan, San Diego Basin* (Basin Plan) adopted by the San Diego Water Board, including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including State Water Board Resolution No. 68-16 *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, Resolution No. 88-63 *Sources of Drinking Water*, and Resolution No. 92-49 *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under California Water Code section 13304*, California Code of Regulations (CCR) Titles 23 and 27; and (5) relevant standards, criteria, and advisories adopted by other state and federal agencies.
- 2. Purpose:** The purpose of this M&RP is to (1) assess the effectiveness of the Corrective Action Program described in the Amended Report of Waste Discharge (ARoWD) submitted by the City in compliance with CCR Title 27, 20425(d), (2) to assess ongoing compliance with WDR Order No. 97-11, and (3) to determine if additional releases of waste constituents have occurred at the site.
- 3. Basis for Groundwater Corrective Action Monitoring:** This M&RP requires the City to establish and implement a water quality monitoring program in accordance with CCR Title 27, section 20430(d). The presence of waste constituents in groundwater and surface water triggered the requirements for an Evaluation Monitoring Program (EMP), under CCR Title 27, section 20425, for the Bradley Park Landfill (Landfill). The City has completed the requirements for an EMP to the satisfaction of the San Diego Water Board. Based on the results of the EMP, the City submitted a Report of Waste Discharge that included the Corrective Action Program.
- 4. Basis for Groundwater Monitoring System Requirements and Standards:** This M&RP prescribes performance requirements for monitoring systems and corrective

action, as set forth in CCR Title 27, sections 20415(b) and 20430(b), for cleanup and abatement of pollution and nuisance conditions from the release/discharge of waste constituents from the Landfill into groundwater and surface water.

5. **Basis for Requiring Technical and Monitoring Reports:** Water Code section 13267 provides that the San Diego Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports, shall bear a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports. In requiring the reports, the San Diego Water Board must provide the person with a written explanation with regard to the need for the reports, and identify the evidence that supports requiring that person to provide the reports.
6. **Need for Technical and Monitoring Reports:** The technical and monitoring reports required by this M&RP are needed to ensure that the City complies with CCR Title 27, to assess the effectiveness of the Corrective Action Program, including the protection of surface water, to determine whether a secondary release has occurred from the Site, and to enable the San Diego Water Board to effectively assess the compliance by the City with WDR Order No. 97-11. The burden of providing the required reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
7. **Qualified Professionals:** The City's reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigation, and cleanup and abatement activities. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals.
8. **California Environmental Quality Act:** The Bradley Park Landfill is an existing facility and as such is exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with CCR Title 14, Chapter 3, Article 19, section 15301.

IT IS HEREBY ORDERED that, pursuant to section 13267 of the Water Code, the City shall comply with the following monitoring and reporting program requirements:

PART I – COMPLIANCE REPORTING

A. REPORTS TO BE FILED WITH THE SAN DIEGO WATER BOARD

1. **Semi-Annual Report:** The semi-annual report shall contain, at a minimum, the following information:

- a. A list of monitoring parameters (MPars)¹ for each groundwater monitoring well and landfill gas (LFG) migration monitoring probe;
- b. Detection limits of laboratory testing and monitoring equipment;
- c. The concentrations of MPars of samples collected during the current sampling event;
- d. A map (or copy of an aerial photograph) which indicates the locations of observation stations, monitoring points, background monitoring points, and groundwater flow rate/direction and graphical presentation (e.g., arrow indicating flow direction on a map);
- e. A map showing the groundwater elevation encountered at each groundwater monitoring well, groundwater elevation contours, with interpreted groundwater flow direction and gradient;
- f. A map showing the location and concentration of all MPars that exceed their respective Water Quality Protection Standard;
- g. Groundwater monitoring well construction information, method and time of groundwater elevation measurement, a description of the method used to purge the well and collect groundwater samples, and quality assurance/quality control (QA/QC) procedures used;
- h. Field logs used during well purging and sampling. At a minimum, the field logs should include the following:
 - i. The well number;
 - ii. Sampling date and time;
 - iii. The method of monitoring field parameters and calibration of equipment used to monitor field parameters;
 - iv. Purge Method (if a pump is used, include pump placement and pumping rate); and
 - v. Purging and sampling information such as: date each well was purged; well recovery time; method of disposal of the purged water; an estimate of volume of water purged from each well; the results of all field analyses; depth to groundwater prior to purging, at the conclusion of purging, and when the sample was collected;

¹ MPars are "monitoring parameters" that make up the subset of Constituents of Concern that are monitored in groundwater either to detect a release, or evaluate the effectiveness of corrective actions.

the method of measuring the water level; and field personnel names and signatures.

- i. A discussion of the condition and performance of the storm water control facilities and a copy of the most recent Storm Water Annual Report (to be included as an Appendix to the October Semi-Annual Report);
 - j. Site Inspection reports;
 - k. A graphical representation of concentration data versus time, using semi-log plots, covering all available monitoring data for each MPar for at least the previous five years;
 - l. Landfill Gas (LFG) monitoring reports, including method and time of landfill gas measurement, quality assurance/quality control (QA/QC) procedures, and measured concentrations of methane and volatile organic compounds (VOCs) in LFG monitoring points;
 - m. Corrective action operational parameters, including natural attenuation parameters for groundwater; and concentrations of methane, carbon dioxide, and oxygen for each LFG monitoring point;
 - n. Correlation of dissolved oxygen (DO) and oxidation reduction potential (ORP). Include a plot of dissolved oxygen and ORP data from each sampling event including the r^2 value for the best fit correlation. This is a data QA/QC test for field measured parameters. If the correlation is low, the DO and ORP data should not be used to interpret subsurface conditions, and the monitoring procedures should be further evaluated; and
 - o. An evaluation of corrective action measures (storm water conveyance, LFG systems, and monitored natural attenuation) in accordance with CCR Title 27, section 20430(h). If the City or San Diego Water Board determines that the corrective action measures are ineffective, the evaluation shall also document how the Corrective Action Measures will be revised to improve their effectiveness.
2. **Annual Summary Report:** The annual summary report, covering the previous monitoring year, shall contain the following information:
- a. For each monitoring point and background monitoring point, the City shall submit a graphical display per CCR Title 27, section 20415(e)(14) for all data collected within at least the previous five calendar years. Each graph shall plot the concentration of one or more constituents over time for a given monitoring point. For any given constituent, the scale on the concentration axes for all plots should be the same semi-log scale to

facilitate comparison and identification of trends. Based on the trend analysis the San Diego Water Board may direct the City to carry out a preliminary investigation to determine whether or not a release is indicated;

- b. For each monitoring point, trend analyses shall include identification of current trends, a comparison to previously identified trends, and a discussion of any significant changes in the trends. A trend analysis shall be prepared for groundwater and landfill gas data;
- c. Documentation of a statistical or non-statistical data analysis at each monitoring well, for those MPars that have not previously been detected at that well (Detection Mode);
- d. Updates to the background data set or statistical analysis methods as required by **Part IV.A.2 – Statistical Analysis**;
- e. A written summary of the monitoring results and monitoring system(s), indicating any changes made or observed since the previous Annual Summary Report;
- f. All analytical data obtained during the previous annual reporting period shall be presented in a tabular format. The data shall be provided electronically on compact disks (CDs) or other media in Excel file format;
- g. A comprehensive discussion of the compliance record and of all corrective actions taken or planned which may be needed to bring the City into full compliance with WDR Order No. 97-11, and this M&RP. The discussion of the compliance record shall identify any conditions that have failed to comply with any requirements of WDR Order No. 97-11, or this M&RP during the previous annual reporting period. For each condition identified, the actions taken to correct the condition over the previous annual reporting period shall be documented. Activities planned for the reporting period of the next annual report shall be presented with a schedule for completion;
- h. A topographic map at appropriate scale, showing the direction of groundwater flow at the Landfill;
- i. A copy of any amendments made to the Storm Water Pollution Prevention Plan. If no amendments were made since the previous year, the City shall provide a statement to that effect;
- j. A summary of all maintenance activities conducted during the reporting period;

- k. All modifications to the landfill maintenance plan. If no modifications were made since the previous reporting period, the City shall provide a statement to that effect;
 - l. A copy of the entries over the reporting period to the Permanent Log, listing all deficiencies and the actions taken to correct them (see Part I.A.3.b).
3. **Site Inspection Reports:** Site inspections shall be completed at least once each quarter and reported to the San Diego Water Board as an Appendix to the semi-annual reports. The Site Inspection Reports shall include all observations and monitoring activities to document compliance with performance standards set forth in CCR Title 27, section 21090(c).
- a. Site Inspection Reports shall be included as an Appendix to each Semi-Annual Monitoring Report and at a minimum, include the following information: an evaluation of all systems, including the landfill gas monitoring system, groundwater monitoring wells, and drainage control structures. The inspection reports shall include the date and time of the inspections and contain information on site conditions, and at a minimum, a discussion of any significant findings concerning:
 - i. General site conditions;
 - ii. The condition of the storm water conveyance system;
 - iii. The effectiveness of erosion control BMPs;
 - iv. The condition of the water quality monitoring points;
 - v. The status/condition of the landfill gas monitoring system;
 - vi. Maintenance activities performed at the site;
 - vii. Identification of all areas that require maintenance work; and
 - viii. A summary of all maintenance activities conducted at the site since the last site inspection.
 - b. All observed deficiencies shall be photographed and recorded in the Site Inspection Report and in a permanent log that is kept on site or at the City office. The permanent log shall be made available for review upon request. Documentation of the actions taken to correct each deficiency and a photograph showing the area after corrective actions must be included in a Site Inspection Report and the permanent site log. The permanent site log must list all inspections conducted by City staff and all

state and local agencies, the results of the inspection, and corrective actions taken to correct all noted deficiencies.

- c. The Site Inspection Reports shall document compliance with the maintenance requirements listed in Maintenance Specification C.8 of Order No. 97-11.
4. **Landfill Gas Monitoring Reports:** Because LFG monitoring is part of the corrective action, the City shall monitor the LFG monitoring system as described in Part II.D – LANDFILL GAS MONITORING and report to the San Diego Water Board.
- a. LFG Monitoring Reports shall be included in an Appendix to each Semi-Annual Report and include the following minimum information:
 - i. Maps showing the location of all LFG monitoring probes/points;
 - ii. Tables of monitoring results listing the date and time of the measurement and the individual taking the measurement;
 - iii. Field monitoring calibration documentation; and
 - iv. Any additional information needed to determine whether or not the LFG monitoring system is effective as part of the corrective action at the Landfill.
 - b. LFG data shall be evaluated as described in **Part I.A.1.o – Semi-Annual Report** to determine if upgrades to the monitoring system are needed as part of the corrective action at the Landfill.
5. **Constituents of Concern Report:** The City shall monitor all potential constituents of concern (COCs) and submit a COC Report as follows:
- a. Every five years the City shall sample all monitoring points and background monitoring points for each monitored medium (excluding landfill gas) for all COCs identified in Table 5.1 of the ARoWD and constituents listed in Appendix II to Code of Federal Regulations (CFR) Title 40, Part 258. The first COC report shall be submitted no later than **April 30, 2011** and subsequent COC reports shall be due every fifth year thereafter alternately in the Fall (Reporting Period ends September 30) and Spring (Reporting Period ends March 31). The COC Report may be combined with the Semi-Annual Report or any Annual Summary Report having a reporting period that ends at the same time.

- b. The City shall monitor for all COCs in accordance with this Section, provided that such monitoring need only encompass those COCs that do not also serve as monitoring parameters.
 - c. The MPar list and COC list shall be updated as described in **Part IV.E – Five Yearly COC Scan**. The updates to the MPar and COC list shall be documented in the COC Report.
6. **Violation Reports:** If the City determines there has been a violation² of any requirement in WDR Order No. 97-11 or this M&RP; then the City must notify the San Diego Water Board office by telephone as soon as practicable once the City has knowledge of the violation. The San Diego Water Board may, depending on violation severity, require the City to submit a separate technical report on the violation within five working days of telephone notification.
 7. **Well Construction Workplan:** Within **60 days** of issuance of this M&RP, the City shall submit a workplan for the design and construction of two new downgradient monitoring wells, as proposed in the revised RoWD. The City shall also submit a well construction report within **30 days** of completion of construction activities.
 8. **Landfill Gas Monitoring Probe Completion Report:** The City shall submit a copy of the landfill gas monitoring probe report within **30 days** of completion of monitoring probe construction activities.
 9. **Public Participation Plan:** The City shall submit a finalized Public Participation Plan to the San Diego Water Board at least **60 days** prior to the initiation of any construction activities at the site. Upon approval of the plan by the San Diego Water Board, the City shall implement the plan at least **30 days** prior to the initiation of any construction activities at the site.
- B. REPORTING SCHEDULE:** Reports shall be submitted to the San Diego Water Board Office by 5:00 pm on or before the due date, in accordance with the following schedule:

² A violation includes any violation of a requirement issued by a regulatory agency relative to requirements of applicable state, federal, or local storm water control permits, or an exceedance of any Water Quality Control Protection Standard.

Table B.1: Reporting Schedule

Report Type	Report Frequency	Report Period	Report Due close of business
Semi-Annual Report	Semi-Annual	April - September	October 30
Semi-Annual Report	Semi-Annual	October - March	April 30
Annual Summary Report	Annual	April - March	April 30
Landfill Gas Report	Semi-Annual ¹	April - September	October 30
Landfill Gas Report	Semi-Annual ¹	October - March	April 30
Site Inspection Report	Semi-Annual ¹	April - September	October 30
Site Inspection Report	Semi-Annual ¹	October - March	April 30
COC Report	Five Years	Varies ²	April 30 or October 30 ¹

¹ Landfill Gas and Site Inspection Reports shall be submitted as Appendices to the Semi-Annual Monitoring Reports.

² COC Reports are due at alternating intervals to account for potential seasonal variations in these data (i.e., every other report is due in April of the reporting year).

C. STANDARD REPORTING REQUIREMENTS

- Submission Procedures.** The City must submit one electronic, searchable PDF copy of all documents required under this M&RP to:

California Regional Water Quality Control Board, San Diego Region
 9174 Sky Park Court, Suite 100
 San Diego, California 92123
 Attn: Land Disposal Program Supervisor

Larger documents shall be separated at logical places in the report to keep file sizes under 150 megabytes. The City shall also continue to provide a paper transmittal letter, a paper copy of all figures larger than 11 inches by 17 inches, and an electronic copy (on a CD or other appropriate media) of all reports to the San Diego Water Board. All correspondence and documents submitted to the San Diego Water Board shall include the reference code "210207:<staff name>" in the header or subject line, where ">staff name>" is the first initial and last name of the San Diego Water Board case manager.

- Use of Licensed Professionals.** All reports, plans, and documents required under this M&RP must be prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. A statement of qualification and license numbers of the responsible lead professionals shall be included in all plans

and reports submitted by the City. The lead professional shall sign and affix their license stamp to the report, plan, or document.

3. **Electronic Data Submittals.** The state's Electronic Reporting Regulations (Chapter 30, Division 3 CCR Title 23)³ require electronic submission of any report or data required by a regulatory agency from a cleanup site. All information submitted to the San Diego Water Board in compliance with this M&RP is also required to be submitted electronically via the Internet into the Geotracker database <http://geotracker.waterboards.ca.gov/> (Geotracker Site ID L10006943141). The electronic data must be uploaded on or prior to the regulatory due dates set forth in the M&RP or addenda thereto. To comply with these requirements, the City must upload to the Geotracker database the following minimum information:⁴
- a. **Laboratory Analytical Data:** Analytical data (including geochemical data) for all soil, vapor, and water samples in Electronic Data File (EDF) format. Water, soil, and vapor data include analytical results of samples collected from monitoring wells, boreholes, LFG probes, LFG extraction wells, soil vapor wells, piezometers, surface water, stockpiles, and drinking water wells, if applicable.
 - b. **Location Data:** The latitude and longitude of any permanent monitoring well for which data is reported in EDF format, accurate to within one meter and referenced to a minimum of two reference points from the California Spatial Reference System (CSRS-H), if available.
 - c. **Monitoring Well Elevation Data:** The surveyed elevation relative to a geodetic datum of any permanent monitoring well. Elevation measurements shall be made at the top of groundwater well casings for all groundwater monitoring wells.
 - d. **Depth-to-Water Data:** The depth-to-water in monitoring wells even if groundwater samples are not actually collected during the sampling event.
 - e. **Monitoring Well Screen Intervals:** The depth to the top of the screened interval and the length of screened interval for any permanent monitoring well.
 - f. **Site Map:** Site map or maps which display discharge locations, streets bordering the facility, and sampling locations for all soil, water, and vapor samples. The site map is a stand-alone document that may be submitted in various electronic formats. A site map must also be uploaded to show the maximum extent of any waste constituent in groundwater. An updated site map may be submitted at any time.
 - g. **Boring Logs:** Boring logs (in searchable PDF format) prepared by an appropriately licensed professional.

³ As required by California Code of Regulations, Title 23, section 3890, et seq.

⁴ Reporting requirements per California Code of Regulations, Title 23, section 3893(b).

- h. **Electronic Report:** A complete copy (in searchable PDF format) of all workplans, assessment, cleanup, and monitoring reports, including the signed transmittal letters, professional certifications, and all data presented in the reports.
4. **Transmittal Letter.** A letter summarizing significant findings shall be submitted as part of each report. The transmittal letter shall include:
- a. A summary of all violations incurred since the last report. Violations include verbal and written notices of violation from federal, state, and local regulatory agencies, and violations noted by the City, such as exceedance of the Water Quality Protection Standard, failure to conduct monitoring as required by this M&RP, or any other violation of WDR Order No. 97-11, or this M&RP.
 - b. A discussion of any condition identified since the last report was submitted that does not comply with WDR Order No. 97-11, or this M&RP, and a description of all actions taken or planned to correct the violation(s). The City shall describe any actions taken to address previously identified violations and the status of any ongoing violations. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter.
 - c. A statement certifying that the City shall conduct corrective actions during the next annual reporting period to address all deficiencies listed in the Annual Report (see **Part I.A.2.g – Reporting Requirements**) and that funding and other resources as required will be allocated to conduct the activities according to the proposed schedule.
 - d. The person signing the Transmittal Letter must make the following certification”

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”
 - e. All documents submitted to the San Diego Water Board shall be signed by either a principal executive officer or ranking elected official, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:

- i. The authorization is made in writing by an authorized representative of the City;
- ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and
- iii. The authorization is submitted to the Executive Officer prior to submission of the document.

PART II – CORRECTIVE ACTION MONITORING SPECIFICATIONS

A. WATER QUALITY PROTECTION STANDARD: The Bradley Park Landfill is in violation of its water quality protection standard (WQPS) any time a given detection mode well/MPar exhibits a measurably significant increase over the applicable WQPS [per CCR Title 27, section 20415(e)(7)]. All well/MPar pairs in corrective action monitoring remain in violation of the WQPS until completion of a successful proof period that ends the CAP [see CCR Title 27, section 20430(g)]. Pursuant to criteria established by CCR Title 27, section 20390, the WQPS for groundwater at the Bradley Park Landfill consists of the following components:

1. **Constituents of Concern (COC)** [CCR Title 27, section 20395]

The COCs for the Bradley Park Landfill are listed in Table 5.1 of the ARoWD. Updates to the COC list will be made pursuant to **Part I.A.5 – Constituents of Concern Report**. Statistical and non-statistical data analysis is limited to only those COCs that are on the current MPar list.

2. **Concentration Limits** [CCR Title 27, section 20400(b) and (c)]

The concentration limit of a given well/MPar pair is its applicable background data set, as determined or updated pursuant to **Park IV.A.2 – Background Data Set** and **Park IV.D – Ongoing Background Well Testing**. For organic constituents, the Maximum Contaminant Levels (MCLs) as promulgated by the California Department of Public Health may be used as a Concentration Limit Greater than Background (CLGB) for evaluation of corrective action within the existing release. CLGBs are not established for new releases or constituents with no established MCLs.

3. **Point of Compliance and Monitoring Wells** [CCR Title 27, section 20405]

Compliance wells for the Bradley Park Landfill include wells: SM-2, SM-3, SM-5, SM-6, SM-7, SM-8 and two new wells to be developed. Background wells for the Landfill include wells SM-1 and SM-9. Groundwater elevations shall be measured quarterly in wells SM-1, SM-2, SM-3, and SM-4, BA-1, BA-2, BA-3A, and BA-6. Semi-annual monitoring shall occur for one year after adoption of

this M&RP in piezometers BA-1, BA-2, BA-3A, and BA-6 to provide additional source zone data to confirm the COC list. As conditions warrant, the City shall install additional monitoring wells such that the groundwater monitoring system meets the requirements of CCR Title 27, section 20415(b). Any additional wells shall be proposed by the City in the next Semi-Annual Report, and automatically added to the list of compliance or background wells unless rejected by the San Diego Water Board.

4. **Compliance Period** [CCR Title 27, section 21410]

The compliance period for this Landfill, at a minimum, is 30 years. The compliance period started with the initiation of the evaluation monitoring program. Compliance monitoring shall continue through 2039, or until the site has been in continuous compliance with its WQPS for a period of three consecutive years, whichever is later.

B. GROUNDWATER MONITORING. The specific requirements for the applicable groundwater monitoring programs are defined by performance standards found in CCR Title 27, section 20415(b) and (e).

1. The monitoring program shall include a sufficient number of Monitoring Points, installed at appropriate depths and locations to provide:
 - a. The best assurance of the earliest possible detection of a release from the Landfill (Detection Monitoring Program);
 - b. The data needed to evaluate changes in water quality due to the release from the Landfill (Evaluation Monitoring Program); and
 - c. The data needed to evaluate the effectiveness of the Corrective Action Program.
2. The City shall implement a groundwater monitoring program that at a minimum, includes the following:
 - a. The City shall use and maintain groundwater monitoring wells listed in **Part II.A.3 – Point of Compliance and Monitoring Wells** to conduct the groundwater monitoring programs.
 - b. Groundwater samples shall be collected, analyzed, and reported for the MPars shown in the following table:

MONITORING PARAMETERS	UNITS	SAMPLING AND REPORTING FREQUENCY
pH	pH	Semi-annually
Field Conductivity	µS/cm	Semi-annually
Turbidity	NTU	Semi-annually
Total Dissolved Solids	mg/L	Semi-annually
Chloride	mg/L	Semi-annually
Sulfate	mg/L	Semi-annually
Nitrate as Nitrogen	mg/L	Semi-annually
Bicarbonate	mg/L	Semi-annually
Carbonate	mg/L	Semi-annually
Chemical Oxygen Demand	mg/L	Semi-annually
Calcium	mg/L	Semi-annually
Potassium	mg/L	Semi-annually
Magnesium	mg/L	Semi-annually
Sodium	mg/L	Semi-annually
Volatile Organic Compounds	µg/l	Semi-annually
Metals ¹	mg/l	Semi-annually

Note: mg/l = milligrams/liter
 µg/l = micrograms/liter
 NTU = Nephelometric turbidity units
 µS/cm = microsiemens per centimeters

¹Metals shall be analyzed for one year, and discontinued if sampling data confirms that there has not been a release of metals from the Landfill.

- c. Prior to pumping monitoring wells for sampling, the static water elevation shall be measured to the nearest 0.01 foot in each well.
- d. For any given monitored medium, samples shall be collected:
 - i. For all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period;

- ii. In a manner that ensures sample integrity to the greatest extent feasible; and
- iii. Samples shall be collected as late in the Reporting Period as feasible, considering the time needed to analyze the samples, analyze the resulting data, and to prepare and submit the monitoring report to the San Diego Water Board within **30 days** after the end of the Reporting Period.
- e. Prior to purging and sampling monitoring wells, the City shall assess the well for the presence of a floating immiscible layer. If an immiscible layer is found, the City shall notify the San Diego Water Board within **24-hours** of the discovery.
- f. Groundwater elevations shall be monitored at least once during the monitoring period at the times of expected highest and lowest elevations of the water level for the respective groundwater body [CCR Title 27, section 20415(e)(15)]. Groundwater elevations shall be measured within a period of time short enough to avoid temporal variations in groundwater elevation.
- g. Groundwater sampling shall also include an accurate determination of field parameters (pH, temperature, electrical conductivity, and turbidity) [CCR Title 27, section 20415(e)(13)].

C. LANDFILL GAS MONITORING: The City shall implement a LFG monitoring program, as described in the ARoWD that meets the following minimum requirements:

- 1. **Monthly Landfill Gas Monitoring:** Once a month all LFG perimeter probes shall be monitored for the following:
 - a. Methane
 - b. Carbon Dioxide
 - c. Oxygen
- 2. **Annual Perimeter Probe Monitoring:** Once a year all perimeter probes shall be monitored for:
 - a. VOCs
 - b. Fixed Gases
 - i. Oxygen
 - ii. Carbon Dioxide

- iii. Methane
- iv. Nitrogen
- v. Helium
- vi. Ethane
- vii. Ethene
- viii. Propane

3. **Monitoring Locations:** The City may propose, or the San Diego Water Board may require, additional perimeter probes to be included in the LFG network at the Landfill.
- D. SURFACE WATER MONITORING:** The City shall implement a surface water monitoring program in accordance with the corrective action monitoring specifications found in CCR Title 27, section 20415(c)(2)(D).
1. The monitoring system shall include a sufficient number of Monitoring Points established at appropriate locations and depths to provide:
 - a. The best assurance of the earliest possible detection of a release from the Landfill (Detection Monitoring Program);
 - b. The data needed to evaluate changes in water quality due to the release from the Landfill (Evaluation Monitoring Program); and
 - c. The data needed to evaluate the effectiveness of the Corrective Action Program.
 2. The City shall implement a surface water monitoring program that at a minimum includes the following:
 - a. Surface water monitoring points as described in the ARoWD, and in accordance with Order No. 97-03-DWQ, *Waste Discharge Requirements (WDRs) for Discharges of Storm Water Associated with Industrial Activities Excluding Construction*.
 - b. Surface water samples shall be collected, analyzed, and reported for the MPars shown in the following table:

MONITORING PARAMETERS	UNITS	SAMPLING AND REPORTING FREQUENCY
pH	pH	Semi-annually
Field Conductivity	µS/cm	Semi-annually
Turbidity	NTU	Semi-annually
Total Dissolved Solids	mg/L	Semi-annually
Chloride	mg/L	Semi-annually
Sulfate	mg/L	Semi-annually
Nitrate as Nitrogen	mg/L	Semi-annually
Bicarbonate	mg/L	Semi-annually
Carbonate	mg/L	Semi-annually
Chemical Oxygen Demand	mg/L	Semi-annually
Calcium	mg/L	Semi-annually
Potassium	mg/L	Semi-annually
Magnesium	mg/L	Semi-annually
Sodium	mg/L	Semi-annually
Volatile Organic Compounds	µg/l	Semi-annually
Metals ¹	mg/l	Semi-annually
Dissolved Iron ²	mg/l	Semi-annually
DDE ³	µg/l	Semi-annually
Phosphate ³	mg/l	Semi-annually
Ammonia ³	mg/l	Semi-annually

Note: mg/l = milligrams/liter and µg/l = micrograms/liter
 NTU = Nephelometric turbidity units
 µS/cm = microsiemens per centimeters

¹Metals shall be analyzed for one year, and discontinued if sampling data confirms that there has not been a release of metals from the Landfill.

²Dissolved iron shall be analyzed for one year in surface water samples only, and then re-evaluated for continued monitoring.

³These constituents shall be analyzed for two years in surface water only, and then re-evaluated for continued monitoring.

PART III – SAMPLING AND ANALYSIS

A. STANDARD MONITORING PROVISIONS

1. The City shall comply with the requirements of CCR Title 27, sections 20385 through 20430.
2. Unless otherwise permitted by the San Diego Water Board, all analyses shall be conducted at a laboratory accredited for such analyses by the California Department of Public Health.
3. Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) shall be signed by the laboratory director and contain:
 - a. A complete sample analytical report.
 - b. A complete laboratory QA/QC report.
 - c. A discussion of the sample and QA/QC data.
 - d. A properly completed Chain of Custody form for the analyzed samples.
 - e. A transmittal letter stating whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement, "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services in accordance with current United States Environmental Protection Agency (USEPA) procedures."
4. Specific methods of analysis shall be identified in monitoring program reports. If the City proposes to use methods or test procedures other than those included in the most current version of "Test Methods for Evaluations of Solid Waste, Physical/Chemical Methods, SW-846" (USEPA) or 40 CFR, Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification," a Sampling and Analysis Plan must be submitted, with the rationale for the change, to the San Diego Water Board for review and approval prior to implementing the requested change.
5. If the City monitors any sampling point or MPar more frequently than required by this M&RP, the results shall be included in the monitoring reports. The City shall also report the increased frequency of monitoring and specific monitoring locations to the San Diego Water Board.

6. Sample collection, storage, and analysis shall be performed according to the protocols included in the USEPA's "Test Methods for Evaluations of Solid Waste, Physical/Chemical Methods, SW-846" (available online at <http://www.epa.gov/epawaste/hazard/testmethods/index.htm>) and in accordance with a written sampling and analysis plan, approved by the San Diego Water Board.
7. All monitoring instruments and equipment shall be properly calibrated and maintained as necessary to ensure accuracy of measurements.
8. The City shall retain records of all monitoring information, including all calibration and maintenance records, and copies of all reports required by this M&RP. Records shall be maintained for a minimum of five years from the date of sample, measurements, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the San Diego Water Board.
9. Records of monitoring information shall include:
 - a. The date, identity of sample, Monitoring Point from which the sample was collected, and time of sampling or measurement;
 - b. The name of the individual(s) who performed the sampling or measurements;
 - c. Date and time that analyses were started and completed, and the names of the individuals performing each analysis;
 - d. The analytical techniques or method used, including method of preserving the sample and the identity and volumes of reagents used;
 - e. Calculation of results;
 - f. Results of analyses and the method detection limit (MDL) for each parameter;
 - g. Laboratory quality assurance results (e.g., percent recovery, response factor, etc.); and
 - h. Chain of Custody forms.
10. The City shall comply with the following:
 - a. The methods of analysis shall be appropriate for the expected concentrations;

- b. The method of analysis with the lowest MDL shall be used;
- c. Analytical results falling between the MDL and the practical quantitation limit (PQL) shall be reported as "trace" and shall be accompanied by documents reporting both the MDL and PQL values for that analytical run;
- d. MDLs, and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. In a relatively interference-free laboratory derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

If the laboratory suspects that, due to a change in matrix or other effects, the MDL or PQL for a particular analytical run differs significantly from historic MDL or PQL values the results shall be flagged and reported in the QA/QC report.;

- e. The MDL shall always be calculated such that it represents a concentration associated with a 99 percent reliability of a non-zero result;
- f. The PQL shall represent the lowest concentration at which a numerical value can be assigned with reasonable certainty;
- g. All QA/QC data shall be reported, along with the sample results to which it applies. The QA/QC information shall include the method, equipment, and analytical detection and quantitation limits, the recovery rates, an explanation for any recovery rate that is less than 80 percent, 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. Sample results shall be reported unadjusted for blank results or spike recovery. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or laboratory blanks), the accompanying sample results shall be appropriately flagged.
- h. Upon receiving written approval from the San Diego Water Board, a proposed alternative statistical or non-statistical procedure may be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (e.g., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient

sample shall be reported and flagged for easy reference by the San Diego Water Board.

- i. Unknown chromatograph peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

PART IV – STATISTICAL ANALYSIS

A. STATISTICAL DATA ANALYSIS METHODOLOGY

1. **Water Quality Monitoring Objective:** The objectives of the corrective monitoring program are to monitor the effectiveness of the corrective action measures and determine whether any MPar has exhibited a new measurably significant increase at any well. Therefore, the City shall monitor each well/MPar pair in one of the three following modes:
 - a. **Detection Mode:** The purpose of the Detection Mode monitoring, for any well/MPar pair is to detect the arrival of a MPar at that well in a concentration high enough to trigger a measurably significant indication using an appropriate statistical or non-statistical data analysis method.
 - b. **Tracking Mode:** For a MPar that has produced a measurably significant increase at any well, the purpose of tracking monitoring, for that well/MPar pair, is to verify the suitability and effectiveness of the existing or proposed corrective measures by tracking changes in the MPar's concentration at that location via regular updates to concentration-versus-time plots.
 - c. **Proof Mode:** For an MPar that has successfully undergone corrective action in a given well, the purpose of monitoring for that well/MPar pair is to verify that the concentrations of the MPar remain below the concentration limit for a period of three years. Any constituent that remains at concentrations less than the concentration limit for all samples within a three-year period may be removed from the MPar list upon recommendation by the City and approval by the San Diego Water Board.
2. **Background Data Set:** The initial background data set for each MPar at a given compliance well (well/MPar pair), shall include all validated data obtained since 2001. Every two years, the City shall update the background data set with the new data from that well, providing that the new data do not indicate an increase over the previous background dataset. The City may retire the well/MPar's oldest two years of background data. The new background dataset

shall be presented and discussed in the appropriate annual report (CCR title 27, section 20415(e)(14)).

The City shall validate the proposed intra-well background dataset for each MPar at each existing well, and for each new well. The City shall report the validated background dataset, for each affected well/MPar pair, in the next scheduled monitoring report. Initial background data validation shall be as follows:

- a. **Accelerated Background Data Procurement:** If there *are less than ten sampling events* for a given MPar at any well, the City shall implement the accelerated data procedure described in **Part IV.A.2.c – Intra-Well Background Validation for New Well/MPar Pairs** prior to initiating the intra-well background data set validation procedure described below.
- b. **Validate Upgradient Data for Organic Appendix II MPars:** For any Appendix II organic compound that is an MPar, the initial intra-well data validation shall only utilize data from background wells that do not exceed the constituent's method detection limit for 90 percent of the analyses. Such organic constituents should not be detectable at background wells except in error (around 1 percent of the time) or because the constituent comes either from the Landfill or from another source. If organic constituents are detected in more than 10 percent of analyses in background wells, the MPar shall be rejected. If the City cannot adequately explain the reason for the constituent's presence, the City shall conduct an investigation under **Part IV.C – Statistical Analysis**.
- c. **Intra-Well Background Validation for New Well/MPar Pairs:** For new wells, or a new MPar at an existing well, the City shall establish the background concentration for each MPar by collecting and analyzing samples monthly from each well with insufficient background data until each well has at least 10 data points. If monthly sampling would not provide representative data, the City shall submit an alternate sampling plan to the San Diego Water Board for approval. Once ten data points are available the following intra-well comparison background dataset methods shall be used:
 - i. **Commonly Qualified Constituents:** For any MPar that, absent the Landfill's existence, would usually be detected in groundwater at concentrations exceeding the constituent's PQL, the City shall validate the proposed intra-well background data at each compliance well by comparing it to a pooled box-and-whiskers (pooled data) plot from all "background" (upgradient or cross-gradient) wells completed in the same groundwater aquifer. A

compliance well's data cannot be used for an intra-well comparison if the constituent's median concentration exceeds the 75th percentile of the pooled data. Inter-well comparisons shall be used for these wells. Data sets from a well/MPar pair whose existing data's median is less than the pooled background plot's 75th percentile shall be used as the initial background dataset for intra-well comparisons for that well/MPar pair.

- ii. **Rarely Qualified Constituents:** For an MPar that, absent the Landfill's existence, would seldom be detected in groundwater (e.g., synthetic constituents), the City shall identify the highest value from the pooled dataset from all background wells that have passed validation under ***Statistical Analysis Park IV.A.1.b*** or, in a case where all applicable upgradient well data is non-detect, the MDL. The City shall use this value as a basis of comparison to validate the data points in the proposed intra-well background dataset. The initial intra-well background dataset for that downgradient well shall consist of all data points in the proposed intra-well background dataset that are less than this value.
3. **Performance Standards:** All data analysis methods (statistical or non-statistical) shall meet the requirements of CCR Title 27, section 20415(e)(9).
4. **Retest is Part of the Method:** The City shall conduct two re-tests whenever test results indicate that a MPar has an increased concentration to verify the initial data (CCR Title 27, section 20415(e)(8)). A measurably significant increase exists if either or both the retest samples validate the preliminary indication.
5. **Limited Retest Scope:** For any given groundwater monitoring point, the City may perform the verification procedure only for those MPars that have shown a preliminary indication at that well for that reporting period.
6. **Detection Mode Data Analyses:** The City shall comply with the following when conducting detection mode sampling:
 - a. **MPars Readily Detectable in Background:** To determine if a new release has occurred, the City shall use the intrawell prediction limits for calcium, magnesium, sulfate, and TDS; and interwell tolerance limits for all other constituents. The City shall recalculate these limits every two years as described in the following sections. For any new MPar or monitoring well, the City shall propose and substantiate an appropriate statistical method for that well/MPar pair.
 - b. **MPars Not Readily Detectable in Background:** The City shall use the California Non-Statistical Data Analysis Method test described in

Part IV.B. Statistical Analysis for any monitoring point in which one or more MPars exceed their respective MDL in less than 10 percent of the applicable background dataset.

B. CALIFORNIA NON-STATISTICAL DATA ANALYSIS METHOD

1. Non-Statistical Method for Detection Mode MPars Seldom Found in

Background: The City shall use this data analysis for all constituents on the "scope list," for each retest sample, or for the modified scope list.

- a. **Scope List:** Every MPar that exceeds its MDL in less than 10 percent of its background dataset shall be placed on the "scope list."
- b. **Two Triggers:** A measurably significant indication of a release occurs when:
 - i. Two or more of the MPars exceed their respective MDL; or
 - ii. One or more of the MPars equals or exceeds its respective PQL.

2. Discrete Retest [CCR Title 27, section 20415(e)(8)(E)]:

- a. In the event that the City concludes (pursuant to paragraph b.ii above) that there is a tentative indication of a release, then the City shall immediately notify the San Diego Water Board by phone or e-mail and, within **60 days** of the original sampling event, shall collect two new retest samples from the indicating compliance well.
- b. For any given compliance well retest sample, the City shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test and those indicated constituents shall comprise the well's "modified scope list." As soon as the retest data are available, the City shall apply the same test [under paragraph C.1.b above, but using the modified scope list] to separately analyze each of the two suites of retest data at that compliance well.
- c. If either or both of the retest samples trips either or both of the triggers under paragraph C.1.b above, then the City shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s). Furthermore, thereafter, the City shall monitor the indicated constituent(s) in tracking mode instead of detection mode (see **Statistical Analysis Part VI.A.1.b**) at that well, and shall highlight this conclusion and these changes in the next scheduled monitoring report.

C. FREQUENT DETECTIONS OF AN ORGANIC CONSTITUENT IN A BACKGROUND

WELL: An "excessive proportion" of an MPar or a COC exist when 10 percent or more of the MPar data collected from a given background well are reported to have concentrations equal to or greater than the MDL. An "excessive frequency" exists when either a MPar or COC are reported to have concentrations equal to or greater than the MDL for two consecutive sampling events. The City shall notify the San Diego Water Board within 30 days of the determination that either an "excessive proportion" or "excessive frequency" exists. Furthermore, within 180 days of the determination, the City shall submit a report to the San Diego Water Board that evaluates if the MPar is from the site, and proposes appropriate changes to the monitoring program. Based on the evaluation, the San Diego Water Board may:

1. Conclude that the organic constituent originated from a source other than the Landfill and require the City to make appropriate changes to the monitoring program, such as using an appropriate statistical inter-well comparison procedure with a suite of background data that reflects the expected concentration for that constituent; or
2. Conclude that the organic compound originated from the Landfill and require the City to:
 - a. list the constituent as an MPar in the next scheduled monitoring report, if it is not already so listed, and shall note this change in the Transmittal Letter;
 - b. include this background well as part of the release for that MPar and consider this well as a compliance well as part of the Evaluation Monitoring Program; and
 - c. within 120 days, install a new upgradient or cross-gradient background well in a portion of the aquifer that will provide data representative of background conditions for the Landfill's Compliance Wells.

D. ONGOING BACKGROUND WELL TESTING. The City shall continue to monitor background wells, for each MPar and COC, each time that MPar or COC is monitored at downgradient wells. New background well data shall be included in the semi-annual report [see CCR Title 27, section 20415(e)(14)] as a time-versus-concentration plot for that "background" well and constituent. Any time such a plot for a given well and constituent shows two successive data points in excess of the MDL for any organic constituent that has not already been investigated at that well, as required? in **Part IV.C – Statistical Analysis**, the City shall notify the San Diego Water Board within **30 days** of the sampling event by phone or e-mail, and shall initiate an investigation within **180 days** of noting this condition.

E. FIVE-YEARLY COC SCAN. Every five years, subsequent to the initial Appendix II scan [see **Part I.A.5 – Constituents of Concern**], the City shall analyze a sample

from every groundwater monitoring well for all COCs not yet known to be part of the release, including all Appendix II constituents.

1. If a COC is detected (including trace values) that is not yet on the MPar list, the City shall, within **30 days**, resample the well and reanalyze the sample for the newly-detected constituent(s).
2. All COCs verified by a retest becomes part of the MPar list for the Site. The City shall notify the San Diego Water Board of any such change within **30 days** of the retest, via phone, facsimile, or e-mail, and shall list the constituent(s) added to the MPar list in the next scheduled monitoring report, along with a listing of which well(s) were involved in this detection and verification.

PART V – CONTINGENCY REPORTING

A. NOTIFICATION OF A RELEASE

1. The City shall notify the San Diego Water Board by telephone or e-mail within **24 hours**, and by mail within seven days when the City determines that there is significant physical evidence of a release.
2. The City shall notify the San Diego Water Board by telephone or e-mail within 30 days of a sampling event when they determine that there is significant statistical evidence of a release. The City shall provide written notification by certified mail within **seven days** of the initial notification, and conduct a discrete test per **Part IV.A.4** (statistical method) or **Part IV.B.2** (non-statistical method).

B. EVALUATION OF A RELEASE. If the City determines that a release has been discovered:

1. The City shall, within **90 days** of determining there is measurably significant evidence of a release, submit an Amended Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of CCR Title 27, sections 20420(d)(5) and 20425.
2. The City shall, within **180 days** of discovering the release, submit to the San Diego Water Board a preliminary engineering feasibility study report meeting the requirements of CCR Title 27, section 20420(k)(6).

C. RELEASE BEYOND THE FACILITY BOUNDARY. If the City determines that a release has been discovered to extend beyond the facility boundary:

1. The City shall implement the Public Participation Plan approved by the San Diego Water Board.

2. The City shall notify all affected persons (i.e., individuals and private and public entities who either own or occupy property that overlies the release). The initial notification shall include a description of the City's current knowledge of the nature and extent of the release.
3. The City shall provide updates to all affected persons.
4. The City shall provide the San Diego Water Board a copy of the current mailing list of affected persons and copies of the notification and updates within **seven days** of sending such notifications.

PART VI – PROVISIONS

- A. ENFORCEMENT DISCRETION:** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.
- B. ENFORCEMENT NOTIFICATION:** Failure to comply with the requirements of this Order may subject the City to enforcement action, including but not limited to: imposition of administrative civil liability in an amount not to exceed \$1,000 for each day the violation occurs under Water Code section 13268, not to exceed \$5,000 for each day in which the violation occurs under Water Code section 13350, and not to exceed \$10,000 for each day in which the violation occurs under Water Code section 13308; or referral to the Attorney General for injunctive relief or civil or criminal liability.
- C. REQUESTING ADMINISTRATIVE REVIEW BY THE STATE WATER BOARD:** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with section 13320 of the Water Code, and CCR Title 23, section 2050. The petition must be received by the State Water Board (Office of Chief Counsel, P.O. Box 100, Sacramento, CA 95812) within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

Ordered by: Julie Chan
Julie Chan
Chief, Cleanup and Land Discharge Branch