

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ADDENDUM NO. 1 TO ORDER NO. 2000-54

WASTE DISCHARGE REQUIREMENTS
FOR THE
U.S. MARINE CORPS, MARINE CORPS BASE CAMP PENDLETON
LAS PULGAS LANDFILL
SAN DIEGO COUNTY

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

1. **WASTE DISCHARGE.** Except as contradicted or superseded by the findings and directives set forth in this Waste Discharge Requirements (WDR) Addendum (Addendum No. 1), all of the previous findings and directives of Order No. 2000-54: "*Waste Discharge Requirements for the U.S. Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego County*" remain in full force and effect.
2. **ALTERNATIVE LINER CONSTRUCTION: PHASE 1 EXPANSION UNIT.** Waste Discharge Requirements issued as Order 2000-54 were predicated on an engineered alternative composite liner design for the Phase 1 expansion Unit at the Las Pulgas Landfill, authorized under Title 40, Code of Federal Regulations (40 CFR), §258.40(a)(1) and (c), California Code of Regulations (CCR) Title 27, §20080(b), and State Water Resources Control Board (SWRCB) Resolution No. 93-62. Construction on the Phase 1 expansion Unit was completed on May 24, 1999 and the Unit began receiving wastes thereafter. The liner was not properly constructed in accordance with the requirements and performance specifications in Order No. 2000-54.
3. **PHASE 1 UNIT LINER FAILURE AND ENFORCEMENT ACTIONS.** From 2004 to 2006, the Regional Board issued several enforcement actions to the U.S. Marine Corps (USMC), related to deficiencies in the construction of the engineered alternative liner system in the Phase 1 expansion Unit at the Las Pulgas Landfill. On February 24, 2006, the Regional Board issued Cleanup and Abatement Order R9-2006-0016, requiring the USMC to develop a Corrective Action Plan (CAP) to correct construction deficiencies in the engineered alternative liner for the Phase 1 expansion Unit at the Las Pulgas Landfill.
4. **REVISION OF COMPOSITE LINER DESIGN.** Because of construction-related defects, the engineered alternative composite liner system constructed for the phase 1 expansion Unit fails to meet the performance

standards set forth in CCR Title 27, 40 CFR Part 258, and waste discharge requirements in Order No. 2000-54.

5. **APPLICABILITY.** All subsequent expansions/modifications of existing facilities or new phases of solid waste management Unit(s) at the Las Pulgas Landfill must comply with the Discharge Specifications of Order No. 2000-54, as amended. However, the Discharger may propose an alternative to the prescriptive design for a composite liner system. The Regional Board is authorized to consider an alternative design to the prescriptive composite liner design under the conditions specified in CCR Title 27, §20080(b) and (c), and 40 CFR, Part 258, §258.40(a)(1).
6. **ENHANCED CQA – LEAK DETECTION.** The construction quality assurance (CQA) plan for the Las Pulgas Landfill should be revised to include geophysical methods to significantly improve the detection of landfill liner defects during the construction process. There are two main ways of detecting leaks using electrical methods: the two electrode method, and the electrode grid method. Both leak detection techniques utilize the insulative properties of geomembrane liners. Electrical methods for leak detection have been successfully employed during landfill expansions in other areas of California.
7. **CEQA.** The Las Pulgas 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, §15301.

IT IS HEREBY ORDERED that:

1. Discharge Specifications B.32 and B.33, in Order 2000-54, are deleted and replaced with the following specifications:

Prescriptive Composite Liner Design

32. The Prescriptive Design shall contain the following elements:
 - a. **Upper component** – A Synthetic Liner at least 40-mils thick (or at least 60-mils thick if on high density polyethylene) that is installed in direct and uniform contact with the underlying compacted soil component described in Specification B. 32(b), and
 - b. **Lower component** – A layer of compacted soil that is at least two feet thick and that has a hydraulic conductivity of no more than 1×10^{-7} cm/sec (0.1 feet/year).

- c. **Steep sideslopes** – Containment systems installed in those portions of the landfill where an engineering analysis shows that sideslopes are too steep to permit construction of a stable composite liner that meets the prescriptive standards contained in Discharge Specification B.32, shall include an alternative liner that meets the performance criteria contained in 40 CFR Part 258, §258.40(a)(1) and (c), and that includes either:
 1. A composite system and includes as its uppermost component a Synthetic Liner at least 40-mils thick (or at least 60-mils if high density polyethylene) that is installed in direct and uniform contact with the underlying materials; or
 2. A Synthetic Liner at least 60-mils thick (or at least 80-mils if high density polyethylene) that is installed in direct and uniform contact with the underlying materials; and
 3. A leachate collection and removal system which conveys to a sump (or other appropriate collection area lined in accordance with Discharge Specification B.32) all leachate which reaches the liner, and which does not rely upon unlined or clay-lined areas for such conveyance.
 - d. **Engineered alternative composite liner.** The Discharger may propose an engineered alternative to the prescriptive composite liner design, as specified in Discharge Specifications B.32(a), B.32(b) and/or B.32(c) of this Order, by submitting the required information specified in CCR Title 27, §20080(b) to the Regional Board for consideration.
33. **Electrical Leak Detection Survey of Synthetic Liner:**
- After completing installation of a synthetic liner (geosynthetic membrane) component, the Discharger shall:
- a. Complete an electrical leak location survey (ELLS), to check the integrity of all bottom and sideslope areas covered by the geosynthetic membrane component;
 - b. Take necessary steps to identify and repair all defects located in the geosynthetic membrane component, and
 - c. Include the results from the ELLS and any repairs to the geomembrane in the relevant construction quality assurance (CQA) report including:

1. Text discussions of field activities;
2. Daily logs of defect repairs;
3. Results from all testing performed to assess the integrity of patches/repairs made to the geosynthetic membrane;
4. Separate site plot plan indicating location(s) of all defects/repairs performed for each geosynthetic membrane layer – these site plot plans shall be made to the same scale to facilitate comparison between geosynthetic membrane layers, and
5. Supporting photographs of all defective areas and repairs made to the geosynthetic membrane component.

I, John H. Robertus, Regional Board, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on May 9, 2007.



JOHN H. ROBERTUS
Executive Officer