

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

STAFF SUMMARY REPORT
(ALYX KARPOWICZ)
MEETING DATE: January 21, 2015

ITEM: 6E

SUBJECT: CITY OF DALY CITY, MUSSEL ROCK LANDFILL, DALY CITY, SAN MATEO COUNTY – Update of Waste Discharge Requirements and Rescission of Order No. 82-043

CHRONOLOGY: Waste Discharge Requirements (WDRs) adopted 1965; updated 1977 and 1982
Cease and Desist Order (CDO) adopted 1977 and revised 1983
Cleanup and Abatement Order (CAO) issued 1978
Site Cleanup Requirements (SCRs) adopted 2000

DISCUSSION: The attached Tentative Order (Appendix A) would do the following:

- 1) Update WDRs for the landfill, recognize completed tasks in the 1982 WDRs, and rescind the 1982 WDRs;
- 2) Combine monitoring and reporting requirements from the 2000 SCRs into the updated WDRs; and
- 3) Bring the landfill into compliance with the applicable and appropriate portions of title 27 of the California Code of Regulations that govern final capping requirements.

The landfill is located adjacent to the Pacific Ocean at the northern terminus of Westline Drive in Daly City. The site encompasses an area of approximately 29 acres. The Daly City Scavenger Company accepted municipal waste at the landfill from 1957 until 1978 when the City took full ownership of the landfill and disposal operations ceased.

WDRs were initially issued for the site in August 1965. The 1977 WDRs required the landfill to stop accepting municipal refuse, and the 1977 CDO required closure of the landfill by February 15, 1978. The 1978 CAO was issued for violation of requirements in the 1977 WDRs. The site has also been regulated under the 2000 SCRs. All tasks of the SCRs have been successfully completed, and the SCRs were rescinded in November 2014.

The City has indicated its acceptance of the Tentative Order and did not submit any comments. We expect it will remain uncontested.

**RECOMMEN-
DATION:** Adoption of the Tentative Order

CIWQS ID. 219046 (AJK)

APPENDIX: A – Tentative Order

Appendix A

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

TENTATIVE ORDER NO. R2-2015-000X

**UPDATED WASTE DISCHARGE REQUIREMENTS
AND RESCISSION OF ORDER NO. 82-43 for:**

CITY OF DALY CITY
MUSSEL ROCK LANDFILL
FORMER MUNICIPAL SOLID WASTE SITE
DALY CITY, SAN MATEO COUNTY

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

DISCHARGER AND LOCATION

1. Owner, operator, and discharger named: The closed Mussel Rock Landfill (also referred to as the landfill or the site) is owned by the City of Daly City, hereinafter also referred to as the Discharger or the City.
2. Site location: The landfill is located adjacent to the Pacific Ocean at the northern terminus of Westline Drive in Daly City (Figure 1). The site encompasses an area of approximately 29 acres.

OPERATIONAL AND REGULATORY HISTORY

3. Operational history: The Daly City Scavenger Company accepted municipal waste at the site from 1957 until 1978, when the City took full ownership of the site and disposal operations ceased.
4. Regulatory history: The Water Board has regulated the landfill under several different orders and resolutions:
 - a) The Water Board issued Waste Discharge Requirements (WDRs) for the landfill on August 19, 1965, in Resolution No. 694, after complaints were received about trash on adjacent beaches.
 - b) Cease and Desist Orders were adopted in Resolutions Nos. 68-68 and 69-58, mandating improvements to the landfill and maintenance of drainage to separate all surface drainage and groundwater from refuse.
 - c) WDR Order No. 77-6 required the landfill to stop accepting municipal refuse, and subsequent Cease and Desist Order No. 77-119 required closure of the landfill on February 15, 1978.
 - d) On June 23, 1978, Cleanup and Abatement Order No. 78-013 was issued for violation of requirements in Order No. 77-6 pertaining to the landfill's seawall.
 - e) On July 21, 1982, the Water Board issued WDR Order No. 82-43, which required improved site maintenance, including extension of the seawall to protect the site from

- wave action, and additional clean soil to provide a minimum final cover of three feet across disposal areas.
- f) On October 19, 1983, the Water Board issued Revised Cease and Desist Order No. 83-41 and reiterated requirements made in Cease and Desist Order No. 82-44, which required the City and the Daly City Scavenger Company to stop discharging wastes in violation of the requirements of Order No. 82-43. The time schedule in which to comply was also extended because of a large winter storm event damaging much of the work the Discharger had accomplished by that point.
 - g) The Water Board adopted Site Cleanup Requirements (SCR) Order No. 00-027 on April 19, 2000. The SCR ordered the Discharger to develop an emergency response contingency plan; install and monitor groundwater and leachate monitoring wells; evaluate the adequacy of the existing landfill final cover; and to study the stability of the slopes immediately surrounding and compromising the integrity of the landfill. All tasks of the SCR were successfully completed, and SCR Order No. 00-027 was rescinded on November 19, 2014, by Order No. R2-2014-0052.
 - h) The site's five outfalls are monitored under statewide Industrial Activities Storm Water General Permit No. 97-03-DWQ.

PURPOSE OF THE ORDER UPDATE

- 5. The WDRs are being updated to 1) recognize completed tasks required by and rescind WDR Order No. 82-43, 2) combine monitoring and reporting requirements from SCR Order No.00-027, and 3) where feasible, to bring the landfill into compliance with the appropriate portions of title 27 of the California Code of Regulations that govern final capping (referred to hereinafter as title 27).

SITE DESCRIPTION

- 6. Waste placement: Mussel Rock Landfill is unlined and has no leachate extraction or collection system. Leachate and groundwater discharge together through seeps along the rip rap and/or five outfalls into the Pacific Ocean (Figure 2). The landfill was developed in an area, known as the Mussel Rock Landslide, which had a history of landsliding related to the site's location within sheared bedrock of the San Andreas fault zone. Earlier landslides had created a large depression where refuse and debris were dumped, then covered with onsite soils (Kleinfelder, 1999).
- 7. Waste types and amounts: The site contains two disposal areas: a small (approximately 4-acre) upper disposal area and a larger (approximately 25-acre) lower disposal area, which collectively contain approximately one million cubic yards of refuse. According to the Landfill Cover Evaluation Report (Kleinfelder, 2001), debris at the site consists of paper, charred wood, glass, plastic, asphalt chunks, roofing shingles, Styrofoam, wires, scrap aluminum, concrete, and bricks. These waste materials are contained within a silty sand matrix. The thickness of this debris ranges from 1 foot to 75 feet below ground surface (bgs).
- 8. Landfill Cap: After landfill operations ceased in 1978, the landfill was capped with 1 to 7 feet of onsite soils, consisting primarily of silty sand. The 2001 Cover Evaluation Report

recommended that clean soils be imported to increase the landfill cover thickness to a minimum of 2 feet above refuse on side slopes, and a minimum of 3 feet over refuse on the flatter portion of the lower landfill area. The Discharger performed these cover improvements in December 2002.

SITE GEOLOGIC AND HYDROGEOLOGIC SETTING

9. Geology: The site is located in an area of steep canyon and ridge topography that has been mostly concealed by the placement of large volumes of refuse. Most of the site is underlain by the Merced Formation bedrock, which consists of weakly cemented sandy siltstone or fine-grained silty sandstone (Kleinfelder, 2001).
10. Groundwater: The site is located within the San Pedro Valley groundwater basin. Depth to groundwater has ranged from approximately 6 to 14 feet bgs in upgradient groundwater monitoring wells KMW-1 and KMW-2, and from approximately 30 to 44 feet bgs in leachate monitoring wells KMW-3, KMW-4, and UMW-5.
11. Surface water: The nearest surface water body is the Pacific Ocean, which borders the site on the west. Stormwater runoff is collected through a series of drainage culverts and discharges into the ocean from five outfall pipes (Outfalls 1, 3, 6, 8, and 10). Surface seeps and springs have been observed in several locations across the site; some of this water is captured by culvert and storm drains and routed to the outfalls. Several of the seeps and springs result not only in percolation into the waste mass but potential loading onto the slide plane below the waste mass. Provision 6 requires the Discharger to address this situation.

Two sedimentation basins were constructed onsite to allow sediment to settle out of stormwater collected from the bluffs above the site. The basin located near the east end of the upper disposal area is currently managed by the City; management includes periodically removing sediment to maintain an adequate amount of freeboard space in the basin. The second basin, which is located on the lower disposal area plateau, is vegetated with native plants and grasses and collects a much smaller volume of sediment. This basin does not require active sediment management.

12. Seismicity and landslides: The San Andreas Fault runs in a northwesterly direction through the site, bisecting the upper and lower disposal areas. Active shear zones are also known to exist at the site. The site will be subjected to a variable degree of ground shaking caused by a major or moderate earthquake generated by the San Andreas Fault in this area. The maximum magnitude earthquake anticipated on this segment of the fault is 7.9.

The landfill was constructed at the toe of a very large composite landslide, which surrounds most of the site and extends to the top of the bluffs to the east. Rotational slump scarps and side scarps of the large landslide directly east of Mussel Rock are clearly visible. Currently active landslides vary in extent from tens to hundreds of feet in length, and possible future landslide areas have been identified onsite by the presence of tension cracks. Inclinator studies have shown rapid and significant ground movement (up to 14.5 inches per year along the head of the landslide, approximately 2.5 inches per year along the central portion of the landslide, and approximately 7.2 inches per year near the toe of the slide) along two slide

planes at the site (Cox-Whitsel, 1983). The south end of the site appears to be sliding the fastest and is the portion of the site most affected during rainy years. This Order requires the Discharger to provide updated measurements of slope movement (Provision C.5).

WATER QUALITY AND SITE CONTAMINATION

14. Ambient water quality: Between 2001 and 2014, total dissolved solids (TDS) concentrations ranged from 2,730 mg/L to 11,000 mg/L in the five monitoring wells onsite. Water Board Resolution No. 89-39, "Sources of Drinking Water," generally excludes areas where groundwater contains TDS concentrations in excess of 3,000 mg/L, or areas with a low well yield. Currently groundwater in the vicinity of the site is not used as a source of drinking water, and, based on the TDS concentrations, the site's dynamic geology, and its location adjacent to the Pacific Ocean, it is unlikely that groundwater beneath the site will ever be used as a source of drinking water in the future.
15. Impacts to water quality from the landfill: Due to the absence of a liner and leachate extraction system, landfill leachate and groundwater are commingled beneath the site. Samples collected from the landfill's five monitoring wells during the years 2001 through 2014 indicate that several volatile organic compounds (VOCs) are present in leachate wells KMW-3, KMW-4, and UMW-5. In comparison, no VOCs have been detected in the upgradient groundwater wells KMW1 and KMW-2. The VOC concentrations in leachate have not exceeded their respective environmental screening levels (ESL) for marine water. General chemistry test results show that concentrations of ammonia, chloride, and chemical oxygen demand are higher in leachate than in upgradient groundwater wells. Certain dissolved metals exceed their Ocean Plan limits (typically arsenic, cadmium, chromium, and nickel) and ESLs (typically cobalt and thallium) in groundwater and leachate.

Water quality parameters are also analyzed in surface water samples collected from the five outfalls. VOCs have been detected sporadically at concentrations below ESLs in Outfalls 6 and 10. Metals detected above Ocean Plan limits in outfall samples include arsenic, chromium, copper, nickel, selenium, and zinc; metals detected above ESLs include cobalt and thallium.

The groundwater and surface water quality data collected thus far warrants continued monitoring for VOCs and more frequent monitoring of metals (see Attachment A).

BASIN PLAN

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

OCEAN PLAN

17. The Ocean Plan was adopted October 16, 2012, by the State Water Board to make clear that there shall not be degradation of marine communities or other exceedances of water quality objectives due to waste discharges. This is true for all near-coastal ocean waters, regardless of whether a Marine Protected Area is present. If sound scientific information becomes available demonstrating that discharges are causing or contributing to the degradation of marine communities, or causing or contributing to the exceedance of narrative or numeric water quality objectives, then new or modified limitations or conditions may be placed in National Pollutant Discharge Elimination System (NPDES) permits to provide protections for marine life, both inside and outside of Marine Protected Areas.

This plan is applicable, in its entirety, to point-source discharges to the ocean. Nonpoint sources of waste discharges to the ocean are subject to Chapter I Beneficial Uses, Chapter II Water Quality Objectives, and Chapter III – Program of Implementation.

BENEFICIAL USES

18. The existing beneficial uses of the Pacific Ocean include:
- a) Wildlife habitat
 - b) Navigation
 - c) Water and non-water contact recreation
 - d) Ocean, commercial, and sport fishing
 - e) Preservation of rare and endangered species
 - f) Marine habitat
 - g) Fish spawning and migration
 - h) Industrial service supply
 - i) Shellfish harvesting
 - j) Mariculture
19. Potential beneficial uses of groundwater beneath the landfill include:
- a) Municipal and domestic supply
 - b) Industrial process and service supply
 - c) Agricultural fresh water supply

MONITORING PROGRAMS

20. Groundwater and leachate: SCR Order No. 00-027 required the City to install a groundwater monitoring well network and to implement a Discharge Monitoring Program (DMP). The monitoring network consists of two upgradient groundwater monitoring wells (KMW-1 and KMW-2) and three downgradient leachate monitoring wells (KMW-3, KMW-4, and UMW-5). Water elevations in the wells are measured quarterly, and the wells are sampled semiannually for water quality (see Provision C.4, and Attachment A - DMP).
21. Landfill gas: An Air Quality Solid Waste Assessment Test (SWAT) was conducted for the landfill and immediately adjacent areas in 1989 (Mark Group, 1989). Landfill gas testing

indicated that methane was detected at concentrations that exceeded the lower explosive limit (LEL) of 5 percent. Results of gas migration testing indicated that methane was also present in the subsurface beyond the perimeter of the landfill at concentrations that exceeded the LEL. Methane was detected in three of four subsurface gas samples collected along the perimeter of the landfill at concentrations ranging from 1.2 to 41 percent.

In 1990, an additional 27 gas probes were installed; 16 were located in the lower portion of the landfill and 11 in the upper portion. Sampling of these gas probes indicated the presence of methane in excess of the LEL in 6 of the 27 gas probes. Surface air screening performed across the landfill indicated that methane was consistently detected at low levels across two transects of the site (Mark Group, 1990).

Vapor samples were also collected during installation of the five groundwater monitoring wells in 2001. Results showed methane concentrations above the LEL only in well UMW-5.

Because the site is designated for use as open space, and there are no permanent structures on the landfill, there is no need for permanent landfill gas monitoring stations. However, this Order requires the Discharger to perform updated methane monitoring to assess current conditions (see Provision C.4).

22. Stormwater: Title 40 of the Code of Federal Regulations (CFR), Parts 122, 123, and 124, require specific categories of industrial activities, including landfills, to obtain an NPDES permit for stormwater discharges. The statewide Industrial Activities Storm Water General Permit applies to this site for stormwater discharges. Stormwater flows through five outfalls over rip rap at the western edge of the site and into the ocean. Stormwater is sampled semi-annually (if water is present) on the same schedule as the onsite monitoring wells (see the DMP, Attachment A).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

23. Adoption of this Order is exempt from the California Environmental Quality Act (CEQA). Under CEQA Guidelines §15061(b)(3), CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. This Order requires the Discharger to continue site monitoring and maintenance activities, and these will not result in any additional actions that may have an effect on the environment beyond the existing baseline conditions.
24. Public notice: The Water Board has notified the Discharger and interested agencies and persons of its intent to adopt WDRs and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
25. Public meeting: The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that WDR Order No. 82-043 is rescinded, and the Discharger, its agents, successors and assigns shall meet the applicable provisions contained in title 27, Division 2, Subdivision 1 of the California Code of Regulations and Division 7 of the California Water Code (CWC) and shall comply with the following:

A. PROHIBITIONS

1. No additional waste shall be deposited or stored at this site.
2. The relocation of wastes to or from any waste management unit shall not create a condition of pollution or nuisance as defined in section 13050 (l) and (m) of the CWC. Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.
3. Leachate or ponded water containing leachate or in contact with waste shall not be discharged to waters of the State unless specifically authorized under an NPDES permit.
4. The creation of any new waste management units at this landfill is prohibited.
5. The Discharger shall not excavate within or reconfigure any existing waste management unit without prior Water Board approval.
6. The Discharger shall not perform any intrusive activities on the landfill surface that have the potential to negatively affect the integrity and proper function of the landfill cap, such as digging or trenching, without prior Water Board approval.
7. The Discharger shall not disc the landfill cap. Alternate methods of controlling vegetative growth, which do not affect the integrity of the landfill cap, shall be utilized.
8. Untreated or inadequately treated groundwater or leachate shall not create a condition of pollution or nuisance as defined in section 13050 (m) of the CWC nor degrade the quality of waters of the State or of the United States.
9. The Discharger, or any future owner or operator of the site, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility: further degradation of groundwater quality and/or increasing lateral extent or concentrations of existing groundwater impacts.

B. SPECIFICATIONS

1. All reports pursuant to this order shall be prepared under the supervision of a California registered professional civil engineer, professional geologist, or certified engineering geologist.
2. The site shall be protected from any washout or erosion of wastes or cover material and from inundation that could occur as a result of a 100-year, 24-hour precipitation event, or as the result of flooding with a return frequency of 100 years.

3. Internal site drainage from surface sources shall not contact or percolate through wastes during the life of the site.
4. The Discharger shall maintain the structures that control surface drainage and erosion to withstand conditions generated during the maximum probable earthquake and/or slope displacement.
5. The final cap system shall be maintained and be adequately compacted to promote lateral runoff and prevent ponding and infiltration of water. Special attention shall be paid to the southern portion of the site, which is more prone to sliding in wet weather years.
6. The Discharger shall analyze samples from groundwater monitoring wells as outlined in the DMP (Attachment A).
7. The Discharger shall install any reasonable additional groundwater, leachate, or slope stability monitoring devices required to fulfill the terms of the attached and any future DMP issued by the Water Board's Executive Officer.
8. Landfill gases, when present, shall be adequately vented or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water.
9. The Discharger shall maintain all devices or designed features installed in accordance with this Order, such that they continue to operate as intended without interruption.
10. The Water Board shall be notified immediately of any failure occurring in the waste management unit. Any failure that threatens the integrity of containment features or the landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.
11. The Discharger shall comply with all applicable provisions of title 27 that are not specifically referred to in this Order.
12. The Discharger shall maintain the Landfill so as to prevent a statistically significant increase in water quality parameters at points of compliance as provided in section 20420 of title 27.
13. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
14. At any time, the Discharger may file a written request (including supporting documentation) with the Executive Officer proposing modifications to the attached

DMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the DMP.

C. PROVISIONS

1. The Discharger shall comply immediately, or as prescribed by the time schedule below, with all Prohibitions, Specifications, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these WDRs. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these WDRs by the Water Board.
2. All technical and monitoring reports required pursuant to this Order are being requested pursuant to CWC section 13267. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to CWC section 13268.
3. **Electronic Reporting Format:** All reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Water Board's office. Upon request by Water Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Water Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review. Laboratory reports and/or field data sheets shall not be printed but included within the electronic PDF file to be emailed and uploaded to Geotracker. All electronic files, whether in PDF or spreadsheet format, shall be submitted via Geotracker and email. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's Geotracker site.

WATER QUALITY IMPACTS AND LANDFILL MONITORING

4. WORK PLAN FOR LANDFILL GAS SAMPLING

COMPLIANCE DATE: July 1, 2015

The Discharger shall submit a work plan for sampling and analysis of landfill gas within and around the landfill, acceptable to the Executive Officer, to determine if areas previously known to contain methane concentrations above the LEL (5%) still exist. The Discharger shall also submit a technical report containing the results of the landfill gas sampling event. If methane is detected above the LEL, a proposal shall be submitted to evaluate the potential human health risk to the public.

5. WORK PLAN FOR MONITORING OF SLOPE MOVEMENT

COMPLIANCE DATE: August 1, 2015

The Discharger shall submit a work plan for monitoring slope movement within and around the landfill, acceptable to the Executive Officer, which shall monitor cumulative downslope displacement of the landslide relative to adjacent stable ground. The Discharger shall also submit a technical report containing the results of the slope movement evaluation. This information can be used for early detections of rapid, catastrophic movement and provides a better understanding of landslide behavior, which can enable engineers to create more effective designs for halting landslide movement if needed in the future.

6. EFFECTIVENESS EVALUATION ASSESSING STORMWATER AND SEEP CAPTURE

COMPLIANCE DATE: September 15, 2015

The Discharger shall submit a report, acceptable to the Executive Officer, which evaluates the effectiveness of the existing stormwater capture and conveyance system. If the existing system is found to be ineffective, a proposal shall be submitted to evaluate other stormwater capture and rerouting options to reduce infiltration into the active landslide and waste mass.

7. SEMI-ANNUAL GROUNDWATER MONITORING REPORT

COMPLIANCE DATE: January 31 and July 31 of each year

The Discharger shall submit semi-annual groundwater monitoring reports acceptable to the Executive Officer, including, but not limited to groundwater levels, groundwater contour and isoconcentration maps, and laboratory analytical data, no later than January 31 and July 31 of each year in accordance with the DMP (Attachment A). The monitoring frequency may be reduced in the future pending a significant amount of favorable analytical results.

8. ANNUAL OPERATIONS AND MAINTENANCE REPORT

COMPLIANCE DATE: July 31 of each year

The Discharger shall submit an Annual Operations and Maintenance Report, acceptable to the Executive Officer, by July 31 of each year in accordance with the DMP. The annual report to the Water Board shall cover the previous calendar year as described in Part A of the DMP. In addition to the requirements outlined in the DMP, this report shall also include the following: the location and operational condition of all groundwater monitoring wells and landfill gas monitoring systems and the results of landfill gas monitoring. The report shall also include any details regarding repair and maintenance activities that need to be completed prior to the commencement of the next rainy season (starting October 15 of each year). This report shall also include a description and schedule for any repair and maintenance of the landfill gas trench and associated probes, the stormwater drainage system, and the irrigation system during the

next twelve months. Repair and maintenance estimates shall be based on rainy season inspections conducted throughout the winter as required in the DMP. This report may be combined with the semi-annual groundwater monitoring report.

9. LONG-TERM FLOOD PROTECTION REPORT

COMPLIANCE DATE: October 30, 2015, and every 5 years thereafter

The Discharger shall submit a report, acceptable to the Executive Officer, for long-term sea level rise protection at the Landfill. The report shall include a consideration of feasible options for achieving protection from the 100-year flood to account for rising sea levels and increased flood frequency and intensity. The report shall consider the methods developed by the San Francisco Bay Conservation and Development Commission to predict and protect against future flooding. The report shall be updated every five years throughout the operational life of the site with the most recently available and credible information at the time of the update.

10. POST-EARTHQUAKE INSPECTION AND CORRECTIVE ACTION REPORTS

COMPLIANCE DATE: Within 72 hours of the occurrence of an earthquake of Richter magnitude 6 or higher

The Discharger shall submit a technical report, acceptable to the Executive Officer, that describes implementation of the Post Earthquake Inspection and Corrective Action Plan for the landfill for any earthquake greater than Richter Magnitude 6 within 30 miles of the landfill. The report shall describe the results of the post earthquake inspection and any corrective actions necessary to insure landfill stability and to prevent water quality impacts that may result from seismic events.

11. CHANGE IN SITE CONDITIONS

NOTIFICATION DUE DATE: Immediately upon occurrence

REPORTING DUE DATE: 30 days after initial notification

The Discharger shall immediately notify the Water Board of any flooding, ponding, settlement, equipment failure, slope failure, exposure of waste, leachate leakage, or other change in site conditions that could impair the integrity of the landfill cap, and/or drainage control structures and shall immediately make repairs. Within 30 days, the Discharger shall prepare and submit a technical report, acceptable to the Executive Officer, documenting the corrective measures taken.

12. The Discharger shall maintain a copy of these WDRs, and these requirements shall be available to operating personnel at all times [CWC section 13263].

13. The Discharger shall permit the Water Board or its authorized representative, upon presentation of credentials:

- a. Immediate entry upon the premises on which wastes are located or in which any required records are kept.

- b. Access to copy any records required under the terms and conditions of this Order.
 - c. Inspection of any treatment equipment, monitoring equipment, or monitoring methods required by this Order or by any other State agency.
 - d. Sampling of any discharge or groundwater governed by this Order.
14. Provided there is no material change in the operation of the site, this Order may be transferred to a new owner. The Discharger or new owner must request the transfer in writing and receive written approval from the Executive Officer. Such a request must be submitted to the Executive Officer at least 30 days prior to the transfer of ownership. The request must include a written agreement between the Discharger and the new owner containing a specific date for the transfer of this Order's responsibility and coverage between the Discharger and the new owner. This agreement shall include an acknowledgment that the Discharger is liable for violations up to the transfer date and that the new owner is liable from the transfer date on. [CWC sections 13267 and 13263]. The request must contain the requesting entity's full legal name, the address and telephone number of the persons responsible for contact with the Water Board, and the acknowledgment. The discharge of waste without WDRs is a violation of the CWC.
15. This Order is subject to Water Board review and updating, as necessary, to comply with changing State and federal laws, regulations, policies, or guidelines; changes in the Water Board's Basin Plan or Ocean Plan; or changes in the discharge characteristics [CWC section 13263]. The Executive Officer may specify minor changes to the DMP as necessary.
16. Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge (ROWD) or submitted incorrect information in a ROWD or in any report to the Water Board, it shall promptly submit such facts or information [CWC sections 13260 and 13267].
17. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from its liability under federal, State or local laws, nor do they create a vested right for the Discharger to continue the waste discharge [CWC section 13263(g)].
18. Provisions of these WDRs are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.
19. The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or

auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order [CWC Section 13263(f)].

20. Except for a discharge that is in compliance with these WDRs, any person who, without regard to intent or negligence, causes or permits any waste or hazardous substance to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the State's Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code and immediately notify the Water Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of CWC section 13271 unless the Discharger is in violation of a prohibition in the Basin Plan [CWC section 13271(a)].
21. The Discharger shall report any noncompliance that may endanger public health or the environment. Any such information shall be provided by phone or email to the Executive Officer within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the initial report has been received within 24 hours [CWC sections 13263 and 13267].

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on XXXX, 2015.

Bruce H. Wolfe
Executive Officer

Figures: Figure 1 – Site Location Map
 Figure 2 – Landfill Site Map

Attachment: Attachment A – Detection Monitoring Program

ATTACHMENT A

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

DETECTION MONITORING PROGRAM

FOR

**MUSSEL ROCK LANDFILL
DALY CITY, SAN MATEO COUNTY**

TENTATIVE ORDER NO. R2-2015-000X

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in section 13267(b) of the California Water Code. This Detection Monitoring Program is issued in accordance with title 27 of the California Code of Regulations (title 27).

The principal purposes of a detection monitoring program are: (1) to document compliance with WDRs and prohibitions established by the Water Board, (2) to facilitate self-policing by dischargers in the prevention and abatement of pollution arising from waste discharges, (3) to develop or assist in the development of standards of performance and toxicity standards, and (4) to assist dischargers in complying with the applicable requirements of title 27.

B. SAMPLING AND ANALYTICAL METHODS

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

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

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

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface waters that actually or potentially receive surface or groundwaters that pass over, through, or under waste materials or contaminated soils. In this case, the groundwater beneath and adjacent to the landfill and Pacific Ocean are considered receiving waters.
3. Standard observations refer to:
 - a. Perimeter of the landfill
 - 1) Evidence of liquid leaving or entering the waste management unit, estimated size of affected area, and flow rate. (Show affected area on map).
 - 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
 - 3) Evidence of erosion and/or daylighted refuse.
 - 4) Evidence of stressed or dead vegetation.
 - 5) Evidence of tension cracks at the head or toe of the primary landslide.

b. The landfill

- 1) Evidence of ponded water or seeps at any point on the landfill.
- 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- 3) Evidence of erosion, slope failure or ground movement, and/or daylighted refuse.
- 4) Integrity of access roads, sidewalks, and perimeter sea walls around and through the landfill.
- 5) Evidence of stressed or dead vegetation
- 6) Evidence of tension cracks anywhere within the landfill or secondary landslides.
- 7) Standard analyses and measurements are listed on Table 1 (attached).

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The Discharger is required to perform sampling, analyses, and observations in groundwater and leachate per the general requirements specified in section 20415(e) of title 27.

E. RECORDS TO BE MAINTAINED

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

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE WATER BOARD

1. **Electronic Reporting Format**

All reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Water Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public during file reviews conducted at the Water Board's office. Upon request by Water Board staff, monitoring results,

including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Water Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review. Laboratory reports and/or field data sheets shall not be printed but included within the electronic PDF file to be emailed and uploaded to Geotracker. All electronic files, whether in PDF or spreadsheet format, shall be submitted via Geotracker and email. Email notification should be provided to Water Board staff whenever a file is uploaded to the Water Board's Geotracker site.

2. **Monitoring Reports**

Written groundwater monitoring reports shall be filed by January 31 and July 31 of each year. In addition, an annual operations and maintenance report shall be filed by July 31 of each year. The semi-annual groundwater monitoring report due on July 31 of each year can be combined with the annual report. The reports shall be comprised of the following:

a. Letter of Transmittal

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

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

- 1) A graphic description of the direction of groundwater flow under/around the landfill based upon the past and present water level elevations and pertinent visual observations.
- 2) The method and time of water level measurement; the type of pump used for purging and sampling; pump placement in the well; the method of purging; pumping rate; the equipment and methods used to monitor field pH, dissolved oxygen, temperature, turbidity, and conductivity during purging, and following results; the calibration of the field equipment; well recovery time; and method of disposing of the purge water.

- 3) A detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used; the date and time of sampling; the name and qualifications of the person actually taking the samples; and any other observations.
 - 4) A written discussion of the groundwater analyses indicating any change in the quality or characteristics of the groundwater.
- c. A comprehensive discussion of the compliance record and status, as well as any corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the WDRs and applicable portions of title 27.
 - d. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.
 - e. Laboratory statements with the results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory, and all reports of such work submitted to the Water Board shall be signed by a duly authorized representative of the laboratory.
 - 1) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than U.S. EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.
 - 2) In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment, and analytical detection limits; the recovery rates; an explanation for any recovery rate that are outside laboratory control limits; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.
 - f. A summary and certification of completion of all standard observations and inspections of the waste management units and the perimeter of the waste management units.
 - g. The Annual Monitoring Report shall be submitted to the Water Board no later than July 31 covering the previous year. The Report shall include, but is not limited to, the following:
 - 1) A graphical presentation of the analytical data [Water Board-approved alternate procedure per title 27, section 20415(e)(14)] for monitoring locations that have shown detectable concentrations during two consecutive

monitoring events or greater than ten percent detection frequency for any organic compound. Graphical representation must be provided for monitoring locations with metals and general chemistry analytical parameters that have an increasing trend for three consecutive monitoring events;

- 2) A tabular summary of all the monitoring data obtained during the previous year;
 - 3) A comprehensive discussion of the compliance record, and the corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the WDRs;
 - 4) A written summary of the groundwater analyses indicating any change in the quality of the groundwater; and
- h. Tabular and graphical summaries of the monitoring data obtained during the previous year, tabulating the year's data.

3. **Contingency Reporting**

A report shall be made by telephone of any new seepage (existing seeps are addressed in Part B) from the disposal area immediately after it is discovered. A written report shall be filed with the Water Board within five days thereafter. This report shall contain the following information:

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

4. **Well Logs**

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

G. WATER QUALITY PROTECTION STANDARDS

1. **Constituents of Concern**: The Constituents of Concern (COC) for groundwater are those listed in Table 1 of this Detection Monitoring Program.
2. **Concentration Limits**: Concentration Limits (CLs) for each COC are shown in Table 2. The CLs are set at the objectives for protection of marine aquatic life, as required by the State Water Board's Ocean Plan, Table 1. Site specific contaminants not listed in the Ocean Plan have been set at the Water Board's Environmental Screening Levels (ESLs) for marine habitats (Table F-2b). The CLs are set at Ocean Plan and

ESL marine habitat/aquatic levels and, therefore, are protective of the only receiving water, the Pacific Ocean.

3. Monitoring Points: Monitoring wells KMW-1 and KMW-2 may be used as the background water quality monitoring locations, since they are outside of the landfill footprint and have low to no COC detections to date. For those wells where COCs have been detected at concentrations greater than the CLs, monitoring will be conducted to demonstrate that the levels of COCs have either stabilized or are decreasing.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. **GROUNDWATER MONITORING:**

Semi-Annual Report: due January 31 and July 31 of each year

Groundwater levels shall be measured semi-annually using all available monitoring wells. Groundwater shall be sampled and analyzed according to the schedule specified in Table 1. Semi-annual samples are to be collected in the months of May and November. Concentration Limits for groundwater sampled from the monitoring wells are shown in Table 2.

B. **SEEPAGE MONITORING:**

The landfill perimeter shall be monitored semi-annually for seepage and the results reported as part of the groundwater monitoring report. Seepage monitoring stations include any point at which seepage is found occurring from the disposal area. Seep documentation should be included in the City's standard quarterly observations and reported in the Semi-Annual Report due January 31 and July 31 of each year. Documentation should include:

1. A map showing location (s) of the discharge,
2. Approximate flow rate, if it can be determined,
3. Laboratory analysis, if a sample can be collected, for the parameters listed in Table 1 below, and
4. Corrective measures to reroute the seeps to an appropriate location.

C. **FACILITIES MONITORING:**

Annual Report: due July 31 of each year

The Discharger shall inspect the landfill quarterly to ensure proper maintenance and report annually. Monitoring shall include, but not be limited to:

1. Slopes, walkways, and sea walls for any cracking, swelling, bulging, or surface ponding of water
2. Final cover
3. Vegetation for signs of stress

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

Attachments: Tables 1-3

**Table 1 - Groundwater Monitoring Points and Outfalls, Parameters and Sampling Frequency
Mussel Rock Landfill**

Detection Monitoring Program

Analytical Parameters	Laboratory Method	Sampling Frequency
TPH-Gasoline, Diesel and Motor Oil	US EPA methods 8260 (GC/MS) and 8015B	Semi-annual (2 nd and 4 th Quarters)
General Water Quality Parameters: pH, Electrical Conductivity, Alkalinity, Total Dissolved Solids, Total Organic Carbon, Total Kjeldahl Nitrogen, Ammonia, Dissolved Oxygen, Turbidity, and Cyanide	various field and laboratory methods	Semi-annual (2 nd and 4 th Quarters)
Pesticides: Endosulfan, Endrin, and Hexachlorocyclohexane (HCH)	US EPA Method 608	Annual (2 nd Quarter)
Volatile Organic Compounds	US EPA Method 8260	Semi-annual (2 nd and 4 th Quarters)
Title 22 CAM 17 Metals : Antimony, Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Chromium, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc	US EPA Method 6010B/7400/1613	Semi-annual (2 nd and 4 th Quarters)

**Table 2 - Concentration Limits for Discharge to the Pacific Ocean
Mussel Rock Landfill**

<u>Ocean Plan Objectives¹ - Limiting Concentrations (in µg/L)</u>			
Constituent of Concern	6-Month Median	Daily Objectives	Instantaneous Maximum
<u>Metals</u>			
Arsenic	8	32	80
Cadmium	1	4	10
Chromium	2	8	20
Copper	3	12	30
Lead	2	8	20
Mercury	0.04	0.16	0.4
Nickel	5	20	50
Selenium	15	60	150
Silver	0.7	2.8	7
Zinc	20	80	200
<u>Pesticides</u>			
Endosulfan	0.009	0.018	0.027
Endrin	0.002	0.004	0.006
HCH	0.004	0.008	0.012
<u>Other</u>			
Cyanide	1	4	10
Ammonia (as Nitrogen)	600	2,400	6,000

¹ State Water Resources Control Board, California Ocean Plan, Table 1. Water Quality Objectives October 2012.

Table 3 - Concentration Limits for Groundwater, Surface Water, and Leachate

Constituent of Concern	Environmental Screening Levels (ESLs)¹ (µg/L)
<u>TPH²</u>	
Gasoline	3,700
Diesel	640
Motor Oil	640
<u>CAM 17 Metals</u>	
Antimony	500
Barium	1,000
Beryllium	0.53
Cadmium	9.3
Cobalt	3
Molybdenum	240
Thallium	4
Vanadium	19
<u>VOCs</u>	
Benzene	350
Chlorobenzene	65
1,2- Dichlorobenzene	65
1,3- Dichlorobenzene	65
1,4- Dichlorobenzene	65
Cis- 1,2- Dichloroethene	22,000
Ethylbenzene	43
Methyl tert butyl ether	8,000
Napthalene	62
Toluene	2,500
Xylenes	100

1. San Francisco Bay Regional Water Quality Control Board, Environmental Screening Levels for Marine Aquatic Habitat Goal, Table 2a (December 2013)
2. Total Petroleum Hydrocarbons- Gasoline freshwater screening level based on studies carried out for Presidio of San Francisco. Gasoline screening level for saltwater and diesel and residual fuels screening levels in general based on studies carried out for San Francisco Airport.