

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

**ADDENDUM NO. 2 TO ORDER NO. R9-2010-0004 AS AMENDED BY ORDER NO.
R9-2011-0039**

**WASTE DISCHARGE REQUIREMENTS
FOR THE
UNITED STATES MARINE CORPS
MARINE CORPS BASE CAMP PENDLETON
LAS PULGAS LANDFILL
CAMP PENDLETON, CALIFORNIA**

A. FINDINGS

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

1. **Previous Findings.** Except as contradicted or superseded by Findings set forth in this Addendum, all Findings in Order No. R9-2010-0004, *Waste Discharge Requirements for the United States Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego County* (Order No. R9-2010-0004), and Order No. R9-2011-0039, *An Order Modifying Order No. R9-2010-0004 Waste Discharge Requirements for the United States Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego Country* (Addendum No. 1) are incorporated into this Addendum.
2. **Background.** The United States Marine Corps (Discharger) has owned and operated the Las Pulgas Landfill (Landfill) since 1971. The Landfill is classified as a Class III waste management unit in accordance with California Code of Regulations (CCR) title 27, sections 20240 and 20260, and Code of Federal Regulations, title 40, parts 258.10 through 258.15 siting criteria and construction standards. Wastes accepted at the Landfill are limited to municipal solid waste generated within the boundaries of Marine Corps Base Camp Pendleton, Camp Pendleton, California.

The San Diego Water Board adopted Order No. R9-2010-0004 on May 12, 2010. Order No. R9-2010-0004 updated existing waste discharge requirements for the Landfill and prescribed new liner design requirements for all future lateral expansion areas of the Landfill. Subsequently, the Discharger submitted a request to amend Order No. R9-2010-0004 and modify the geotechnical design criteria for

the liner system in the Phase II waste management unit (unit) expansion area of the Landfill. These modifications provided greater protection to the liner system, promoted positive drainage, allowed flexibility in the materials used for the side slope liner system, and changed the standards for subgrade preparation. In response to the Discharger's request, the San Diego Water Board adopted Addendum No. 1 on May 11, 2011.

For this Addendum, Order No. R9-2010-0004 and Addendum No. 1 are collectively referred to as Order No. R9-2010-0004.

3. **Phase I Unit Side Slope Liner Failure.** The Discharger notified the San Diego Water Board of new potential failures within the Phase I unit side slope liner system in January 2017. San Diego Water Board staff inspected the Landfill in February 2017 and observed bulging and slumping of the clay layer of the side slope liner system. Subsequent field investigations conducted by the Discharger confirmed failure of the side slope liner system and determined groundwater seeps from the canyon walls caused the failure. The groundwater seeps hydrated and compromised the integrity of the clay layer, which is the lowermost component of the side slope liner system. The Discharger concluded that the seeps were created by a rise in groundwater elevation from a series of large storm events. In response to field investigation findings,¹ San Diego Water Board staff directed the Discharger to develop a corrective action plan that includes actions to repair the Phase I unit side slope liner system and mitigate the groundwater seeps.
4. **Phase I Unit Corrective Action Plan.** The Discharger submitted the draft *Corrective Action Plan for Phase I Slope Lining System Repair, Las Pulgas Landfill, Marine Corps Base Camp Pendleton, San Diego County, California* (CAP) in February 2020. The San Diego Water Board accepted the Discharger's final CAP in August 2020. The CAP provides the procedures and technical specifications for the removal and construction of the redesigned side slope liner system for Phase I unit. The redesigned side slope liner system includes a continuous drainage layer to prevent groundwater seeps from adversely interacting with the overlying side slope liner system materials.
5. **California Environmental Quality Act.** Adoption of this Addendum is exempt from the California Environmental Quality Act (CEQA) pursuant to CCR, title 14, section 15301 because the implementation of the final CAP will not expand the Landfill use beyond what was previously approved and evaluated under CEQA.

¹ Draft Final Phase I Follow-on Liner Evaluation Technical Memorandum, January 2019; Final Feasibility Study of Repair Alternatives for Phase I Liner, October 2019.

The footprint for the Landfill was approved in Order No. R9-2000-54, *Waste Discharge Requirements for the U.S. Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego County*² and R9-2010-0004. An Environmental Assessment was completed in 1997 consistent with the requirements of the National Environmental Policy Act, and along with the Finding of No Significant Impacts, were submitted in accordance with CEQA.³ The construction of a liner system on the base and side slopes of future expansion areas was included in the Environmental Assessment. Therefore, use of the categorical exemption for existing facilities is appropriate. In addition, the approval to implement the final CAP to remove and reconstruct the Phase I liner system is exempt from CEQA pursuant to CCR title 14, section 15302 because the implementation of the final CAP consists of replacement and reconstruction of existing structures/facilities (Phase I side slope liner system) where the Phase I side slope liner system will be reconstructed in the same location and will serve the same or substantially the same purpose of the original facility. Construction of a containment system consistent with the final CAP at the Landfill is protective of water quality and permitted under existing waste discharge requirements adopted in compliance with CEQA.

6. **Waste Disposal Operations.** Daily waste disposal operations at the Landfill were moved from the Phase I unit to the Phase II unit in November 2018 and will continue in the Phase II unit throughout implementation of the final CAP. Daily waste disposal operations will not return to the Phase I unit until construction activities are complete and the San Diego Water Board has certified the side slope liner system construction is acceptable.
7. **Applicability.** The procedures and technical specifications within this Addendum, are applicable only to the corrective actions associated with: 1) relocation of municipal solid wastes from the Phase I unit to the Phase II unit; 2) removal and disposal of the existing Phase I unit side slope liner system; and 3) construction of the redesigned side slope liner system for Phase I unit.
8. **Notification of Intent.** The San Diego Water Board notified the Discharger and all known interested parties of its intent to consider adoption of this Addendum.
9. **Public Participation.** The San Diego Water Board considered all comments in a

² Order No, R9-2000-0054 was adopted by the San Diego Water Board on May 10, 2000.

³ The Environmental Assessment was updated in 2002 and for each subsequent submittal of a Joint Technical Document, the Discharger has provided an executive summary outlining any changes to the Landfill or project included in the Joint Technical Document or Environmental Assessment, if applicable.

public meeting pertaining to this Addendum.

IT IS HEREBY ORDERED, that Order No. R9-2010-0004 is amended to add Directives J, K, and L below:

J. REMOVAL AND RELOCATION OF WASTES

The following section provides discharge specifications for corrective actions related to the excavation and relocation of municipal solid wastes and the existing side slope liner system materials from the Phase I unit.

1. **Waste Excavation and Relocation.** Details regarding the excavation, management, and relocation of wastes must be documented in the Construction Quality Assurance (CQA) Report in accordance with **Reporting Requirement H.6 of Order No. R9-2010-0004**. The relocation of wastes is necessary to provide access to the junction of the side slope and base liner systems. The CAP estimates approximately 39,000 cubic yards of municipal solid waste will be removed from the Phase I unit and relocated to the Phase II unit for disposal. Additionally, approximately 100 cubic yards of synthetic materials from the side slope liner system must be excavated, processed, and relocated into the Phase II unit.
2. **Excavation Areas.** Excavation of solid wastes is limited to those areas identified in the CAP. The Discharger must implement the following actions in the excavation areas:
 - a. Remove all cover soils, solid wastes, side slope liner system materials, and any impacted subgrade soils and rock beneath and surrounding the excavation area.
 - b. Cover all excavation areas and exposed solid wastes at the end of daily excavation activities.
 - c. Install best management practices (BMPs) that prevent surface water from infiltrating through the remaining Phase I unit adjacent to the excavation area and control odors from exposed waste and landfill gases.
3. **Characterization of Solid Wastes.** The Discharger is responsible for the characterization of solid wastes in compliance with CCR title 27, section 20200(c). Characterization must determine if the solid wastes are

compatible with the containment features and other wastes defined in Water Code section 13173, or hazardous wastes pursuant to CCR title 22, division 4.5, section 66300 *et seq.*

Solid wastes suspected to be or confirmed as hazardous must be segregated and containerized. Data supporting the hazardous waste characterization must be submitted to the San Diego Water Board and San Diego County Local Enforcement Agency for approval prior to disposal at an appropriately permitted facility. Copies of manifests for the transport and disposal of hazardous materials must be included in the CQA Report.

4. **Dedicated Stockpiling Areas.** The Discharger must establish a dedicated area for the stockpiling and processing of side slope liner system materials. The dedicated stockpiling area must be identified on all figures, maps, and drawings provided in daily field reports and the CQA Report. To the extent practicable, the Discharger must minimize the time excavated side slope liner system materials are stockpiled before disposal in the Phase II unit.
5. **Phase II Unit Relocation Area.** All solid waste and side slope liner system materials removed from the Phase I unit must be disposed in the Phase II unit in a manner that does not adversely interfere with daily waste disposal operations at the Landfill. The Discharger must ensure that excavated side slope liner system materials are adequately sized and mixed with daily wastes to prevent a barrier layer from forming in the waste prism.

If the Phase II unit does not have adequate capacity to accommodate both daily waste operations and excavated solid wastes and side slope liner system materials from the Phase I unit, the Discharger shall transport waste materials to the San Onofre Landfill for disposal. The Discharger must ensure that all wastes diverted from the Landfill meet the waste acceptance criteria for the San Onofre Landfill.

6. **Side Slope Liner System Removal.** All earthen and synthetic side slope liner system materials removed from the Phase I unit must be managed and processed in a manner consistent with the technical specifications and CQA Plan of the final CAP. The removal and processing of side slope liner system materials includes:

- a. The complete and systematic removal of each side slope liner system material. These materials will be relocated to the dedicated stockpile area for size reduction prior to disposal in the Phase II unit.
 - b. The geomembrane materials will be reduced into approximately 15 to 20-square inch fragments prior to disposal.
 - c. The geotextile materials will be reduced into approximately 5-foot square fragments prior to disposal in the Phase II unit.
 - d. The complete removal and stockpiling of the low permeability soil layer for future use at the Landfill.
7. **Leachate Management.** Precipitation that falls within the excavation and staging areas must be collected and managed as leachate in accordance with CCR title 27, section 20365(b).

K. PHASE I UNIT SIDE SLOPE LINER SYSTEM DESIGN AND CONSTRUCTION

The following section provides details regarding the side slope liner system and construction specifications.

1. **Phase I Unit Side Slope Liner System.** The Phase I unit side slope liner system must be constructed with the following liner components (from bottom to top):
 - a. Prepared subgrade.
 - b. Geocomposite drainage layer.
 - c. 60-mil⁴ double-sided textured high-density polyethylene (HDPE) geomembrane.
 - d. Geosynthetic clay layer.
 - e. 60-mil single-sided textured HDPE geomembrane.
 - f. Geocomposite leachate collection and removal system (LCRS) drainage layer.

⁴ In units of measurement, 1 mil is equivalent to 0.001 inches.

- g. 2-foot thick protective cover soil layer.
 - h. Scrim-reinforced linear low-density polyethylene sacrificial protective geomembrane.
2. **Liner Materials.** In accordance with CCR title 27, section 20320(a), materials used to construct the side slope liner system must have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the Landfill.
 3. **Subgrade Preparation.** Following the excavation of the failed side slope liner system, the subgrade must be regraded, filled, compacted, and rolled to a smooth and uniform level in preparation for the deployment of the new side slope liner system in accordance with section 4.2.4 of the final CAP. The Discharger must ensure the subgrade is protected from excessive wetting due to storm events. Should the subgrade be impacted, the Discharger must repair the subgrade before the deployment of the liner components.
 4. **Side Slope Subdrain System.** A subdrain system must be installed on the Phase I unit side slopes to ensure groundwater seeps do not adversely impact the overlying side slope liner system materials. The subdrain must consist of a Solmax TenDrain 300-mil thick, tri-planar geocomposite extending across the entire side slope. The subdrain system must connect to the existing subdrain header located at the intersection of the side slope and base liner system within the Phase I unit. The existing side slope intermittent subdrain, located beneath the prepared subgrade, must remain in place.
 5. **Landfill Materials Conformance Testing.** Prior to the start of construction, the Discharger must perform conformance testing on all synthetic side slope liner system materials and follow the requirements below.
 - a. If the material strength parameters measured during conformance testing are greater than or equal to the strength parameters used in the Phase I unit side slope liner system design and stability analysis in the final CAP, the Discharger may proceed with construction activities.

- b. If the material strength parameters measured during conformance testing are less than the strength parameters used in the Phase I unit side slope design and stability analysis, the Discharger: 1) must postpone construction activities and re-run the slope stability analysis using the measured strength parameters from the conformance testing; or 2) may reject the materials and have them replaced with materials that meet the design project specifications in lieu of re-running the slope stability analysis.

The revised slope stability analysis, including all tabulated modified strength parameters, must be submitted for approval by the San Diego Water Board prior to the commencement of any further construction activities.

6. **Leachate Collection and Removal System Properties.** The Phase I unit side slope LCRS must consist of a geocomposite drainage layer that extends the entire length of the slope. The Phase I unit side slope LCRS must be connected to the existing base liner system LCRS, and is subject to the same construction, operational, and testing criteria as the base liner system LCRS. The Phase I unit side slope LCRS must be constructed in a manner that is consistent with the final CAP and the performance standards for an LCRS provided in Order No. R9-2010-0004.
7. **Liner Tie-Ins.** The Phase I unit side slope liner system design does not include the two-foot thick low permeability clay layer found in the Phase I unit base liner system or the Phase II unit side slope liner system. In the CAP the Discharger proposes to mitigate for the difference in liner system thickness and elevation by implementing the following:
 - a. The low permeability soil layer located in the tie-in area between the Phase I and Phase II units must be cut back at a slope across the tie-in area. The Phase I unit side slope liner system materials must be laid over the slope and directly tied into the Phase II unit side slope liner system.
 - b. The single-sided 60-mil HDPE geomembrane in the Phase I unit side slope liner system must be directly tied into the 60-mil HDPE geomembrane in the Phase II unit side slope liner system.
8. **Construction Quality Assurance/Quality Control.** The Discharger must ensure that CQA protocols are followed as outlined in the CQA Plan, the

technical specifications,⁵ and the CQA requirements of Order No. R9-2010-0004.

L. REPORTING REQUIREMENTS

Revisions to this Addendum may be ordered by the San Diego Water Board or requested by the Dischargers. The Discharger must provide, within a reasonable time, any information that may determine whether cause exists for modifying, revoking and reissuing, or terminating this Addendum. The Discharger must provide, upon request by the San Diego Water Board, copies of records required by this Addendum or Order No. R9-2010-0004.

1. **Daily Field Reports.** During corrective action activities and reconstruction of the Phase I unit side slope liner system, the Discharger must submit daily field reports to the San Diego Water Board by noon of the following day. The daily field reports must include observations, photographs, maps showing the area(s) of activities for each day, records of field activities, problems identified during construction, and actions taken to correct the problems. Daily field reports must be signed by the CQA officer.
2. **Final Construction Report.** The Final Construction Report must be submitted to the San Diego Water Board no later than 60-days after completion of construction, and prior to accepting waste into the newly constructed Phase I unit. At a minimum, the Final Construction Report must include the following:
 - a. A Final Engineering Report, which includes at a minimum, as-built plans, specifications, and descriptions of all side slope liner system components and other containment structures, LCRS components, leak detection system components, precipitation and drainage control facilities, interim covers, and ancillary facilities, as required by CCR title 27, section 21760(a)(1).
 - b. A CQA Report, which includes a written summary of the CQA program and all test results, analyses, copies of the inspector's original field notes, and a certification statement as required by CCR title 27, section 20324 *et seq.* The CQA Report must include all

⁵ AECOM, Final Corrective Action Plan for Phase I Slope Lining System Repair, Las Pulgas Landfill, Appendix D and F, August 21, 2020.

methodologies, testing, analyses, and field work that deviates from the CQA Plan approved for this project.

I, David W. Gibson, Executive Officer, do hereby certify the forgoing is a full, true, and correct copy of this Addendum adopted by the California Regional Water Quality Control Board, San Diego Region, on February 10, 2021.

David W. Gibson, Executive Officer