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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
AND THE
STATE OF CALIFORNIA
AND THE
UNITED STATES DEPARTMENT OF THE NAVY

IN THE MATTER OF:)	
The U.S. Department of the Navy)	Federal Facility Agreement Under CERCLA Section 120
Marine Corps Logistics Base Barstow)	Administrative Docket Number:

Based on the information available to the Parties on the effective date of this federal facility agreement (Agreement), and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

1. PURPOSE

1.1 The general purposes of this Agreement are to:

- (a) Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and appropriate remedial action taken as necessary to protect the public health, welfare and the environment;
- (b) Establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions at the Site in accordance with CERCLA/SARA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy, and applicable State law; and
- (c) Facilitate cooperation, exchange of information and participation of the Parties in such action; and
- (d) Ensure the adequate assessment of potential injury to natural resources and the prompt notification to and cooperation and coordination with the Federal and State Natural Resource Trustees necessary to ensure the implementation of response actions achieving appropriate cleanup levels.

1.2 Specifically, the purposes of this Agreement are to:

- (a) Identify operable unit alternatives which are appropriate at the Site prior to the implementation of final

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remedial action(s) for the Site. OU alternatives shall be identified to the Parties as early as possible prior to proposal of OUs to EPA and the State. This process is designed to promote cooperation among Parties in identifying OU alternatives prior to the final selection of Operable Units;

(b) Establish requirements for the performance of a Remedial Investigation to determine fully the nature and extent of the threat to the public health or welfare or the environment caused by the release and threatened release of hazardous substances, pollutants, or contaminants at the Site and to establish requirements for the performance of a Feasibility Study for the Site to identify, evaluate, and select alternatives for the appropriate remedial action(s) to prevent, mitigate, or abate the release or threatened release of hazardous substances, pollutants, or contaminants at the Site in accordance with CERCLA and applicable State law;

(c) Identify the nature, objective, and schedule of response actions to be taken at the Site. Response actions at the Site shall attain that degree of cleanup of hazardous substances, pollutants or contaminants mandated by CERCLA and applicable State law;

(d) Implement the selected remedial actions(s) in accordance with CERCLA and applicable State law and meet the requirements of CERCLA section 120(e)(2), 42 U.S.C. § 9620(e)(2), pertaining to interagency agreements;

(e) Assure compliance, through this Agreement, with RCRA and other federal and State hazardous waste laws and regulations for matters covered herein;

(f) Coordinate response actions at the Site with the mission and support activities at Marine Corps Logistics Base Barstow;

(g) Expedite the cleanup process to the extent consistent with protection of human health and the environment;

(h) Provide for State involvement in the initiation, development, selection and enforcement of remedial actions to be undertaken at Marine Corps Logistics Base Barstow, including the review of all applicable data as it becomes available and the development of studies, reports, and action plans; and to identify and integrate State ARARs into the remedial action process;

(i) Provide for operation and maintenance of any remedial action selected and implemented pursuant to this Agreement.

2. PARTIES

2.1 The Parties to this Agreement are EPA, the Marine Corps, and the State of California. The terms of the Agreement shall

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apply to and be binding upon EPA, the State of California, and the Marine Corps. The Department of the Navy hereby agrees to ensure the Marine Corps's performance of each of the Marine Corps's obligations hereunder.

2.2 This Agreement shall be enforceable against all of the Parties to this Agreement. This Section shall not be construed as an agreement to indemnify any person. The Marine Corps shall notify its agents, members, employees, response action contractors for the Site, and all subsequent owners, operators, and lessees of the Site, of the existence of this Agreement.

2.3 Each Party shall be responsible for ensuring that its contractors comply with the terms and conditions of this Agreement. Failure of a Party to provide proper direction to its contractors and any resultant noncompliance with this Agreement by a contractor shall not be considered a Force Majeure event or other good cause for extensions under Section 9 (Extensions), unless the Parties so agree. The Marine Corps will notify EPA and the State of the identity and assigned tasks of each of its contractors performing work under this Agreement upon their selection.

2.4 The State of California is represented by DHS as lead agency and RWQCB as support agency. The responsibilities of the lead and support agencies are set forth in this Agreement, the Memorandum of Understanding between DHS and the State Water Resources Control Board and the Regional Water Quality Control Boards for the Cleanup of Hazardous Waste Sites (Aug. 1, 1990) and the Regional Memorandum of Understanding between DHS, Toxic Substances Control Program, Region 4, and RWQCB, each of which are Attachments hereto. In the event of conflict, this Agreement shall govern.

3. JURISDICTION

3.1 Each Party is entering into this Agreement pursuant to the following authorities:

(a) The U.S. Environmental Protection Agency (EPA), enters into those portions of this Agreement that relate to the remedial investigation/feasibility study (RI/FS) pursuant to CERCLA section 120(e)(1), 42 U.S.C. § 9620(e)(1), RCRA sections 6001, 3008(h) & 3004(u) and (v), 42 U.S.C. § 6961, 6928(h), 6924(u) & (v), and E.O. 12580;

(b) EPA enters into those portions of this Agreement that relate to operable units and final remedial actions pursuant to CERCLA section 120(e)(2), 42 U.S.C. § 9620(e)(2), RCRA

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sections 6001, 3008(h) and 3004(u) & (v), 42 U.S.C. § 6961, 6928(h), 6924(u) & (v), and E.O. 12580;

(c) The Marine Corps enters into those portions of this Agreement that relate to the RI/FS pursuant to CERCLA section 120(e)(1), 42 U.S.C. § 9620(e)(1), RCRA sections 6001, 3008(h) and 3004(u) & (v), 42 U.S.C. § 6961, 6928(h), 6924(u) & (v), E.O. 12580, the National Environmental Policy Act, 42 U.S.C. § 4321, and DERP;

(d) The Marine Corps enters into those portions of this Agreement that relate to operable units and final remedial actions pursuant to CERCLA section 120(e)(2), 42 U.S.C. § 9620(e)(2), RCRA sections 6001, 3008(h), and 3004(u) & (v), 42 U.S.C. § 6961, 6928(h), 6924(u) & (v), E.O. 12580 and the DERP; and

(e) The State, represented by DHS and the RWQCB, enters into this Agreement pursuant to CERCLA sections 120(f) and 121, 42 U.S.C. § 9620(f) and 9621; California Health and Safety Code section 102 and division 20, chapters 6.5 and 6.8; and California Water Code division 7.

4. DEFINITIONS

4.1 Except as noted below or otherwise explicitly stated, the definitions provided in CERCLA, CERCLA case law, and the NCP shall control the meaning of terms used in this Agreement.

(a) "Agreement" shall mean this document and shall include all Appendices to this document except to the extent the Parties agree that any part of any Appendix is inconsistent with this Agreement. Except to such extent, all Appendices shall be made an integral and enforceable part of this document. Copies of Appendices shall be available as part of the administrative record, as provided in subsection 26.3.

(b) "ARARs" shall mean federal and State applicable or relevant and appropriate requirements, standards, criteria, or limitations selected pursuant to section 121 of CERCLA. ARARs shall apply in the same manner and to the same extent that such are applied to any non-governmental entity, facility, unit, or site, as set forth in CERCLA section 120(a)(1), 42 U.S.C. § 9620(a)(1), subject to CERCLA section 121(d)(4), 42 U.S.C. § 9621(d)(4) and E.O. 12580 § 2(d) & (g).

(c) "CERCLA" shall mean the Comprehensive Environmental Response, Compensation and Liability Act, Public Law 96-510, 42 U.S.C. § 9601 et seq., as amended by SARA and any subsequent amendments.

(d) "Days" shall mean calendar days, unless business days are specified. Any submittal that under the terms of this Agreement would be due on Saturday, Sunday, or holiday shall be due on the following business day. References herein to specific

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numbers of days shall be understood to exclude the day of occurrence.

(e) "DERP" shall refer to the Defense Environmental Restoration Program, as defined in 10 U.S.C. § 2701.

(f) "Department of Defense" shall mean the U.S. Department of Defense.

(g) "DRC" shall have the meaning given in subsection 12.2.

(h) "DHS" shall mean the California Department of Health Services, its successors and its employees and authorized representatives.

(i) "EPA" shall mean the U.S. Environmental Protection Agency, its successors and its employees and authorized representatives.

(j) "Facility" shall have the same definition as in CERCLA section 101(9), 42 U.S.C. § 9601(9).

(k) "Feasibility Study" or "FS" means a study conducted pursuant to CERCLA and the NCP which fully develops, screens and evaluates in detail remedial action alternatives to prevent, mitigate, or abate the migration or the release of hazardous substances, pollutants, or contaminants at and from the Site. The Marine Corps shall conduct and prepare the FS in a manner to support the intent and objectives of Section 17 (Statutory Compliance/RCRA-CERCLA Integration).

(l) "FOIA" shall mean the Freedom of Information Act, 5 U.S.C. § 552 et seq., and any subsequent amendments thereto.

(m) "Marine Corps" shall mean the U.S. Marine Corps (a component of the U.S. Department of the Navy) and its employees, members, agents, and authorized representatives. "Marine Corps" shall also include the U.S. Department of the Navy and the U.S. Department of Defense, to the extent necessary to effectuate the terms of this Agreement, including, but not limited to, appropriations, funding and Congressional Reporting Requirements.

(n) "Meeting," in regard to Project Managers, shall mean an in-person discussion at a single location or a conference telephone call of all Project Managers. A conference call will suffice for an in-person meeting at the concurrence of the Project Managers.

(o) "National Contingency Plan" or "NCP" shall refer to the regulations contained in 40 C.F.R. § 300.1 et seq., including any amendments thereto.

(p) "Natural Resource Trustee(s)" and "Federal or State Natural Resource Trustees" shall have the same meaning and authority provided in CERCLA and the NCP.

(q) "Natural Resource Trustee(s) Notification and Coordination" shall have the same meaning as provided in CERCLA and the NCP.

(r) "Operable Unit" or "OU" shall have the meaning

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provided in the NCP.

(s) "Operation and maintenance" shall mean activities required to maintain the effectiveness of response actions.

(t) "Parties" shall mean the parties to this Agreement.

(u) "Project Manager" shall have the meaning given in Section 18 of this Agreement.

(v) "QAPP" shall mean a Quality Assurance Project Plan.

(w) "RCRA" or "RCRA/HSWA" shall mean the Resource Conservation and Recovery Act of 1976, Public Law 94-580, 42 U.S.C. § 6901 et seq., as amended by the Hazardous and Solid Waste Amendments of 1984, Public Law 98-616, and any subsequent amendments.

(x) "Remedial Design" or "RD" shall have the same meaning as provided in the NCP.

(y) "Remedial Investigation" or "RI" means that investigation conducted pursuant to CERCLA and the NCP, as supplemented by the substantive provisions of the EPA RCRA Facilities Assessment guidance. The RI serves as a mechanism for collecting data for Site and waste characterization and conducting treatability studies as necessary to evaluate performance and cost of the treatment technologies. The data gathered during the RI will also be used to conduct a baseline risk assessment, perform a feasibility study, and support design of a selected remedy. The Marine Corps shall conduct and prepare the RI in a manner to support the intent and objectives of Section 17 (Statutory Compliance/RCRA-CERCLA Integration).

(z) "Remedy" or "Remedial Action" or "RA" shall have the same meaning as provided in section 101(24) of CERCLA, 42 U.S.C. § 9601(24), and the NCP, and may consist of Operable Units.

(aa) "Remove" or "Removal" shall have the same meaning as provided in section 101(23) of CERCLA, 42 U.S.C. § 9601(23), and the NCP.

(bb) "RWQCB" shall mean the Regional Water Quality Control Board, Lahontan Region, its successors and its employees, members and authorized representatives.

(cc) "SARA" shall mean the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499.

(dd) "SEC" shall have the meaning given in subsection 12.6.

(ee) "Site," for purposes other than obtaining permits, shall include Marine Corps Logistics Base Barstow (including any adjacent real property subject to the jurisdiction of the commanding general of Marine Corps Logistics Base Barstow), the Facility (as defined above), and any area off the Facility to or under which a release of hazardous substances has

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migrated, or reasonably threatens to migrate, from a source on or at Marine Corps Logistics Base Barstow. For purposes of obtaining permits, "on-site" shall have the meaning provided in the NCP and "off-site" shall mean all locations that are not on-site.

(ff) "State" shall mean the State of California and its employees and authorized representatives, represented by DHS and the RWQCB as set forth in this Agreement, and shall refer to both DHS and the RWQCB unless otherwise specified.

5. DETERMINATIONS

5.1 This Agreement is based upon the placement of Marine Corps Logistics Base Barstow, San Bernardino County, California, on the National Priorities List by EPA on Nov. 15, 1989, 54 Federal Register 48184.

5.2 Marine Corps Logistics Base Barstow is a facility under the jurisdiction, custody, or control of the U.S. Department of Defense within the meaning of E.O. 12580, 52 Federal Register 2923, 29 January 1987. The Department of the Navy is authorized to act in behalf of the Secretary of Defense for all functions delegated by the President through E.O. 12580 which are relevant to this Agreement.

5.3 Marine Corps Logistics Base Barstow is a federal facility under the jurisdiction of the Secretary of Defense within the meaning of CERCLA section 120, 42 U.S.C. § 9620, and SARA section 211, 10 U.S.C. § 2701 et seq., and subject to DERP.

5.4 The Department of the Navy is the authorized delegate of the President under E.O. 12580 for receipt of notification by the State of its ARARs as required by CERCLA section 121(d)(2)(A)(ii), 42 U.S.C. § 9621(d)(2)(A)(ii).

5.5 The authority of the Marine Corps to exercise the delegated removal authority of the President pursuant to CERCLA section 104, 42 U.S.C. § 9604, is not altered by this Agreement.

5.6 The actions to be taken pursuant to this Agreement are reasonable and necessary to protect the public health, welfare, or the environment.

5.7 There are areas within the boundaries of Marine Corps Logistics Base Barstow where hazardous substances have been deposited, stored, placed, or otherwise come to be located in accordance with 42 U.S.C. § 9601(9) & (14).

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5.8 There have been releases of hazardous substances, pollutants or contaminants at or from Marine Corps Logistics Base Barstow into the environment within the meaning of 42 U.S.C. § 9601(22), 9604, 9606, and 9607.

5.9 With respect to these releases, the Marine Corps is an owner, operator and/or generator subject to the provisions of 42 U.S.C. § 9607 and within the meaning of California Health and Safety Code section 25323.5(a), and is a person within the meaning of California Health and Safety Code section 25118 and California Water Code section 13050(c).

5.10 Included as an Attachment to this Agreement is a map showing areas of known contamination, based on information available at the time of the signing of this Agreement.

6. WORK TO BE PERFORMED

6.1 The Parties agree to perform the tasks, obligations and responsibilities described in this Section in accordance with CERCLA and CERCLA guidance and policy; the NCP; pertinent provisions of RCRA and RCRA guidance and policy; E.O. 12580; applicable State laws and regulations; and all terms and conditions of this Agreement including documents prepared and incorporated in accordance with Section 7 (Consultation).

6.2 The Marine Corps agrees to undertake, seek adequate funding for, fully implement and report on the following tasks, with participation of the Parties as set forth in this Agreement:

- (a) Remedial Investigations of the Site;
- (b) Federal and State Natural Resource Trustee Notification and Coordination;
- (c) Feasibility Studies for the Site;
- (d) All response actions, including Operable Units, for the Site; and
- (e) Operation and maintenance of response actions at the Site.

6.3 The Parties agree to:

- (a) Make their best efforts to expedite the initiation of response actions for the Site, particularly for Operable Units; and
- (b) Carry out all activities under this Agreement so as to protect the public health, welfare and the environment.

6.4 Upon request, EPA and the State agree to provide any

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Party with guidance or reasonable assistance in obtaining and interpreting guidance relevant to the implementation of this Agreement.

6.5 The Parties recognize that any discovered release of hazardous substances determined to have originated either on or off Marine Corps Logistics Base Barstow and to have been caused by a party other than the Marine Corps, including groundwater plumes mingled with plumes originating on Marine Corps Logistics Base Barstow, may be addressed by a separate agreement between the responsible parties and appropriate regulatory agencies. Nothing in this subsection 6.5 shall reduce or otherwise affect the Marine Corps's obligations under this Agreement except as may be specifically provided in such other agreement if EPA is a party thereto and such other agreement refers to this Agreement.

7. CONSULTATION: Review and Comment Process for Draft and Final Documents

7.1 Applicability: The provisions of this Section establish the procedures that shall be used by the Parties to provide each other with appropriate technical support, notice, review, comment, and response to comments regarding RI/FS and RD/RA documents, specified herein as either primary or secondary documents. In accordance with CERCLA section 120, 42 U.S.C. § 9620, and 10 U.S.C. § 2705, the Marine Corps will normally be responsible for issuing primary and secondary documents to EPA and the State. As of the effective date of this Agreement, all draft, draft final and final deliverable documents identified herein shall be prepared, distributed and subject to dispute in accordance with subsections 7.2 through 7.10 below. The designation of a document as "draft" or "final" is solely for purposes of consultation with EPA and the State in accordance with this Section. Such designation does not affect the obligation of the Parties to issue documents, which may be referred to herein as "final," to the public for review and comment as appropriate and as required by law.

7.2 General Process for RI/FS and RD/RA Documents:

(a) Primary documents include those reports that are major, discrete portions of RI/FS and/or RD/RA activities. Primary documents are initially issued by the Marine Corps in draft subject to review and comment by EPA and the State. Following receipt of comments on a particular draft primary document, the Marine Corps will respond to the comments received and issue a draft final primary document subject to dispute resolution. The draft final primary document will become the final primary document either thirty (30) days after receipt by

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EPA and the State of a draft final document if dispute resolution is not invoked or as modified by decision of the dispute resolution process.

(b) Secondary documents include those reports that are discrete portions of the primary documents and are typically input or feeder documents. Secondary documents are issued by the Marine Corps in draft subject to review and comment by EPA and the State. Although the Marine Corps will respond to comments received, the draft secondary documents may be finalized in the context of the corresponding primary documents. A secondary document may be disputed at the time the corresponding draft final primary document is issued.

7.3 Primary Documents:

(a) The Marine Corps shall complete and transmit drafts of the following primary documents for each operable unit and for the final remedy to EPA and the State, for review and comment in accordance with the provisions of this Section; provided, however, that the Marine Corps need not complete a draft primary document for an operable unit if (x) the same primary document completed or to be completed with respect to another operable unit covers all topics relevant to the operable unit at issue, and (y) the Parties agree in writing that such draft primary document need not be completed.

(1) RI/FS Workplans, including Sampling and Analysis Plans
(2) QAPPs
(3) Community Relations Plans (May be amended as appropriate to address Operable Units. Any such amendments shall not be subject to the threshold requirements of subsection 7.10. Any disagreement regarding amendment of the CRP shall be resolved pursuant to Section 12 (Dispute Resolution).)

(4) RI Reports
(5) FS Reports
(6) Proposed Plans
(7) Records of Decision (RODs)
(8) Remedial Design Work Plan
(9) Preliminary Remedial Design
(10) Final Remedial Design
(11) Remedial Action Work Plan
(12) Construction Quality Assurance Plan
(13) Construction Quality Control Plan
(14) Contingency Plan
(15) Project Closeout Report
(16) Federal and State Natural Resource Trustee

Notifications.

(17) Operation and Maintenance Plan
(b) Only draft final primary documents shall be

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subject to dispute resolution. The Marine Corps shall complete and transmit draft primary documents in accordance with the timetable and deadlines established in Section 8 (Deadlines).

(c) Primary documents may include target dates for subtasks as provided in subsections 7.4(b) and 18.3. The purpose of target dates is to assist the Marine Corps in meeting deadlines, but target dates do not become enforceable by their inclusion in the primary documents and are not subject to Section 8 (Deadlines), Section 9 (Extensions) or Section 13 (Enforceability).

7.4 Secondary Documents:

(a) The Marine Corps shall complete and transmit drafts of the following secondary documents for each operable unit and for the final remedy to EPA and the State for review and comment; provided, however, that the Marine Corps need not complete a draft secondary document for an operable unit if (x) the same secondary document or a primary document completed or to be completed with respect to another operable unit covers all topics relevant to the operable unit at issue, and (y) the Parties agree in writing that such draft secondary document need not be completed.

- (1) Site Characterization Summaries (part of RI)
- (2) Sampling and Data Results
- (3) Treatability Studies (only if generated)
- (4) Initial Screenings of Alternatives
- (5) Risk Assessments
- (6) Well closure methods and procedures
- (7) Detailed Analyses of Alternatives
- (8) Post-Screening Investigation Work Plans
- (9) RCRA Facility Assessment
- (10) Solid Waste Assessment Test Report

(b) Although EPA and the State may comment on the drafts of the secondary documents listed above, such documents shall not be subject to dispute resolution except as provided by subsection 7.2. Target dates for the completion and transmission of draft secondary documents shall be established by the Project Managers. The Project Managers also may agree upon additional secondary documents that are within the scope of the listed primary documents.

7.5 Meetings of the Project Managers. (See also Section 18.) The Project Managers shall meet in person approximately every ninety (90) days to review and discuss the progress of work being performed at the Site, including progress on the primary and secondary documents. However, such meetings may be held more frequently (but not more often than every thirty (30) days) as needed upon request by any Project Manager, or less frequently if

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agreed by the Parties. Prior to preparing any draft document specified in subsections 7.3 or 7.4 above, the Project Managers shall meet in an effort to reach a common understanding with respect to the contents of the draft document.

7.6 Identification and Determination of Potential ARARs:

(a) The State lead agency will contact in writing those State and local governmental agencies that are a potential sources of ARARs in a timely manner as set forth in NCP § 300.515(d).

(b) Prior to the issuance of a draft primary or secondary document for which ARAR determinations are appropriate, the Project Managers shall meet to identify and propose all potential pertinent ARARs, including any permitting requirements that may be a source of ARARs. At that time and within the time period described in NCP § 300.515(h)(2), the State shall submit the proposed ARARs obtained pursuant to paragraph 7.6(a) to the Marine Corps, along with a list of agencies that failed to respond to the State's solicitation of ARARs and copies of the solicitations and any related correspondence.

(c) The Marine Corps will contact the agencies that failed to respond and again solicit their inputs.

(d) The Marine Corps will prepare draft ARAR determinations in accordance with CERCLA section 121(d)(2), 42 U.S.C. § 9621(d)(2), the NCP and pertinent guidance issued by EPA.

(e) In identifying potential ARARs, the Parties recognize that actual ARARs can be identified only on a site-specific basis and that ARARs depend on the specific hazardous substances, pollutants and contaminants at a site, the particular actions associated with a proposed remedy and the characteristics of a site. The Parties recognize that ARAR identification is necessarily an iterative process and that potential ARARs must be identified and discussed among the Parties as early as possible, and must be reexamined throughout the RI/FS process until a ROD is issued.

7.7 Review and Comment on Draft Documents:

(a) The Marine Corps shall complete and transmit each draft primary document to EPA and the State on or before the corresponding deadline established for the issuance of the document. The Marine Corps shall complete and transmit the draft secondary documents in accordance with the corresponding target dates.

(b) Review of any document by EPA and the State may concern all aspects of it (including completeness) and should include, but will not be limited to, technical evaluation of any aspect of the document and consistency with CERCLA, the NCP,

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applicable California law, and any pertinent guidance or policy issued by EPA or the State (except that any State guidance that is not "promulgated" (as defined in the NCP) shall constitute a "to be considered" item (as that phrase is used in the NCP)). To expedite the review process, the Marine Corps shall make an oral presentation of each primary document at the next scheduled Project Managers meeting after transmittal of the draft document, and shall do so with respect to secondary documents if a majority of the Project Managers other than the Marine Corps so requests. Comments by the EPA, DHS and RWQCB shall be provided with adequate specificity so that the Marine Corps may respond and, if appropriate, make changes to the draft document. Comments shall refer to any pertinent sources of authority or references upon which the comments are based and, upon request of the Marine Corps, the EPA, DHS or RWQCB, as appropriate, the commenter shall provide a copy of the cited authority or reference.

(c) Unless the Parties agree to another period, all draft documents shall be subject to a sixty (60) day period for review and comment. At or before the close of the comment period, EPA and the State shall transmit their written comments to the Marine Corps. For unusually lengthy or complex documents, EPA or the State may extend the sixty (60) day comment period for an additional thirty (30) days by written notice to the Marine Corps prior to the end of the sixty (60) day period. In appropriate circumstances, this period may be further extended in accordance with Section 9 (Extensions).

(d) Representatives of the Marine Corps shall make themselves readily available to EPA and the State during the comment period for purposes of informally responding to questions and comments on draft documents. Oral comments made during such discussions need not be the subject of a written response by the Marine Corps on the close of the comment period.

(e) In commenting on a draft document which contains a proposed ARAR determination, EPA, DHS or RWQCB shall include a reasoned statement of whether it objects to any portion of the proposed ARAR determination. To the extent that EPA or the State does object, it shall explain the basis for its objection in detail and shall identify any ARARs which it believes were not properly addressed in the proposed ARAR determination.

(f) Following the close of the comment period for a draft document, the Marine Corps shall give full consideration to all written comments. If the Marine Corps requests, the Parties shall hold a meeting to discuss such comments within fifteen (15) days of the close of the comment period on a draft secondary document or draft primary document. On a draft secondary document, the Marine Corps shall, within sixty (60) days of the close of the comment period, transmit to the EPA and the State its written response to the comments received. On a draft

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primary document, the Marine Corps shall, within sixty (60) days of the close of the comment period, transmit to EPA and the State a draft final primary document, which shall include the Marine Corps's response to all written comments received within the comment period. While the resulting draft final document shall be the responsibility of the Marine Corps, it shall be the product of consensus to the maximum extent possible.

(g) The Marine Corps may extend the sixty (60) day period for either responding to comments on a draft document or for issuing the draft final primary document for an additional thirty (30) days by providing written notice to EPA and the State. In appropriate circumstances, this time period may be further extended in accordance with Section 9 (Extensions).

7.8 Availability of Dispute Resolution for Draft Final Primary Documents:

(a) Dispute resolution shall be available to the Parties for draft final primary documents as set forth in Section 12 (Dispute Resolution).

(b) When dispute resolution is invoked on a draft final primary document, work may be stopped in accordance with the procedures set forth in subsection 12.9 regarding dispute resolution.

7.9 Finalization of Documents: The draft final primary document shall serve as the final primary document if no party invokes dispute resolution regarding the document or, if invoked, at completion of the dispute resolution process should the Marine Corps's position be sustained. If the Marine Corps's determination is not sustained in the dispute resolution process, the Marine Corps shall prepare, within not more than sixty (60) days of resolution of the dispute, a revision of the draft final document which conforms to the results of dispute resolution. In appropriate circumstances, the time period for this revision period may be extended in accordance with Section 9 (Extensions).

7.10 Subsequent Modification of Final Documents: Following finalization of any primary document pursuant to subsection 7.9 above, any Party may seek to modify the document including seeking additional field work, pilot studies, computer modeling or other supporting technical work, only as provided in paragraphs 7.10(a) and (b) below. (These restrictions do not apply to the Community Relations Plan.)

(a) Any Party may seek to modify a document after finalization by submitting a concise written request to the Project Managers of the other Parties. The request shall specify the nature of the requested modification and how the request is appropriate under subparagraphs 7.10(b)(1) and (2) below.

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(b) In the event that a consensus is not reached by the Project Managers on the need for a modification, any Party may invoke dispute resolution to determine if such modification shall be conducted. Modification of a document shall be required only upon a showing that:

(1) The requested modification is based on information that is (A) new (*i.e.*, information that becomes available or known after the document was finalized) and (B) significant; and

(2) The requested modification could be of significant assistance in evaluating impacts on the public health or the environment, in evaluating the selection of remedial alternatives, or in protecting human health and the environment.

(c) Nothing in this Section shall alter EPA's or the State's ability to request the performance of additional work which was not contemplated by this Agreement. The Marine Corps' obligation to perform such work under this Agreement must be established by either a modification of a document or by amendments to this Agreement.

8. DEADLINES

8.1 All deadlines agreed upon before the effective date of this Agreement shall be made an Appendix to this Agreement. To the extent that deadlines have already been mutually agreed upon by the Parties prior to the execution of this Agreement, they will satisfy the requirements of this Section and remain in effect, shall be published in accordance with subsection 8.2, and shall be incorporated into the appropriate work plans.

8.2 Within twenty-one (21) days of issuance of the Record of Decision for any operable unit or for the final remedy, the Marine Corps shall propose deadlines for completion of the following draft primary documents:

- (a) Remedial Design/Remedial Action Work Plans
- (b) Preliminary Remedial Design
- (c) Final Remedial Design
- (d) Construction Quality Assurance Plan
- (e) Construction Quality Control Plan
- (f) Contingency Plan
- (g) Project Closeout Report

Within fifteen (15) days of receipt, EPA, DHS and RWQCB shall review and provide comments to the Marine Corps regarding the proposed deadlines. Within fifteen (15) days following receipt of the comments, the Marine Corps shall, as appropriate, make revisions and reissue the proposal. The Parties shall meet as

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necessary to discuss and finalize the proposed deadlines. All agreed-upon deadlines shall be incorporated into the appropriate workplans. If the Parties fail to agree within thirty (30) days on the proposed deadlines, the matter shall immediately be submitted for dispute resolution pursuant to Section 12 (Dispute Resolution). The final deadlines established pursuant to this subsection shall be published by EPA, in conjunction with the State, and shall become an Appendix to this Agreement.

8.3 For any operable units not identified as of the effective date of this Agreement, the Marine Corps shall propose deadlines for all documents listed in subsection 7.3(a)(1) through (7) (with the exception of the Community Relations Plan and any document that comes within the proviso to such subsection) within twenty-one (21) days of agreement on the proposed operable unit by all Parties. These deadlines shall be proposed, finalized and published using the procedures set forth in subsection 8.2.

8.4 The deadlines set forth in this Section, or to be established as set forth in this Section, may be extended pursuant to Section 9 (Extensions). The Parties recognize that one possible basis for extension of the deadlines for completion of the Remedial Investigation and Feasibility Study Reports is the identification of significant new Site conditions during the performance of the remedial investigation.

9. EXTENSIONS

9.1 Timetables, deadlines and schedules shall be extended upon receipt of a timely request for extension and when good cause exists for the requested extension. Any request for extension by a Party shall be submitted to the other Parties in writing and shall specify:

- (a) The timetable, deadline or schedule that is sought to be extended;
- (b) The length of the extension sought;
- (c) The good cause(s) for the extension; and
- (d) The extent to which any related timetable and deadline or schedule would be affected if the extension were granted.

9.2 Good cause exists for an extension when sought in regard to:

- (a) An event of Force Majeure;
- (b) A delay caused by another Party's failure to meet any requirement of this Agreement;

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(c) A delay caused by or resulting from the good faith invocation of dispute resolution or the initiation of judicial action;

(d) A delay caused, or which is likely to be caused, by an extension (including without limitation an extension under subsection 7.7) in regard to another timetable and deadline or schedule;

(e) A delay caused by public comment periods or hearings required under State law in connection with the State's performance of this Agreement or by receipt of unusually extensive public comments under the NCP in connection with the Marine Corps's performance of this Agreement;

(f) Any work stoppage within the scope of Section 11 (Emergencies and Removals); or

(g) Any other event or series of events mutually agreed to by the Parties as constituting good cause.

9.3 Absent agreement of the Parties with respect to the existence of good cause, a Party may seek and obtain a determination through the dispute resolution process that good cause exists.

9.4 Within seven days of receipt of a request for an extension of a timetable, deadline or schedule, each receiving Party shall advise the requesting Party in writing of the receiving Party's position on the request. Any failure by a receiving Party to respond within the seven-day period shall be deemed to constitute concurrence with the request for extension. If a receiving Party does not concur in the requested extension, it shall include in its statement of nonconcurrence an explanation of the basis for its position.

9.5 If there is consensus among the Parties that the requested extension is warranted, the Marine Corps shall extend the affected timetable and deadline or schedule accordingly. If there is no consensus among the Parties as to whether all or part of the requested extension is warranted, the timetable and deadline or schedule shall not be extended except in accordance with a determination resulting from the dispute resolution process.

9.6 Within seven days of receipt of a statement of nonconcurrence with the requested extension, the requesting Party may invoke dispute resolution.

9.7 A timely and good faith request by the Marine Corps for an extension shall toll any assessment of stipulated penalties or application for judicial enforcement of the affected timetable

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and deadline or schedule until a decision is reached on whether the requested extension will be approved. If dispute resolution is invoked and the requested extension is denied, stipulated penalties may be assessed and may accrue from the date of the original timetable, deadline or schedule. Following the grant of an extension, an assessment of stipulated penalties or an application for judicial enforcement may be sought only to compel compliance with the timetable and deadline or schedule as most recently extended.

10. FORCE MAJEURE

10.1 A Force Majeure shall mean any event arising from causes beyond the control of a Party that causes a delay in or prevents the performance of any obligation under this Agreement, including, but not limited to:

- (a) acts of God;
- (b) fire;
- (c) war or national emergency declared by the President or Congress and affecting the Marine Corps;
- (d) insurrection;
- (e) civil disturbance;
- (f) explosion;
- (g) unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance;
- (h) adverse weather conditions that could not be reasonably anticipated;
- (i) unusual delay in transportation;
- (j) restraint by court order or order of public authority;
- (k) inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority other than the Department of the Navy (including Marine Corps);
- (l) delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence; and
- (m) insufficient availability of appropriated funds which have been diligently sought. In order for Force Majeure based on insufficient funding to apply to the Marine Corps, the Marine Corps shall have made timely request for such funds as part of the budgetary process as set forth in Section 15 (Funding).

A Force Majeure shall also include any strike or other labor dispute, whether or not within the control of the Party affected

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thereby. Force Majeure shall not include increased costs or expenses of response actions, unless (i) such increase could not reasonably have been anticipated at the time the estimate thereof was made and (ii) funding for such increase has been diligently sought and is not available.

11. EMERGENCIES AND REMOVALS

11.1 Discovery and Notification

If any Party discovers or becomes aware of an emergency or other situation that endangers public health or safety or the environment at or near the Site, which is related to or may affect the work performed under this Agreement, that Party shall immediately orally notify all other Parties. If the emergency arises from activities conducted pursuant to this Agreement, the Marine Corps shall then take immediate action to notify the appropriate State and local agencies and affected members of the public.

11.2 Work Stoppage

In the event any Party determines that activities conducted pursuant to this Agreement will cause or otherwise be threatened by a situation described in subsection 11.1, the Party may propose the termination of such activities. If the Parties mutually agree, the activities shall be stopped for such period of time as is required to abate the danger. In the absence of mutual agreement, the activities shall be stopped in accordance with the proposal, and the matter shall be immediately referred to the EPA Hazardous Waste Management Division Director for a work stoppage determination in accordance with Section 12.9.

11.3 Removal Actions

(a) The provisions of this Section shall apply to all removal actions as defined in CERCLA section 101(23), 42 U.S.C. § 9601(23), and California Health and Safety Code section 25323, including all modifications to, or extensions of, the ongoing removal actions, and all new removal actions proposed or commenced following the effective date of this Agreement.

(b) Any removal actions conducted at the Site shall be conducted in a manner consistent with this Agreement, CERCLA, the NCP and E.O. 12580.

(c) Nothing in this Agreement shall alter the Marine Corps' authority with respect to removal actions conducted pursuant to section 104 of CERCLA, 42 U.S.C. § 9604.

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(d) Nothing in this Agreement shall alter any authority the State or EPA may have with respect to removal actions conducted at the Site.

(e) All reviews conducted by EPA and the State pursuant to 10 U.S.C. § 2705(b)(2) will be expedited so as not to unduly jeopardize fiscal resources of the Marine Corps for funding the removal actions.

(f) If a Party determines that there is an endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance, pollutant or contaminant at or from the Site, the Party may request that the Marine Corps take such response actions as may be necessary to abate such danger or threat and to protect the public health or welfare or the environment. Such actions might include provision of alternative drinking water supplies or other response actions listed in CERCLA section 101(23) or (24), or such other relief as the public interest may require.

11.4 Notice and Opportunity to Comment

(a) The Marine Corps shall provide the other Parties with timely notice and opportunity to review and comment upon any proposed removal action for the Site, in accordance with 10 U.S.C. § 2705(a) and (b). The Marine Corps agrees to provide the information described below pursuant to such obligation.

(b) For emergency response actions, the Marine Corps shall provide EPA and the State with notice in accordance with subsection 11.1. Such oral notification shall, except in the case of extreme emergencies, include adequate information concerning the Site background, threat to the public health and welfare or the environment (including the need for response), proposed actions and costs (including a comparison of possible alternatives, means of transportation of any hazardous substances off-site, and proposed manner of disposal), expected change in the situation should no action be taken or should action be delayed (including associated environmental impacts), any important policy issues, and the Marine Corps On-Scene Coordinator recommendations. Within forty-five (45) days of completion of the emergency action, the Marine Corps will furnish EPA and the State with an Action Memorandum addressing the information provided in the oral notification, and any other information required pursuant to CERCLA and the NCP, and in accordance with pertinent EPA guidance, for such actions.

(c) For other removal actions, the Marine Corps will provide EPA and the State with any information required by CERCLA or the NCP, and in accordance with pertinent EPA guidance, such as the Action Memorandum, the Engineering Evaluation/Cost

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Analysis (when required under the NCP) and, to the extent it is not otherwise included, all information required to be provided in accordance with paragraph 11.4(b). Such information shall be furnished at least forty-five (45) days before the response action is to begin.

(d) All activities related to ongoing removal actions shall be reported by the Marine Corps in the progress reports described in Section 18 (Project Managers).

11.5 Any dispute between the Parties as to whether a proposed nonemergency response action is (a) properly considered a removal action, as defined by 42 U.S.C. § 9601(23), or (b) consistent, to the extent deemed practicable under CERCLA section 104(a)(2), with any remedial action shall be resolved pursuant to Section 12 (Dispute Resolution). Such dispute may be brought directly to the DRC or the SEC (each as defined in Section 12) at any Party's request.

11.6 Alternative Dispute Resolution for Subsection 11.3(f)

(a) The following procedures shall apply only to disputes as to whether the Marine Corps will take any removal action requested under subsection 11.3(f). Such disputes shall be submitted to the DRC, which shall have ten (10) days to unanimously resolve the dispute. The DRC shall forward an unresolved dispute to the SEC within four (4) days of the end of the ten-day period.

(b) The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC. The EPA representative on the SEC is the Regional Administrator of EPA Region 9. The Department of the Navy's representative on the SEC is the Commander, Southwest Division, Naval Facilities Engineering Command. The DHS representative on the SEC is the Regional Administrator, Region 4. The RWQCB representative on the SEC is the Assistant Executive Officer. The SEC members shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached within seven (7) days, the Department of the Navy SEC representative shall issue a written position on the dispute. EPA or the State may, within four (4) days of the such representative's issuance of the Department of the Navy's position, issue a written notice elevating the dispute to the Department of the Navy's Secretariat Representative for resolution in accordance with all applicable laws and procedures. In the event EPA or the State elects not to elevate the dispute to the Secretariat Representative within the designated four (4) day escalation period, EPA and the State

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shall be deemed to have agreed with the Department of the Navy SEC representative's written position with respect to the dispute.

(c) Upon escalation of a dispute to the Department of the Navy's Secretariat Representative pursuant to subsection 11.6(b) above, the Secretariat Representative will review and resolve the dispute within seven (7) days. Before resolving the dispute, the Secretariat Representative shall, upon request, meet and confer with the EPA Administrator, the DHS Chief Deputy Director and the RWQCB Executive Officer to discuss the issue(s) under dispute. The Secretariat Representative shall provide the EPA and the State with its final decision in writing.

12. DISPUTE RESOLUTION

12.1 Except as specifically set forth in subsection 11.6 or elsewhere in this Agreement, if a dispute arises under this Agreement, the procedures of this Section shall apply. Any Party may invoke this dispute resolution procedure. All Parties to this Agreement shall make reasonable efforts to informally resolve disputes at the Project Manager or immediate supervisor level. If resolution cannot be achieved informally, the procedures of this Section shall be implemented to resolve a dispute.

12.2 Within thirty (30) days after: (a) receipt by EPA and the State of a draft final primary document pursuant to Section 7 (Consultation), or (b) any action which leads to or generates a dispute, the disputing Party shall submit to the Dispute Resolution Committee (DRC) a written statement of dispute setting forth the nature of the dispute, the work affected by the dispute, the disputing Party's position with respect to the dispute and the technical, legal or factual information the disputing Party is relying upon to support its position.

12.3 Prior to any Party's issuance of a written statement of a dispute, the disputing Party shall engage the other Party in informal dispute resolution among the Project Managers and/or their immediate supervisors. During this informal dispute resolution period the Parties shall meet as many times as are necessary to discuss and attempt resolution of the dispute.

12.4 The DRC will serve as a forum for resolution of dispute for which agreement has not been reached through informal dispute resolution. The Parties shall each designate one

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individual and an alternate to serve on the DRC. The individuals designated to serve on the DRC shall be employed at the policy level Senior Executive Service (SES) or equivalent or be delegated the authority to participate on the DRC for the purposes of dispute resolution under this Agreement. The EPA representative on DRC is the Assistant Director for Superfund of EPA's Region 9. The Department of the Navy's designated member is the Director, Facilities Management, Southwest Division, Naval Facilities Engineering Command. The DHS representative is the DHS Chief of the Site Mitigation Branch, Region 4. The RWQCB representative is the Chief, Toxics Unit. Written notice of any delegation of authority from a Party's designated representative on the DRC shall be provided to all other Parties pursuant to the procedures of Section 21 (Notification).

12.5 Following elevation of a dispute to the DRC, the DRC shall have twenty-one (21) days to unanimously resolve the dispute and issue a written decision. If the DRC is unable to unanimously resolve the dispute within this twenty-one (21) day period, the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution within seven (7) days after the close of the twenty-one (21) day resolution period.

12.6 The SEC will serve as the forum for resolution of disputes for which agreement has not been reached by the DRC. The EPA representative on the SEC is the Regional Administrator of EPA Region 9. The Department of the Navy's representative on the SEC is the Commander, Southwest Division, Naval Facilities Engineering Command. The DHS representative on the SEC is the Regional Administrator, Region 4. The RWQCB representative on the SEC is the Assistant Executive Officer. The SEC members shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached within twenty-one (21) days, EPA's Regional Administrator shall issue a written position on the dispute. The Department of the Navy or the State may, within fourteen (14) days of the Regional Administrator's issuance of EPA's position, issue a written notice elevating the dispute to the Administrator of EPA for resolution in accordance with all applicable laws and procedures. In the event the Department of the Navy or the State elects not to elevate the dispute to the Administrator within the designated fourteen (14) day escalation period, the Department of the Navy and the State shall be deemed to have agreed with the Regional Administrator's written position with respect to the dispute.

12.7 Upon escalation of a dispute to the Administrator of

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EPA pursuant to subsection 12.6 above, the Administrator will review and resolve the dispute within twenty-one (21) days. Upon request, and prior to resolving the dispute, the EPA Administrator shall meet and confer with the Department of the Navy's Secretariat Representative, the DHS Chief Deputy Director and the RWQCB Executive Officer to discuss the issue(s) under dispute. Upon resolution, the Administrator shall provide the Department of the Navy and the State with a written final decision setting forth resolution of the dispute. The duties of the Administrator set forth in this Section shall not be delegated.

12.8 The pendency of any dispute under this Section shall not affect any Party's responsibility for timely performance of the work required by this Agreement, except that the time period for completion of work affected by such dispute shall be extended for a period of time usually not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified herein. All elements of the work required by this Agreement which are not affected by the dispute shall continue and be completed in accordance with the applicable timetable and deadline or schedule.

12.9 When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if the Hazardous Waste Management Division Director for EPA Region 9 requests, in writing, that work related to the dispute be stopped because, in EPA's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a substantial adverse effect on the remedy selection or implementation process. DHS or RWQCB may request the EPA Hazardous Waste Management Division Director to order work stopped for the reasons set out above. To the extent possible, the Party seeking a work stoppage shall consult with the other Parties prior to initiating a work stoppage request. After work stoppage, if a Party believes that the work stoppage is inappropriate or may have potential significant adverse impacts, the Party may meet with the other Parties to discuss the work stoppage. Following this meeting and further considerations of this issue, the EPA Hazardous Waste Management Division Director will issue, in writing, a final decision with respect to the work stoppage. The final written decision of the EPA Hazardous Waste Management Division Director may immediately be subject to formal dispute resolution. Such dispute may be brought directly to either the DRC or the SEC, at the discretion of the Party requesting dispute resolution.

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12.10 Within twenty-one (21) days of resolution of a dispute pursuant to the procedures specified in this Section (or before such later date as is agreed by the Parties), the Marine Corps shall incorporate the resolution and final determination into the appropriate plan, schedule or procedures and proceed to implement this Agreement according to the amended plan, schedule or procedures. The deadline set forth above may in appropriate circumstances be extended in accordance with Section 9 (Extensions).

12.11 Except as set forth in Section 31 (Covenant Not to Sue and Reservation of Rights), resolution of a dispute pursuant to this Section (as it may be modified pursuant to subsection 11.6) constitutes a final resolution of any dispute arising under this Agreement. All Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Section.

12.12 For purposes of all dispute resolution procedures set forth in this Agreement and other decisions of the Parties that may be taken to dispute resolution, the Parties agree as follows:

(a) DHS and RWQCB will jointly designate which of the two agencies shall voice the State's position for specified subjects and which shall do so for unspecified subjects. DHS and RWQCB shall provide EPA and the Marine Corps with an initial designation within thirty (30) days after the execution of this agreement. DHS and RWQCB may modify the initial designation or subsequent designations. DHS and RWQCB shall notify EPA and the Marine Corps in writing of any modification. Such modification shall become effective upon receipt by EPA and the Marine Corps.

(b) The agency designated in accordance with paragraph 12.12(a) shall represent the State with a single voice throughout the dispute resolution process and in all decisions of the Parties that may be taken to dispute resolution.

13. ENFORCEABILITY

13.1 The Parties agree that:

(a) Upon the effective date of this Agreement, any standard, regulation, condition, requirement or order which has become effective under CERCLA and is incorporated into this Agreement is enforceable by any person pursuant to CERCLA section 310, and any violation of such standard, regulation, condition, requirement or order will be subject to civil penalties under

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CERCLA sections 310(c) and 109;

(b) All timetables or deadlines associated with the RI/FS shall be enforceable by any person pursuant to CERCLA section 310, and any violation of such timetables or deadlines will be subject to civil penalties under CERCLA sections 310(c) and 109;

(c) All terms and conditions of this Agreement which relate to remedial actions, including corresponding timetables, deadlines or schedules, and all work associated with remedial actions, shall be enforceable by any person pursuant to CERCLA section 310(c), and any violation of such terms or conditions will be subject to civil penalties under CERCLA sections 310(c) and 109; and

(d) Any final resolution of a dispute pursuant to Section 12 (Dispute Resolution) of this Agreement which establishes a term, condition, timetable, deadline or schedule shall be enforceable by any person pursuant to CERCLA section 310(c), and any violation of such terms, condition, timetable, deadline or schedule will be subject to civil penalties under CERCLA sections 310(c) and 109.

13.2 Nothing in this Agreement shall be construed as authorizing any person to seek judicial review of any action or work where review is barred by any provision of CERCLA including CERCLA section 113(h).

13.3 Nothing in this Agreement shall be construed as a restriction or waiver of any rights the EPA or the State may have under CERCLA, including but not limited to any rights under sections 113 and 310, 42 U.S.C. § 9613 and 9659, and/or applicable state law. The Marine Corps does not waive any rights it may have under CERCLA sections 120 and 121, SARA section 211 and E.O. 12580.

13.4 The Parties agree to exhaust their rights under Section 12 (Dispute Resolution) prior to exercising any rights to judicial review that they may have.

13.5 The Parties agree that all Parties shall have the right to enforce the terms of this Agreement.

14. STIPULATED PENALTIES

14.1 In the event that the Marine Corps (a) fails to submit a primary document listed in Section 7 (Consultation) to EPA and the State pursuant to the appropriate timetable or deadline in accordance with the requirements of this Agreement, or (b) fails

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to comply with a term or condition of this Agreement which relates to an operable unit or final remedial action (unless excused under this Agreement), EPA may assess a stipulated penalty against the Marine Corps. The State may also recommend to EPA that a stipulated penalty be assessed. A stipulated penalty may be assessed in an amount not to exceed \$5,000 for the first week (or part thereof), and \$10,000 for each additional week (or part thereof) for which a failure set forth in this subsection occurs.

14.2 Upon determining that an event described in subsection 14.1(a) or 14.1(b) has occurred, EPA shall notify the Marine Corps in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, the Marine Corps shall have fifteen (15) days after receipt of the notice to invoke dispute resolution on the question whether such event has in fact occurred. The Marine Corps shall not be liable for the stipulated penalty assessed by EPA if the event is determined, through the dispute resolution process, not to have occurred. No assessment of a stipulated penalty shall be final until the conclusion of dispute resolution procedures related to the assessment of the stipulated penalty.

14.3 The annual reports required by CERCLA section 120(e)(5), 42 U.S.C. § 9620(e)(5), shall include, with respect to each final assessment of a stipulated penalty against the Marine Corps under this Agreement, each of the following:

- (a) The federal facility responsible for the failure;
- (b) A statement of the facts and circumstances giving rise to the failure;
- (c) A statement of any administrative or other corrective action taken at the relevant federal facility, or a statement of why such measures were determined to be inappropriate;
- (d) A statement of any additional action taken by or at the federal facility to prevent recurrence of the same type of failure; and
- (e) The total dollar amount of the stipulated penalty assessed for the particular failure.

14.4 Stipulated penalties assessed pursuant to this Section shall be payable to the Hazardous Substances Response Trust Fund only in the manner and to the extent expressly provided for in acts authorizing funds for, and appropriations to, the Department of Defense. EPA and the State agree, to the extent allowed by law, to share equally any stipulated penalties paid on behalf of Marine Corps Logistics Base Barstow between the Hazardous

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Substance Response Trust Fund and an appropriate State fund.

14.5 In no event shall this Section give rise to a stipulated penalty in excess of the amount set forth in CERCLA section 109, 42 U.S.C. § 9609.

14.6 This Section shall not affect the Marine Corps' ability to obtain an extension of a timetable, deadline or schedule pursuant to Section 9 (Extensions).

14.7 Nothing in this Agreement shall be construed to render any officer or employee of the Marine Corps personally liable for the payment of any stipulated penalty assessed pursuant to this Section.

15. FUNDING

15.1 It is the expectation of the Parties to this Agreement that all obligations of the Marine Corps arising under this Agreement will be fully funded. The Marine Corps agrees to seek sufficient funding through the Department of Defense budgetary process to fulfill its obligations under this Agreement.

15.2 In accordance with CERCLA section 120(e)(5)(B), 42 U.S.C. § 9620 (e)(5)(B), the Marine Corps shall include, in its submission to the Department of Defense annual report to Congress, the specific cost estimates and budgetary proposals associated with the implementation of this Agreement.

15.3 Any requirement for the payment or obligation of funds, including stipulated penalties, by the Marine Corps established by the terms of this Agreement shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted.

15.4 If appropriated funds are not available to fulfill the Marine Corps' obligations under this Agreement, EPA and the State reserve the right to initiate an action against any other person, or to take any response action, which would be appropriate absent this Agreement.

15.5 Funds authorized and appropriated annually by Congress

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under the "Environmental Restoration, Defense" appropriation in the Department of Defense Appropriation Act and allocated by the Deputy Assistant Secretary of Defense for Environment to the Department of the Navy will be the source of funds for activities required by this Agreement consistent with section 211 of CERCLA, 10 U.S.C. Chapter 160. However, should the Environmental Restoration, Defense appropriation be inadequate in any year to meet the total Department of the Navy CERCLA implementation requirements, the Department of Defense shall employ and the Department of the Navy shall follow a standardized Department of Defense prioritization process which allocates that year's appropriations in a manner which maximizes the protection of human health and the environment. A standardized Department of Defense prioritization model shall be developed and utilized with the assistance of EPA and the states.

16. EXEMPTIONS

16.1 The obligation of the Marine Corps to comply with the provisions of this Agreement may be relieved by:

- (a) A Presidential order of exemption issued pursuant to the provisions of CERCLA section 120(j)(1), 42 U.S.C. § 9620(j)(1), or RCRA section 6001, 42 U.S.C. § 6961; or
- (b) The order of an appropriate court.

16.2 The State reserves any statutory right it may have to challenge any Presidential order relieving the Marine Corps of its obligations to comply with this Agreement.

17. STATUTORY COMPLIANCE/RCRA-CERCLA INTEGRATION

17.1 The Parties intend to integrate into this comprehensive Agreement the Marine Corps's CERCLA response obligations with the Marine Corps's (a) RCRA corrective action obligations, (b) State corrective/remedial action obligations, and (c) obligations under all Orders and other statutory requirements of RWQCB, in each case relating to releases of hazardous substances, hazardous wastes, pollutants or contaminants covered by this Agreement and which have been or will be adequately addressed by the remedial actions provided for under this Agreement. Therefore, the Parties intend that activities covered by this Agreement will achieve compliance with CERCLA, 42 U.S.C. § 9061 *et seq.*; satisfy the corrective action requirements of RCRA section 3004(u) & (v), 42 U.S.C. § 6924(u) & (v), for a RCRA permit, and RCRA section 3008(h), 42 U.S.C. §

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6928(h), for interim status facilities; and meet or exceed all applicable or relevant and appropriate federal and State laws and regulations, to the extent required by CERCLA section 121, 42 U.S.C. § 9621.

17.2 Based upon the foregoing, the Parties intend that any remedial action selected, implemented and completed under this Agreement will be protective of human health and the environment such that remediation of releases covered by this Agreement shall obviate the need for further corrective action under RCRA or otherwise applicable State hazardous waste or water quality protection laws (*i.e.*, no further corrective action shall be required). The Parties agree that with respect to releases of hazardous waste covered by this Agreement, RCRA and such State laws shall be considered an applicable or relevant and appropriate requirement pursuant to CERCLA section 121, 42 U.S.C. § 9621.

17.3 The Parties recognize that the requirement to obtain permits for response actions undertaken pursuant to this Agreement shall be as provided in CERCLA and the NCP. The Parties further recognize that ongoing hazardous waste management activities at Marine Corps Logistics Base Barstow may require the issuance of permits under federal and State laws. This Agreement does not affect the requirements, if any, to obtain such permits. However, if a permit is issued to the Marine Corps for ongoing hazardous waste management activities at the Site, the issuing party shall reference and incorporate in a permit condition any appropriate provision, including appropriate schedules (and the provision for extension of such schedules), of this Agreement into such permit. The Parties intend that any judicial review of any permit condition which references this Agreement shall, to the extent authorized by law, only be reviewed under the provisions of CERCLA.

18. PROJECT MANAGERS

18.1 Within ten (10) days after the date of execution of this Agreement, EPA, the Marine Corps, DHS and RWQCB shall each designate a Project Manager and an alternate (each hereinafter referred to as Project Manager), for the purpose of overseeing the implementation of this Agreement. The Project Managers shall be responsible on a daily basis for assuring proper implementation of the RI/FS and the RD/RA in accordance with the terms of the Agreement. In addition to the formal notice provisions set forth in Section 21 (Notification), to the maximum extent possible, communications among the Marine Corps, EPA, and

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the State on all documents, including reports, comments, and other correspondence concerning the activities performed pursuant to this Agreement, shall be directed through the Project Managers. A contractor may not serve as Project Manager, unless the other Parties shall consent in writing.

18.2 The Marine Corps, EPA, DHS and RWQCB may change their respective Project Managers. The other Parties shall be notified in writing within five days of the change.

18.3 The Project Managers shall meet to discuss progress as described in subsection 7.5. Although the Marine Corps has ultimate responsibility for meeting its respective deadlines or schedule, the Project Managers shall assist in this effort by consolidating the review of primary and secondary documents whenever possible, and by scheduling progress meetings to review reports, evaluate the performance of environmental monitoring at the Site, review RI/FS or RD/RA progress, discuss target dates for elements of the RI/FS to be conducted in the following one hundred and eighty (180) days, resolve disputes, and adjust deadlines or schedules. At least one week prior to each scheduled progress meeting, the Marine Corps will provide to the other Parties a draft agenda and summary of the status of the work subject to this Agreement. Unless the Project Managers agree otherwise, the minutes of each progress meeting, the meeting agenda and all documents discussed during the meeting that were not previously provided shall constitute a progress report. The Marine Corps will send to all Project Managers (a) within ten business days after the meeting, all such documents not previously provided and (b) within twenty-one calendar days after the meeting, the minutes and agenda. If an extended period occurs between Project Manager progress meetings, the Project Managers may agree that the Marine Corps shall prepare an interim progress report and provide it to the other Parties. The report shall include the information that would normally be discussed in a progress meeting.

18.4 The authority of the Project Managers shall include, but is not limited to:

- (a) Taking samples and ensuring that sampling and other field work is performed in accordance with the terms of any final work plan and QAPP;
- (b) Observing, and taking photographs and making such other reports on the progress of the work as the Project Managers deem appropriate, subject to the limitations set forth in Section 25 (Access to Marine Corps Logistics Base Barstow) hereof;
- (c) Reviewing records, files and documents relevant

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to the work performed, subject to the limitations set forth in subsection 23.1 hereof;

(d) Determining the form and specific content of the Project Manager meetings and of progress reports based on such meetings; and

(e) Recommending and requesting minor field modifications to the work to be performed pursuant to a final work plan, or to techniques, procedures, or design utilized in carrying out such work plan.

18.5 Any minor field modification proposed by any Party pursuant to this Section must be approved orally by all Parties' Project Managers to be effective. The Marine Corps Project Manager will make a contemporaneous record of such modification and approval in a written log, and a copy of the log entry will be provided as part of the next progress report. Even after approval of the proposed modification, no Project Manager will require implementation by a government contractor without approval of the appropriate Government Contracting Officer.

18.6 The Project Manager for the Marine Corps shall be responsible for day-to-day field activities at the Site. The Marine Corps Project Manager or other designated representative of Marine Corps Logistics Base Barstow shall be present at the Site or reasonably available to supervise work during all hours of work performed at the Site pursuant to this Agreement. For all times that such work is being performed, the Marine Corps Project Manager shall inform the command post at Marine Corps Logistics Base Barstow of the name and telephone number of the designated representative responsible for supervising the work.

18.7 The Project Managers shall be reasonably available to consult on work performed pursuant to this Agreement and shall make themselves available to each other for the pendency of this Agreement. The absence of EPA, DHS, RWQCB or Marine Corps Project Managers from the Facility shall not be cause for work stoppage of activities taken under this Agreement.

18.8 If the Project Manager for DHS or RWQCB cannot attend any Project Managers' meeting, the agency unable to attend shall provide reasonable notice (48 hours' advance notice if possible) to all other Project Managers regarding such absence and whether the Project Manager for the other State agency is authorized to speak for the absent agency. If such other agency's Project Manager is not so authorized, the absent agency shall, to the extent practical, provide its concerns and comments to all other Parties within a reasonable time prior to the meeting.

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19. PERMITS

19.1 The Parties recognize that under sections 121(d) and 121(e)(1) of CERCLA, 42 U.S.C. § 9621(d) and 9621(e)(1), and the NCP, portions of the response actions called for by this Agreement and conducted entirely on-site are exempted from the procedural requirement to obtain a federal, State, or local permit but must satisfy all the promulgated (as defined in NCP § 300.400(g)(4)) applicable or relevant and appropriate federal and State substantive standards, requirements, criteria, or limitations which would have been included in any such permit.

19.2 This Section is not intended to relieve the Marine Corps from any applicable regulatory requirements, including obtaining a permit, whenever it proposes a response action involving either the movement of hazardous substances, pollutants, or contaminants off-site, or the conduct of a response action off-site.

19.3 The Marine Corps shall notify EPA and the State in writing of any permit required for off-site activities as soon as it becomes aware of the requirement. The Marine Corps agrees to obtain any permits necessary for the performance of any work under this Agreement. Upon request, the Marine Corps shall provide EPA and the State copies of all such permit applications and other documents related to the permit process. Copies of permits obtained in implementing this Agreement shall be appended to the appropriate submittal or progress report. Upon request by the Marine Corps Project Manager, the Project Managers of EPA and the State will assist Marine Corps Logistics Base Barstow to the extent feasible in obtaining any required permit.

20. QUALITY ASSURANCE

20.1 In order to provide quality assurance and maintain quality control regarding all field work and sample collection performed pursuant to this Agreement, the Marine Corps agrees to designate a Quality Assurance Officer (QAO) who will ensure that all work is performed in accordance with approved work plans, sampling plans and QAPPs. The QAO shall maintain for inspection a log of quality assurance field activities and provide a copy to the Parties upon request.

20.2 To ensure compliance with the QAPP, the Marine Corps shall, upon request by EPA or the State, use its best efforts to obtain access to all laboratories performing analysis on behalf

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of the Marine Corps pursuant to this Agreement. If such access is not obtained for any laboratory, EPA or the State may reject all or portions of the data generated by such laboratory and require the Marine Corps to have the same or comparable data analyzed by a laboratory that will grant such access.

21. NOTIFICATION

21.1 All Parties shall transmit primary and secondary documents, and comments thereon, and all notices required herein by next day mail, hand delivery, or facsimile, or by certified mail if transmitted sufficiently ahead of the applicable deadline. Notifications shall be deemed effective upon receipt.

21.2 Notice to the individual Parties pursuant to this Agreement shall be sent to the addresses specified by the Parties. Initially these shall be as follows:

EPA:

Barbara Maco
Remedial Project Manager, Marine Corps Logistics
Base Barstow
U.S. Environmental Protection Agency, Region 9
Hazardous Waste Management Division, H-7-5
1235 Mission Street
San Francisco, CA 94103

State:

John Borderick, Project Manager
Preremedial and Federal Facilities Unit
California Department of Health Services
Toxic Substances Control Division
Region 4, Site Mitigation Branch
245 West Broadway, Suite 350
Long Beach, CA 90802; and

Ave Biggar
Water Resource Control Engineer
Regional Water Quality Control Board, Lahontan Region
Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359

Marine Corps:

Greg Vogelpohl, RPM 1811.GB
Southwest Division
Naval Facilities Engineering Command

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1220 Pacific Highway
San Diego, CA 92132-5190

21.3 All routine correspondence may be sent via first class mail to the above addresses.

22. DATA AND DOCUMENT AVAILABILITY

22.1 Each Party shall make all sampling results, test results or other data or documents generated through the implementation of this Agreement available to the other Parties. All quality assured data shall be supplied within sixty (60) days of its collection. If the quality assurance procedure is not completed within sixty (60) days, raw data or results shall be submitted within the sixty (60) day period and quality assured data or results shall be submitted as soon as they become available. The procedures of Section 9 (Extensions) shall apply to the sixty-day period referred to herein.

22.2 The sampling Party's Project Manager shall notify the other Parties' Project Managers not less than 10 days in advance of any sample collection. If it is not possible to provide 10 days prior notification, the sampling Party's Project Manager shall notify the other Project Managers as soon as possible after becoming aware that samples will be collected. Each Party shall allow, to the extent practicable, split or duplicate samples to be taken by the other Parties or their authorized representatives. Other Parties desiring to collect split or duplicate samples shall inform the sampling Party before the time of sample collection. Each Party receiving split or duplicate samples shall on request provide the sampling Party with its chain of custody documents relating to such sample.

23. RELEASE OF RECORDS

23.1 The Parties may request of one another access to or a copy of any record or document relating to this Agreement or the Installation Restoration Program. If the Party that is the subject of the request (the originating Party) has the record or document, that Party shall provide to the requesting Party access to or a copy of the record or document; provided, however, that no such access or copy need be provided if the record or document is identified as confidential and is subject to a claim of confidentiality because of attorney-client privilege or attorney work product or under the following provisions of FOIA: deliberative process, enforcement confidentiality, or properly

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classified for national security under law or executive order.

23.2 Records or documents identified by the originating Party as confidential pursuant to (a) non-disclosure provisions of FOIA other than those listed in subsection 23.1 above, or (b) the California Public Records Act, section 6250 et seq. of the California Government Code, shall be released to the requesting Party if the requesting Party states in writing that it will not release the record or document to the public without first consulting with the originating Party and either (x) receiving the originating Party's prior approval or (y) if the originating Party does not approve, giving the originating Party opportunity to contest, in accordance with applicable statutes and regulations, the preliminary decision to release. Records or documents which are provided to the requesting Party and which are not identified as confidential may be made available to the public without further notice to the originating Party.

23.3 The Parties will not assert one of the above exemptions, including any available under FOIA or the California Public Records Act, even if available, if no governmental interest (including the interest established by law in protecting confidential business information) would be jeopardized by access or release as determined solely by the asserting Party.

23.4 Subject to section 120(j)(2) of CERCLA, 42 U.S.C. § 9620(j)(2), any documents required to be provided by Section 7 (Consultation) and analytical data showing test results will not be subject to subsection 23.2 or the proviso to subsection 23.1.

23.5 This Section does not change any requirement regarding press releases in Section 26 (Public Participation and Community Relations).

23.6 Disputes between EPA and the Marine Corps concerning matters covered by this Section 23 shall be subject to Section 12 (Dispute Resolution). Disputes between (a) DHS or the RWQCB and (b) EPA or the Marine Corps shall not be subject to Section 12 and shall instead be pursued through the originating Party's standard procedures concerning releasability of documents under FOIA or the California Public Records Act.

24. PRESERVATION OF RECORDS

24.1 Notwithstanding any document retention policy to the contrary, during the pendency of this Agreement and for a minimum of ten years after its termination, (a) the Marine Corps shall

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preserve all records and documents that were at any time in its possession or in the possession of its contractors and (b) each other Party shall preserve all records and documents it prepared or to which it substantially contributed, in each case that relate to (x) the implementation of the Installation Restoration Program

at the Site, or (y) the actions carried out pursuant to this Agreement. After this ten-year period, each Party shall notify the other Parties at least 45 days prior to destruction of any such records or documents.

25. ACCESS TO MARINE CORPS LOGISTICS BASE BARSTOW

25.1 Without limitation of any authority conferred on EPA or the State by statute or regulation, EPA, the State or their authorized representatives shall be allowed to enter Marine Corps Logistics Base Barstow at reasonable times for purposes consistent with the provisions of the Agreement, subject to any statutory and regulatory requirements necessary to protect national security or mission essential activities. Such access shall include, but not be limited to, reviewing the progress of the Marine Corps in carrying out the terms of this Agreement; ascertaining that the work performed pursuant to this Agreement is in accordance with approved work plans, sampling plans and QAPPs; and conducting such tests as EPA, the State, or the Project Managers deem necessary.

25.2 The Marine Corps shall honor all reasonable requests for access by the EPA or the State, conditioned upon presentation of proper credentials. The Marine Corps Project Manager or his/her designee will provide briefing information, coordinate access and escort to restricted or controlled-access areas, arrange for base passes and coordinate any other access requests which arise.

25.3 EPA and the State shall provide reasonable notice (which shall, if practical, be 48 hours' advance notice) to the Marine Corps Project Manager to request any necessary escorts. EPA and the State shall not use any camera, sound recording or other recording device at Marine Corps Logistics Base Barstow without the permission of the Marine Corps Project Manager. The Marine Corps shall not unreasonably withhold such permission.

25.4 The access by EPA and the State granted in subsection 25.1 shall be subject to those regulations necessary to protect national security or mission essential activities. Such regulation shall not be applied so as to unreasonably hinder EPA

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or the State from carrying out their responsibilities and authority pursuant to this Agreement. In the event that access requested by either EPA or the State is denied by the Marine Corps, the Marine Corps shall provide an explanation within 48 hours of the reason for the denial, including reference to the applicable regulations, and, upon request, a copy of such regulations. The Marine Corps shall expeditiously make alternative arrangements for accommodating the requested access. The Parties agree that this Agreement is subject to CERCLA section 120(j), 42 U.S.C. § 9620(j), regarding the issuance of Site Specific Presidential Orders as may be necessary to protect national security.

25.5 If EPA or the State requests access in order to observe a sampling event or other work being conducted pursuant to this Agreement, and access is denied or limited, the Marine Corps agrees to reschedule or postpone such sampling or work if EPA or the State so requests, until such mutually agreeable time when the requested access is allowed. The Marine Corps shall not restrict the access rights of the EPA or the State to any greater extent than the Marine Corps restricts the access rights of its contractors performing work pursuant to this Agreement.

25.6 All Parties with access to Marine Corps Logistics Base Barstow pursuant to this Section shall comply with all applicable health and safety plans.

25.7 To the extent the activities pursuant to this Agreement must be carried out on other than Marine Corps property, the Marine Corps shall use its best efforts, including its authority under CERCLA section 104, to obtain access agreements from the owners which shall provide reasonable access for the Marine Corps, EPA, and the State and their representatives. The Marine Corps may request the assistance of the State in obtaining such access, and upon such request, the State will use its best efforts to obtain the required access. In the event that the Marine Corps is unable to obtain such access agreements, the Marine Corps shall promptly notify EPA and the State.

25.8 With respect to non-Marine Corps property on which monitoring wells, pumping wells, or other response actions are to be located, the Marine Corps shall use its best efforts to ensure that any access agreements shall provide for the continued right of entry for all Parties for the performance of such remedial activities. In addition, any access agreement shall provide that no conveyance of title, easement, or other interest in the property shall be consummated without the continued right of

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entry.

25.9 Nothing in this Section shall be construed to limit EPA's and the State's full right of access as provided in 42 U.S.C. § 9604(e) and California Health and Safety Code section 25185, except as that right may be limited by 42 U.S.C. § 9620(j)(2), E.O. 12580, or other applicable national security regulations or federal law.

26. PUBLIC PARTICIPATION AND COMMUNITY RELATIONS

26.1 The Parties agree that any proposed removal actions and remedial action alternative(s) and plan(s) for remedial action at the Site arising out of this Agreement shall comply with the administrative record and public participation requirements of CERCLA sections 113(k) and 117, 42 U.S.C. § 9313(k) and 9617, relevant community relations provisions in the NCP, EPA guidances, and, to the extent they may apply, State statutes and regulations. The State agrees to inform the Marine Corps of all State requirements which it believes pertain to public participation. The provisions of this Section shall be carried out in a manner consistent with, and shall fulfill the intent of, Section 17 (Statutory Compliance/RCRA-CERCLA Integration).

26.2 The Marine Corps shall develop and implement a community relations plan (CRP) addressing the environmental activities and elements of work undertaken by the Marine Corps, except as provided in Section 11 hereof.

26.3 The Marine Corps shall establish and maintain an administrative record at a place, at or near the federal facility, which is freely accessible to the public, which record shall provide the documentation supporting the selection of each response action. The administrative record shall be established and maintained in accordance with relevant provisions in CERCLA, the NCP, and EPA guidances. A copy of each document placed in the administrative record, not already provided, will be provided by the Marine Corps to the other Parties. The administrative record developed by the Marine Corps shall be updated and new documents supplied to the other Parties on at least a quarterly basis. An index of documents in the administrative record will accompany each update of the administrative record.

26.4 Except in case of an emergency, any Party issuing a press release with reference to any of the work required by this Agreement shall advise the other Parties of such press release

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and the contents thereof at least 48 hours prior to issuance.

27. FIVE-YEAR REVIEW

27.1 Consistent with 42 U.S.C. § 9621(c) and in accordance with this Agreement, if the selected remedial action results in any hazardous substances, pollutants or contaminants remaining at the Site, the Parties shall review the remedial action program at least every five (5) years after the initiation of the final remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

27.2 If, upon such review, any of the Parties proposes additional work or modification of work, such proposal shall be handled under subsection 7.10 of this Agreement.

27.3 To synchronize the five-year reviews for all operable units and final remedial actions, the following procedure will be used: Review of operable units will be conducted every five years counting from the initiation of the first operable unit, until initiation of the final remedial action for the Site. At that time a separate review for all operable units shall be conducted. Review of the final remedial action (including all operable units) shall be conducted every five years thereafter.

28. TRANSFER OF REAL PROPERTY

28.1 No change in the ownership of Marine Corps Logistics Base Barstow shall in any way alter the responsibility of the Parties under this Agreement. The Marine Corps shall not transfer any real property comprising the federal facility except in compliance with section 120(h) of CERCLA, 42 U.S.C. § 9620(h). Prior to any sale of any portion of the land comprising the federal facility which includes an area within which any release of hazardous substance has come to be located, or any property which is necessary for proceeding with the remedial action, the Marine Corps shall give written notice of that condition to the buyer of the land. At least thirty (30) days prior to any conveyance subject to section 120(h) of CERCLA, the Marine Corps shall notify all Parties of the transfer of any real property subject to this Agreement and the provisions made for any additional remedial actions, if required. The provisions of this subsection 28.1 shall not apply to the extent federal statute adopted after the effective date of this Agreement places restrictions on transfer of real property by the Marine Corps that are inconsistent with such provisions.

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28.2 Until six months following the effective date of the final regulations implementing CERCLA section 120(h)(2), 42 U.S.C. § 9620(h)(2), the Marine Corps agrees to comply with the most recent version of the regulations as proposed and all other substantive and procedural provisions of CERCLA section 120(h) and subsection 28.1.

29. AMENDMENT OR MODIFICATION OF AGREEMENT

29.1 This Agreement can be amended or modified solely upon written consent of all Parties. Such amendments or modifications may be proposed by any Party and shall be effective the third business day following the day the last Party to sign the amendment or modification sends its notification of signing to the other Parties. The Parties may agree to a different effective date.

30. TERMINATION OF THE AGREEMENT

30.1 The provisions of this Agreement shall be deemed satisfied and terminated upon receipt by the Marine Corps of written notice from EPA, with concurrence of the State, that the Marine Corps has demonstrated that all the terms of this Agreement have been completed. If EPA denies or otherwise fails to grant a termination notice within 90 days of receiving a written Marine Corps request for such notice, EPA shall provide a written statement of the basis for its denial and describe the Marine Corps actions which, in the view of EPA, would be a satisfactory basis for granting a notice of completion. Such denial or failure to grant shall be subject to dispute resolution.

30.2 This Section shall not affect the requirements for periodic review at maximum five-year intervals of the efficacy of the remedial actions.

31. COVENANT NOT TO SUE AND RESERVATION OF RIGHTS

31.1 In consideration for the Marine Corps's compliance with this Agreement, and based on the information known to the Parties or reasonably available on the effective date of this Agreement, EPA, the Marine Corps, and the State agree that compliance with this Agreement shall stand in lieu of any administrative, legal, and equitable remedies against the Marine

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Corps available to them regarding the releases or threatened releases of hazardous substances including hazardous wastes, pollutants or contaminants at the Site which are the subject of any RI/FS conducted pursuant to this Agreement and which have been or will be adequately addressed by the remedial actions provided for under this Agreement. The above notwithstanding, EPA and the State reserve all rights each may have with regard to the Marine Corps's taking any removal action requested under subsection 11.3(f) after exhaustion of the alternative dispute resolution process set forth in subsection 11.6.

31.2 Notwithstanding this Section or any other Section of this Agreement, the State shall retain any statutory right it may have to obtain judicial review of any final decision of the EPA on selection of remedial action pursuant to any authority the State may have under CERCLA, including sections 121(e)(2), 121(f), 310, and 113.

32. OTHER CLAIMS

32.1 Nothing in this Agreement shall constitute or be construed as a bar or release from any claim, cause of action or demand in law or equity by or against any person, firm, partnership or corporation not a signatory to this Agreement for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous waste, pollutants, or contaminants found at, taken to, or taken from the federal facility. Unless specifically agreed to in writing by the Parties, EPA and the State shall not be held as a party to any contract entered into by the Department of the Navy (including the Marine Corps) to implement the requirements of this Agreement.

32.2 This Agreement shall not restrict EPA, the State or the Marine Corps from taking any legal or response action for any matter not part of the subject matter of this Agreement.

33. RECOVERY OF EPA EXPENSES

33.1 The Parties agree to amend this Agreement at a later date in accordance with any subsequent national resolution of the issue of cost reimbursement. Pending such resolution, EPA reserves any rights it may have with respect to cost reimbursement.

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34. STATE SUPPORT SERVICES

34.1 Compensation for State support services rendered in connection with this Agreement are governed by the Defense/State Memorandum of Agreement, executed on May 31, 1990, between DHS on behalf of the State and the Department of Defense. In the event such Memorandum of Agreement is terminated or no longer in effect for any reason, subsections 34.2 through 34.12 shall apply.

34.2 The Marine Corps agrees to request funding and reimburse the State, subject to the conditions and limitations set forth in this Section and subject to Section 15 (Funding), for all reasonable costs it incurs in providing services in direct support of the Marine Corps's environmental restoration activities pursuant to this Agreement at the Site.

34.3 Reimbursable expenses shall consist only of actual expenditures required to be made and actually made by the State in providing the following assistance to Marine Corps Logistics Base Barstow:

- (a) Timely technical review and substantive comment on reports or studies which the Marine Corps prepares in support of its response actions and submits to the State.
- (b) Identification and explanation of unique State requirements applicable to military installations in performing response actions, especially State ARARs.
- (c) Field visits to ensure investigations and clean-up activities are implemented in accordance with appropriate State requirements, or in accordance with agreed upon conditions between the State and the Marine Corps that are established in the framework of this Agreement.
- (d) Support and assistance to the Marine Corps in the conduct of public participation activities in accordance with federal and State requirements for public involvement.
- (e) Participation in the review and comment functions of Marine Corps Technical Review Committees.
- (f) Other services specified in this Agreement.

34.4 Within ninety (90) days after the end of each quarter of the federal fiscal year, the State shall submit to the Marine Corps an accounting of all State costs actually incurred during that quarter in providing direct support services under this Section. Such accounting shall be accompanied by cost summaries and be supported by documentation which meets federal auditing requirements. The summaries will set forth employee-hours and other expenses by major type of support service. All costs submitted must be for work directly related to implementation of

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this Agreement and not inconsistent with either the National Contingency Plan (NCP) or the requirements described in OMB Circulars A-87 (Cost Principles for State and Local Governments) and A-128 (Audits for State and Local Cooperative Agreements with State and Local Governments) and Standard Forms 424 and 270. The Marine Corps has the right to audit cost reports used by the State to develop the cost summaries. Before the beginning of each fiscal year, the State shall supply a budget estimate of what it plans to do in the next year in the same level of detail as the billing documents.

34.5 Except as allowed pursuant to subsections 34.6 or 34.7 below, within ninety (90) days of receipt of the accounting provided pursuant to subsection 34.3 above, the Marine Corps shall reimburse the State in the amount set forth in the accounting.

34.6 In the event the Marine Corps contends that any of the costs set forth in the accounting provided pursuant to subsection 34.4 above are not properly payable, the matter shall be resolved through the process set forth in subsection 34.10 below.

34.7 The Marine Corps shall not be responsible for reimbursing the State for any costs actually incurred in the implementation of this Agreement in excess of one percent (1%) of the Marine Corps's total lifetime project costs incurred through construction of the remedial action(s). Circumstances could arise whereby fluctuations in the Marine Corps estimates or actual final costs through the construction of the final remedial action creates a situation where the State receives reimbursement in excess of one percent of these costs. Under these circumstances, the State remains entitled to payment for services rendered prior to the completion of a new estimate if the services are within the ceiling applicable under the previous estimate. This Section does not cover the cost of services rendered prior to October 17, 1986; services and properties not owned by the federal government; and activities funded from sources other than Defense Environmental Restoration Account appropriations.

(a) Funding of support services must be constrained so as to avoid unnecessary diversion of the limited Defense Environmental Restoration Account funds available for the overall cleanup, and

(b) Support services should not be disproportionate to overall project costs and budget.

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34.8 Either the Marine Corps or the State may request, on the basis of significant upward or downward revisions in the Marine Corps's estimate of its total lifetime costs through construction used in subsection 34.7 above, a renegotiation of the cap. Failing an agreement, either the Marine Corps or the State may initiate dispute resolution in accordance with subsection 34.10 below.

34.9 The State agrees to seek reimbursement for its expenses solely through the mechanisms established in this Section, and reimbursement provided under this Section shall be in settlement of any claims for State response costs relative to the Marine Corps's environmental restoration activities at the Site.

34.10 Section 12 (Dispute Resolution) notwithstanding, this subsection shall govern any dispute between the Marine Corps and the State regarding the application of this Section or any matter controlled by this Section including, but not limited to, allowability of expenses and limits on reimbursement. While it is the intent of the Marine Corps and the State that these procedures shall govern resolution of disputes concerning State reimbursement, informal dispute resolution is encouraged.

(a) The Marine Corps, DHS and RWQCB Project Managers shall be the initial points of contact for coordination of dispute resolution under this Subsection.

(b) If the Marine Corps, DHS and RWQCB Project Managers are unable to resolve a dispute, the matter shall be referred to the Commander, Southwest Division, Naval Facilities Engineering Command, or his designated representative, the DHS Regional Administrator, Region 4, and the RWQCB Assistant Executive Officer as soon as practicable, but in any event within five (5) working days after the dispute is elevated by the Project Managers.

(c) If the persons listed in paragraph 34.10(b) above are unable to resolve the dispute within ten (10) working days, the matter shall be elevated to the DHS Chief Deputy Director, the RWQCB Executive Officer and the Deputy Assistant Secretary of the Navy for Installations and the Environment.

(d) In the event persons listed in paragraph 34.10(c) above are unable to resolve a dispute, the State retains any legal and equitable remedies it may have to recover its expenses. In addition, the State may withdraw from this Agreement by giving sixty (60) days notice to the other Parties.

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Marine Corps Logistics Base Barstow**

34.11 Nothing herein shall be construed to limit the ability of the Marine Corps to contract with the State for technical services that could otherwise be provided by a private contractor including, but not limited to:

- (a) Identification, investigation, and cleanup of any contamination beyond the boundaries of Marine Corps Logistics Base Barstow;
- (b) Laboratory analysis; or
- (c) Data collection for field studies.

34.12 Nothing in this Agreement shall be construed to constitute a waiver of any claims by the State for any expenses incurred prior to the effective date of this Agreement.

35. STATE PARTICIPATION CONTINGENCY

35.1 If either DHS or RWQCB fails to sign this Agreement within thirty (30) days of notification of the signature by both EPA and the Marine Corps, this Agreement will be interpreted as if that agency were not a signatory and any reference to that agency in this Agreement will have no effect.

35.2 If both DHS and RWQCB do not sign this Agreement within the 30-day period described in subsection 35.1, this Agreement will be interpreted as if the State were not a Party and any reference in this Agreement to the State, DHS and RWQCB will have no effect. In addition, Marine Corps Logistics Base Barstow shall have to comply only with those State requirements, conditions or standards, including those specifically listed in this Agreement, that Marine Corps Logistics Base Barstow would otherwise have had to comply with absent this Agreement.

35.3 If either subsection 35.1 or subsection 35.2 applies,

(a) the Marine Corps agrees to transmit all primary and secondary documents to the agency or agencies that did not sign this Agreement at the same time such documents are transmitted to EPA; and

(b) EPA intends to consult with the agency or agencies that did not sign this Agreement with respect to the above documents and during implementation of this Agreement.

36. EFFECTIVE DATE AND PUBLIC COMMENT

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36.1 The provisions of this Section shall be carried out in a manner consistent with, and shall fulfill the intent of Section 17 (Statutory Compliance/RCRA-CERCLA Integration).

36.2 Within fifteen (15) days of the date of the execution of this Agreement, the Marine Corps shall announce the availability of this Agreement to the public for a forty-five (45) day period of review and comment, including publication in at least two major local newspapers of general circulation. Comments received shall be transmitted to the other Parties within seven (7) days after the end of the comment period. The Parties shall review such comments within fourteen (14) days after such seven-day period and shall meet within seven (7) days after such 14-day period to determine whether this Agreement should be made effective in its present form.

(a) If it is determined that this Agreement should be made effective, EPA shall promptly notify all Parties in writing, and this Agreement shall become effective on the date that Marine Corps Logistics Base Barstow receives such notification.

(b) If the determination in paragraph 36.2(a) is not made, the Parties shall meet to discuss any proposed changes. If changes are agreed upon, the Agreement, as modified, shall be re-executed by the Parties, with EPA signing last, and shall become effective on the date it is signed by EPA.

(c) If the Parties cannot agree to modify this Agreement pursuant to paragraph 36.2(b) within the second seven day period set forth above (or within such other time period as the Parties agree upon), the Parties shall submit their written notices of position concerning those provisions still in dispute to the DRC. If the DRC is unable to resolve the dispute, the dispute shall be elevated to the SEC. If changes are agreed upon by the DRC or SEC, the Agreement, as modified, shall be re-executed by the Parties, with EPA signing last, and shall become effective on the date it is signed by EPA.

(d) If the SEC cannot resolve the dispute and the proposed changes would impose substantial additional obligations on a Party, such Party may withdraw from this Agreement. Withdrawal by the Marine Corps shall not affect the obligation of the Marine Corps to comply with CERCLA section 120, 42 U.S.C. § 9620, or limit the enforcement powers of EPA or the State.

36.3 Any response action underway upon the effective date of this Agreement shall be subject to the terms of this Agreement

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unless the Parties agree otherwise.

36.4 At the start of the public comment period, the Marine Corps will also transmit copies of this Agreement, for review and comment, to the appropriate Federal Natural Resource Trustees. The State will transmit copies to appropriate State and local agencies and compile and consolidate comments from these agencies. The State will work with the Marine Corps prior to the start of the public comment period to develop the list of appropriate State and local agencies.

37. BASE CLOSURE

37.1 The Marine Corps does not currently plan to close Marine Corps Logistics Base Barstow. However, in the event that Marine Corps Logistics Base Barstow is closed, such closure, except as is otherwise specifically provided by law, will not affect the Marine Corps's obligation to comply with the terms of this Agreement and to specifically ensure the following:

- (a) Continuing rights of access for EPA and the State in accordance with the terms and conditions of Section 25 (Access to Marine Corps Logistics Base Barstow);
- (b) Availability of a Project Manager to fulfill the terms and conditions of the Agreement;
- (c) Designation of alternate DRC members as appropriate for the purposes of implementing Section 12 (Dispute Resolution); and
- (d) Adequate resolution of any other problems identified by the Project Managers regarding the effect of base closure on the implementation of this Agreement.

37.2 Base closure will not of itself constitute a Force Majeure under Section 10 (Force Majeure), nor will it constitute good cause for extensions under Section 9 (Extensions), unless agreed by the Parties.

38. APPENDICES AND ATTACHMENTS

38.1 Appendices shall be an integral and enforceable part of this Agreement. They shall include the most current versions of:

- (a) Deadlines previously established.
- (b) Site-specific outline of key elements to be included in the RI/FS Workplan, QAPP, Community Relations Plan, RI Report, FS Report and Treatability Studies.

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(c) All final primary and secondary documents which will be created in accordance with Section 7 (Consultation).

(d) All deadlines which will be established in accordance with Section 8 (Deadlines) and which may be extended in accordance with Section 9 (Extensions).

(e) All final primary documents and all completed secondary documents agreed upon by the Parties prior to the effective date of this Agreement.

38.2 Attachments shall be for information only and shall not be enforceable parts of this Agreement. The information in these Attachments is provided to support the initial review and comment upon this Agreement, and they are only intended to reflect the conditions known at the signing of this Agreement. None of the facts related therein shall be considered admissions by, nor are they legally binding upon, any Party with respect to any claims unrelated to, or persons not a Party to, this Agreement. They shall include:

- (a) Map(s) of Marine Corps Logistics Base Barstow
(see also subsection 5.10)
 - (b) Chemicals of Concern
 - (c) Statement of Facts
 - (d) Installation Restoration Program Activities
-

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Marine Corps Logistics Base Barstow

Each undersigned representative of a Party certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement and to legally bind such Party to this Agreement.

UNITED STATES DEPARTMENT OF THE NAVY

24 October 1990
DATE

Jacqueline E. Schaper
JACQUELINE E. SCHAPER
Assistant Secretary of the Navy
(Installations and Environment)

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

10-24-90
DATE

Daniel W. McGovern
DANIEL W. MCGOVERN
Regional Administrator, Region 9

STATE OF CALIFORNIA

DEPARTMENT OF HEALTH SERVICES

9/27/90
DATE

John A. Hinton
JOHN A. HINTON
Regional Administrator, Region 4
Toxic Substances Control Program

REGIONAL WATER QUALITY CONTROL BOARD,
LAHONTAN REGION

10/11/90
DATE

Harold J. Singer
HAROLD J. SINGER
Executive Officer

Appendices

- A) Deadlines Previously Established
- B) Outline of Topics to Be Addressed in the RI/FS
- C) All Final and Secondary Documents Which Will Be Created in Accordance With Section 7 (Consultation)
- D) All Deadlines Which Will Be Established In Accordance With Section 8 (Deadlines) and Which May Be Extended in Accordance With Section 9 (Extensions)

Appendix A

DEADLINES PREVIOUSLY ESTABLISHED

Documents Not Submitted Before the Effective Date:

In accordance with Section 8.1 of this Agreement, the following deadlines for submission of Draft Primary documents¹ have been agreed upon by the Parties before the effective date of this Agreement:

Operable Units 1-4

Draft RI/FS Work Plan	September 30, 1990
Draft RI Report	June 15, 1992
Draft FS Report	August 15, 1992
Draft Proposed Plan	November 15, 1992
Draft ROD	April 15, 1993

Operable Units 5-6

Draft RI/FS Work Plan	September 30, 1990
Draft RI Report	December 15, 1992
Draft FS Report	February 15, 1993
Draft Proposed Plan	May 15, 1993
Draft ROD	October 15, 1993

RFA

Draft Report on records search, VSI and sample plan*	March 15, 1991
Draft RFA report*	December 15, 1991

Operable Unit 7 and ROD for Overall Site

Draft RI/FS Work Plan	December 15, 1991 ²
Draft RI Report	September 15, 1993
Draft FS Report	January 15, 1994
Draft Proposed Plan	April 15, 1994
Draft ROD	September 15, 1994

* Secondary document

¹ Draft RI/FS Workplans includes Field Sampling Plan, Quality Assurance Project Plan, and Community Relations Plan. Draft RI Report includes Baseline Risk Assessment. Draft FS Report includes treatability study results. Draft ROD includes Responsiveness Summary.

² The Navy will make best efforts to incorporate all RFA sites requiring further action into the RI/FS by this date. If all sites cannot be addressed by then, a schedule for the remaining sites will be negotiated by all Parties, per Section 29 of this Agreement.

OPERABLE UNITS

(As defined by the Effective Date of the Agreement)

OU 1 - Yermo Groundwater*

OU 2 - Nebo Groundwater*

OU 3 - Yermo Known Soil/Sources with previous data

Site 18 - Sludge Waste Disposal Area

Site 20 - Second Hazardous and Low-Level Radiological Area

Site 21 - Industrial Waste Disposal Area

Site 23 - Landfill Area

Site 34 - Previous PCB Storage Areas

OU 4 - Nebo Known Soil/Source Sites with Data

Site 2 - Pesticide Storage and Washout Area

Site 5 - Chemical Storage Area

Site 9 - Fuel Disposal

Site 11 - Fuel Burn Area

OU 5 - Yermo Known Soil/Source Sites With No Data

Site 15 - Oil Storage and Spillage,

Site 16 - Battery Acid Disposal

Site 17 - Industrial Wastewater Overflow Area and
Industrial Wastewater Treatment Plant

Site 19 - First Hazardous and Low-level Radiological Area

Site 22 - Domestic Wastewater Disposal

Site 24 - Tracked Vehicle Test Area

Site 25 - Wastewater Treatment Sludge Disposal

Site 26 - Building 533 Waste Disposal Area

Site 27 - Building 436 Fuel Oil Storage Tank

Site 28 - West Lot Dust Control

Site 29 - Sludge Storage Area

Site 30 - Locomotive Repair Shop Disposal Area

Site 31 - North Vehicle Test Track Road

Site 32 - Preservation and Packaging Storage Area

Site 35 - Class III Landfill

Site 36 - Proposed Paint Combat Vehicle Maintenance Shop

*Includes off-site investigations

OPERABLE UNITS (continued)

OU 6 - Nebo Known Soil/source Sites with No Data:

- Site 1 - Landfill North of the Golf Course
- Site 3 - Wastewater Disposal
- Site 4 - Old Trap and Skeet Range Area
- Site 6 - Original Trash Landfill
- Site 7 - Drum Storage and Landfill
- Site 8 - Building 197 Waste Disposal Area
- Site 10 - Sodium Filled Valve Burial Site
- Site 12 - Radiator Cleaning Chemicals Disposal Area
- Site 13 - Preservation and Packaging Storage Area
- Site 14 - Mojave River Bed
- Site 33 - Rifle Range

OU 7 - Sites as a result of the RFA:

Sewers, Leaking Hazardous Substance Tanks and Other Solid Waste Management Units

Appendix B
Outline of Topics To Be Addressed In
The Remedial Investigation/Feasibility Studies
And Related Reports

The following outlines list topics to be included at a minimum in the RI/FS Documents in Section 7.3(a)(1)-(5) and 7.4(a)(3), as set forth in the most recent version of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, Interim Final, October, 1988), and other applicable Federal and State law. The documents shall also include additional topics and tasks, as appropriate.

- 1.0 RI/FS Work Plan
 - Executive Summary
 - 1. Introduction
 - 2. Site Background and Setting
 - 3. Initial Evaluation
 - 3.1 Source Identification, using TPCA, RCRA RFA guidance, historical photographs
 - 3.2 Types and Volumes of Waste Present
 - 3.3 Potential Pathways of Contaminant Migration/Preliminary Public Health and Environmental Impacts
 - 3.4 Preliminary Identification of Operable Units
 - 3.5 Preliminary assessment of off-site contamination
 - 3.6 Preliminary Identification of Response Objectives and Remedial Action Alternatives
 - 3.7 Incorporation of RCRA and TPCA requirements
 - 4. Work Plan Rationale
 - 4.1 Data Quality Objectives
 - 4.2 Work Plan Approach
 - 5. RI/FS Tasks
 - 6. Costs and key assumptions
 - 7. Schedule (including Operable Units)
 - 8. Project Management
 - 8.1 Staffing
 - 8.2 Coordination
 - 9. References
 - Appendices

- 2.0 Quality Assurance Project Plan
 - Title Page
 - Table of Contents
 - 1. Project Description
 - 2. Project Organization and Responsibilities
 - 3. QA Objectives for Measurement of Data
 - 4. Sampling Procedures
 - 5. Sample Custody
 - 6. Calibration Procedures
 - 7. Analytical Procedures
 - 8. Data Reduction, Validation and Reporting
 - 9. Internal Quality Control
 - 10. Performance and Systems Audits

12. Data Assessment Procedures
13. Corrective Action
14. Quality Assurance Reports

3.0 Sampling and Analysis Plans

1. Site Background
2. Sampling Objectives
3. Sample Location and Frequency
4. Sample Designation
5. Sampling Equipment and Procedures
6. Sample Handling and Analysis

4.0 Community Relations Plan

1. Overview of Community Relations Plan
 2. Capsule Site Description
 3. Community Background
 4. Highlights of Program
 5. Techniques and Timing
- Appendices

5.0 RI Report

Executive Summary

1. Introduction

- 1.1 Purpose of Report
- 1.2 Site Background
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Previous Investigations
- 1.3 Report Organization

2. Study Area Investigation

- 2.1 Includes field activities associated with site characterization. These may include physical and chemical monitoring of some, but not necessarily all, of the following:
 - 2.1.2 Surface Features (topographic mapping, etc.) (natural and manmade features)
 - 2.1.3 Contaminant Source Investigations
 - 2.1.4 Surface-water and Sediment Investigations
 - 2.1.5 Geologic Investigations
 - 2.1.6 Soil and Vadose Zone Investigations
 - 2.1.7 Ground Water Investigations
 - 2.1.8 Human Population Surveys
 - 2.1.9 Off-site contamination
 - 2.1.10 Ecological Investigations
- 2.2 If technical memoranda documenting field activities were prepared, they may be included in an appendix and summarized in this chapter.

3. Physical Characteristics of the Study Area

- 3.1 Includes results of field activities to determine physical characteristics. These may include some, but not necessarily all, of the following:
 - 3.1.1 Surface Features
 - 3.1.2 Meteorology
 - 3.1.3 Surface Water Hydrology

- 3.1.4 Geology
 - 3.1.5 Soils
 - 3.1.6 Hydrogeology
 - 3.1.7 Demography and Land Use
 - 3.1.8 Ecology
 - 4. Nature and Extent of Contamination
 - 4.1 Presents the results of site characterization, both natural chemical components and contaminants in all, of the following:
 - 4.1.1 Sources (including RCRA corrective action)
 - 4.1.2 Soils and Vadose Zone
 - 4.1.3 Ground Water
 - 4.1.4 Surface Water and Sediments
 - 4.1.5 Air
 - 4.1.6 Biota
 - 4.1.7 Wildlife
 - 5. Contaminant Fate and Transport
 - 5.1 Potential Routes of Migration (i.e., air, ground water, etc.)
 - 5.2 Contaminant Persistence
 - 5.2.1 If they are applicable (i.e., for organic contaminants), describe estimated persistence in the study area environment and physical, chemical, and/or biological factors of importance for the media of interest.
 - 5.3 Contaminant Migration (including off-site)
 - 5.3.1 Discuss factors affecting contaminant migration for the media of importance (e.g., sorption onto soils, solubility in water, movement of ground water, etc).
 - 5.3.2 Discuss modeling methods and results, if applicable.
 - 6. Baseline Risk Assessment
 - 6.1 Human Health Evaluation
 - 6.1.1 Exposure Assessment
 - 6.1.2 Toxicity Assessment
 - 6.1.3 Risk Characterization
 - 6.2 Environmental Evaluation
 - 7. Summary and Conclusions
 - 7.1 Summary
 - 7.1.1 Nature and Extent of Contamination
 - 7.1.2 Fate and Transport
 - 7.1.3 Risk Assessment
 - 7.2 Conclusions
 - 7.2.1 Data Limitations and Recommendations for Further Work
 - 7.2.3 Recommended Remedial Action Objectives
- 6.0 FS Report
- Executive Summary
 - 1. Introduction
 - 1.1 Purpose and Organization of Report

- 1.2 Background Information (Summarized from RI)
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Nature and Extent of Contamination
 - 1.2.4 Contaminant Fate and Transport
 - 1.2.5 Baseline Risk Assessment
2. Identification and Screening of Technologies
 - 2.1 Introduction
 - 2.2 Remedial Action Objectives - Presents the development of remedial action objectives for each medium of interest (ground water, soil, surface water, air, ecological impacts etc.). For each medium, the following should be discussed:
 - 2.2.1 Contaminants of Interest
 - 2.2.2 Allowable Exposure Based on Risk Assessment (Including ARARs)
 - 2.2.3 Development of Remediation Goals
 - 2.3 General Response Actions - For each medium of interest, describes the estimation of areas or volumes to which treatment, containment, or disposal technologies may be applied.
 - 2.4 Identification and Screening of Technology Types and Process Options - For each medium of interest, describes:
 - 2.4.1 Identification and Screening of Technologies
 - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies
3. Development and Screening of Alternatives
 - 3.1 Development of Alternatives - Describes rationale for combination of technologies/media into alternatives. Note: This discussion may be by medium or for the site as a whole.
 - 3.2 Screening of Alternatives (if conducted)
 - 3.2.1 Introduction
 - 3.2.2 Alternative 1
 - 3.2.2.1 Description
 - 3.2.2.2 Evaluation of:
 - Effectiveness
 - Implementability
 - Cost
 - 3.2.3 Alternative 2
 - 3.2.3.1 Description
 - 3.2.3.2 Evaluation
 - 3.2.4 Alternative 3
4. Detailed Analysis of Alternatives
 - 4.1 Introduction
 - 4.2 Individual Analysis of Alternatives
 - 4.2.1 Alternative 1
 - 4.2.1.1 Description
 - 4.2.1.2 Assessment of:
 - Overall Protection
 - Compliance with ARARs
 - Long-term Effectiveness and Permanence

- Reduction of Toxicity, Mobility or Volume Through Treatment
- Short-Term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

4.2.2 Alternative 2

4.2.2.1 Description

4.2.2.2 Assessment

4.2.3 Alternative 3

4.3 Comparative Analysis

Bibliography

Appendices

7.0 Treatability Investigations - The need for treatability testing should be identified as early in the RI/FS process as possible. The purpose is to provide information needed for the detailed analysis of alternatives and to allow selection of a remedial action with a reasonable certainty of achieving the response actions. In general, treatability testing will include the following:

1. A work plan for Bench or Pilot Scale - see Chapter 5 of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (October, 1988), for example work plan outlines
2. Performing field sampling, and or bench testing or pilot testing
3. Evaluating data from field studies and or bench or pilot testing
4. Preparing a brief report documenting the results of the testing

APPENDIX B-1

Requirements contained in the Federal Facilities Compliance Agreement between the Marine Corps and EPA for the Yermo and Nebo¹ Facilities that will be incorporated into the Federal Facilities Agreement.

1. Groundwater monitoring

a. As part of the Remedial Investigation Work Plan, submit a groundwater monitoring plan for the Industrial Wastewater Treatment Plants (IWTPs) and a schedule for implementation that satisfies 40 CFR 265 Subpart F and State requirements as deemed applicable or relevant and appropriate.

b. Implement the approved plan.

2. Closure and Post-Closure requirements

a. Submit a closure plan which complies with the requirements of 40 CFR 265.112(b) to address the closure of the IWTP and the 2,500 square feet uncovered container storage unit (Yermo) and all past units in Nebo to ensure compliance with 40 CFR 265.111 and State requirements as deemed applicable or relevant and appropriate.

b. Implement the approved closure plan.

c. Upon completion of implementing the approved closure plan, submit certification to EPA and the State that the hazardous waste units have been closed in accordance with the specifications of the approved closure plan.

d. Upon completion of closure according to the approved closure plan, submit a post-closure plan which complies with the requirements of 40 CFR 265.118 to ensure compliance with 40 CFR 265.117 and 265.228. Satisfy State requirements as deemed applicable or relevant and appropriate.

¹ Requirements are applicable if it is determined that RCRA hazardous wastes were released at the Nebo Facility.

Appendix C
All Final Primary and Secondary Documents
Which Will Be Created
In Accordance With Section 7 (Consultation)

(To be incorporated by reference)

Appendix D
All Deadlines Which Will Be Established In
Accordance With Section 8 (Deadlines) and Which
May Be Extended in Accordance With Section 9 (Extensions)

(To be incorporated by reference)

TECHNICAL ATTACHMENTS
Federal Facilities Agreement

Attachments

- A) Site Maps
- B) Chemicals of Concern
- C) Statement of Facts
- D) IRP Activities

Attachment A
Site Map(s)

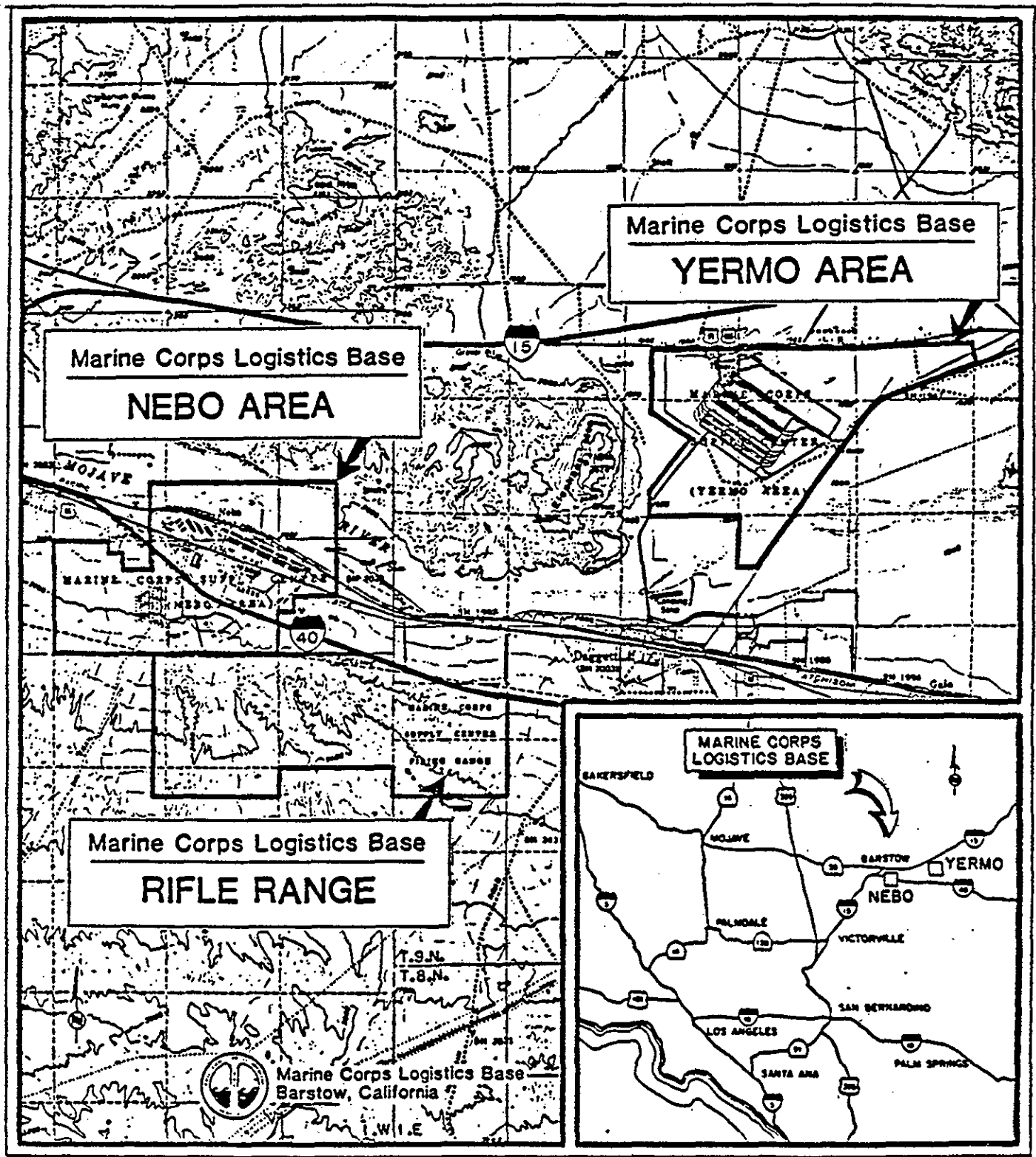
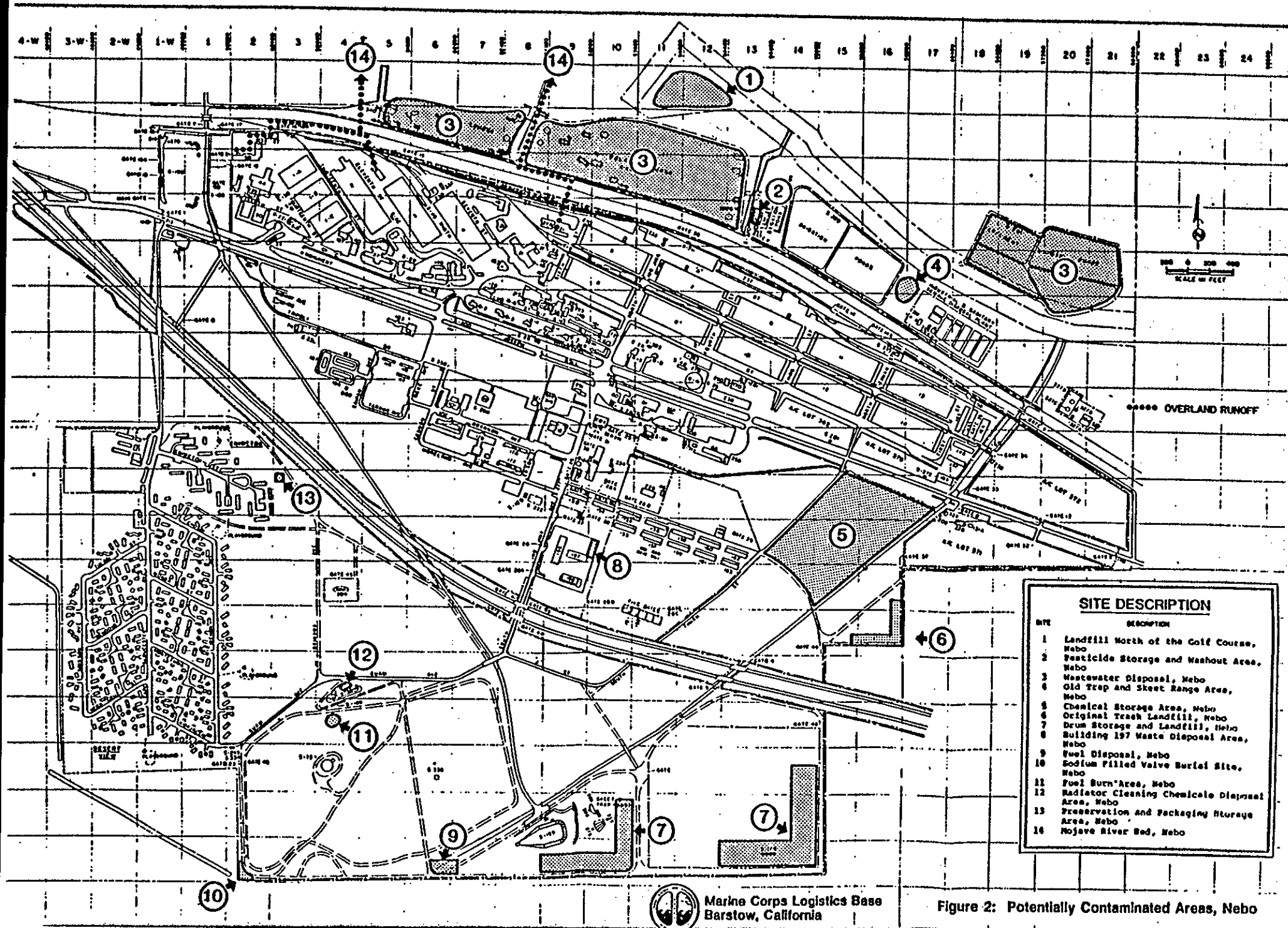


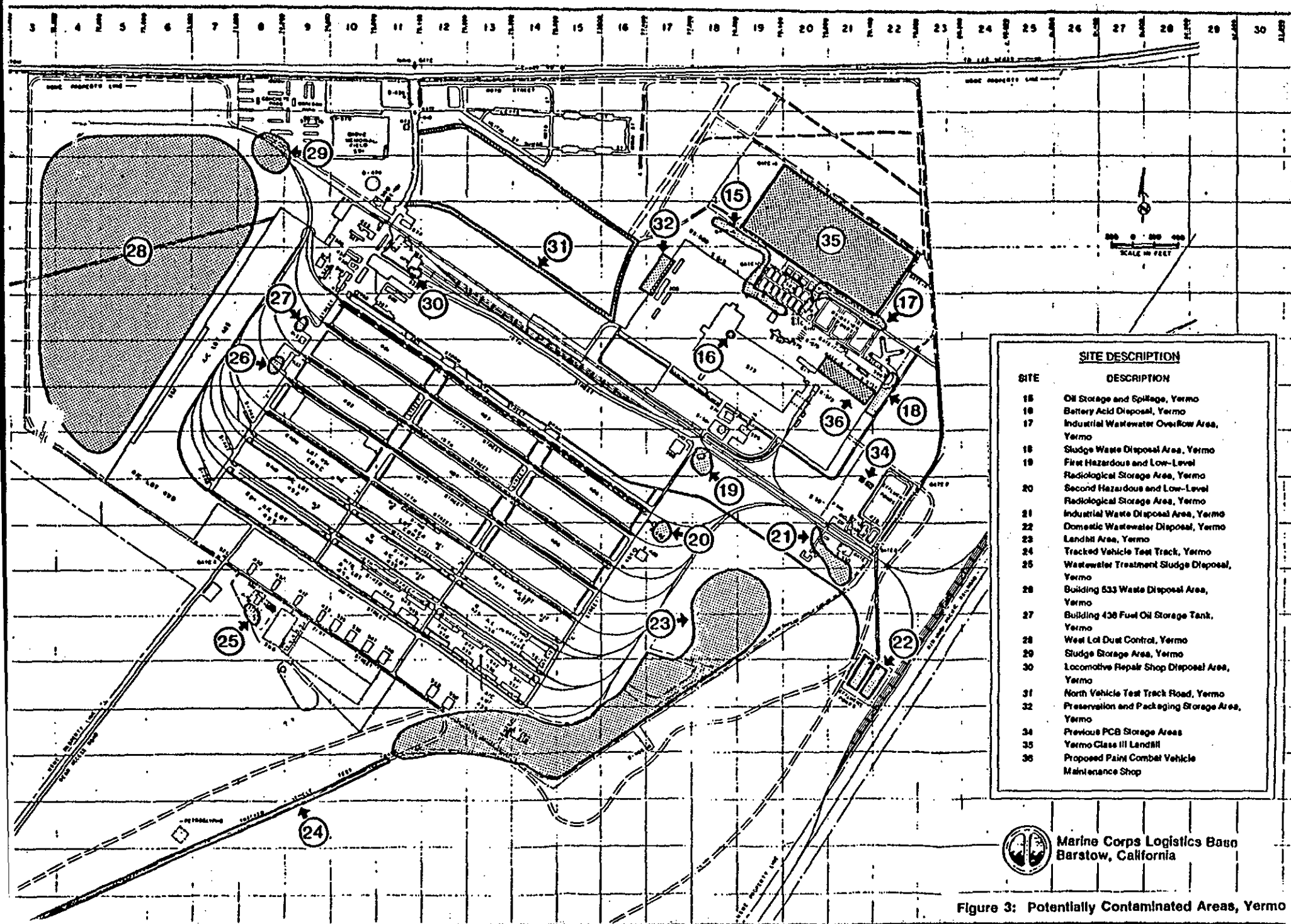
Figure 1: Location and Vicinity Map of Marine Corps Logistics Base, Barstow



SITE DESCRIPTION

NOTE	DESCRIPTION
1	Landfill North of the Golf Course, Nebo
2	Pesticide Storage and Washout Area, Nebo
3	Wastewater Disposal, Nebo
4	Old Trap and Skeet Range Area, Nebo
5	Chemical Storage Area, Nebo
6	Original Trash Landfill, Nebo
7	Drum Storage and Landfill, Nebo
8	Building 197 Waste Disposal Area, Nebo
9	Fuel Disposal, Nebo
10	Sodium Filled Valve Burial Site, Nebo
11	Fuel Burn Area, Nebo
12	Radiator Cleaning Chemical Disposal Area, Nebo
13	Preservation and Packaging Storage Area, Nebo
14	Mojave River Bed, Nebo

Figure 2: Potentially Contaminated Areas, Nebo





Marine Corps Logistics Base
Barstow, California

Figure 3: Potentially Contaminated Areas, Yermo

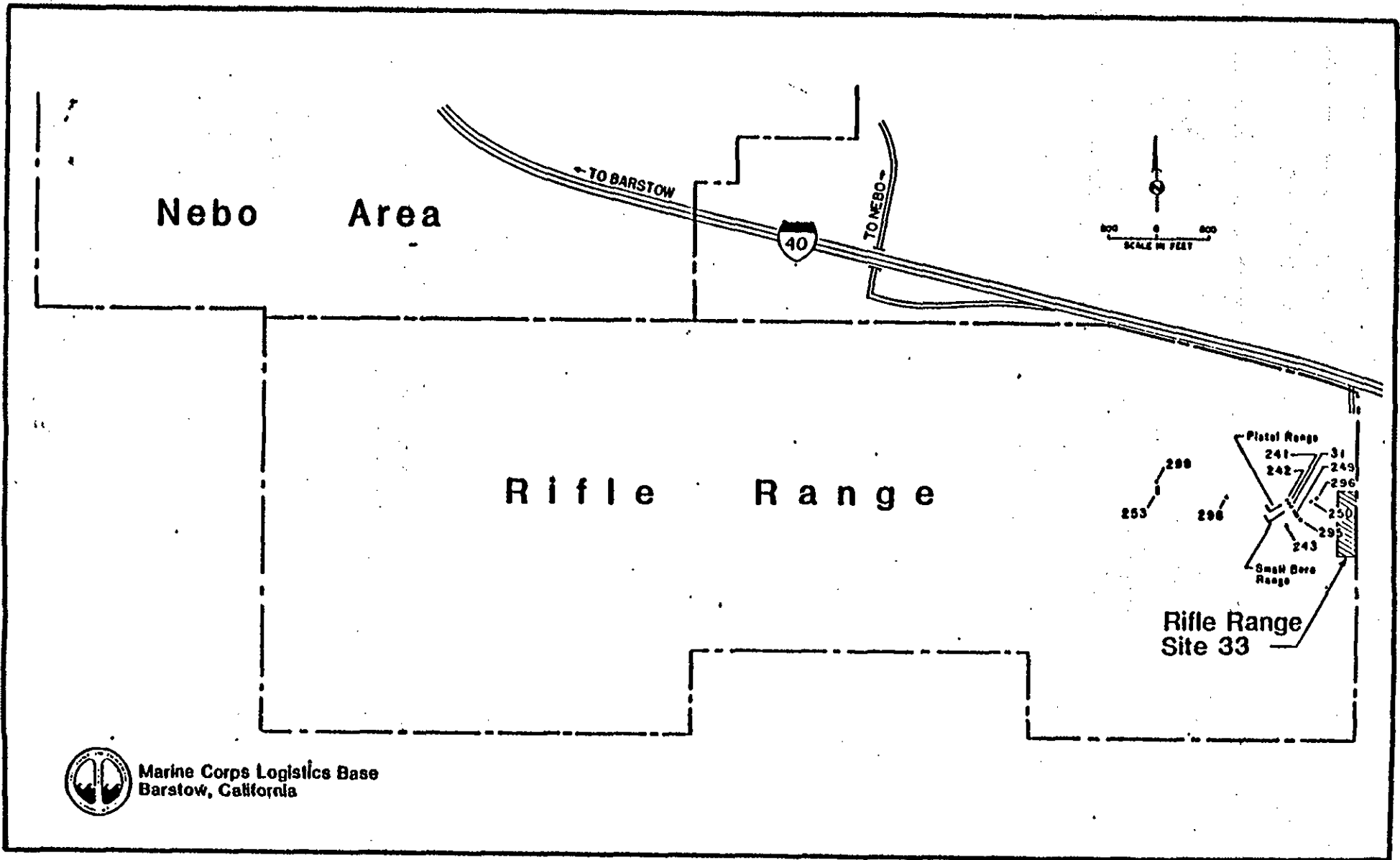


Figure 4: Potentially Contaminated Areas, Rifle Range

ATTACHMENT B

THE CHEMICALS OF CONCERN: MCLB BARSTOW

This description of the toxicity of chemicals of concern at the MCLB Barstow, is for reference only and should not be interpreted as describing effects on any individual person.

This list represents chemicals of concern known at the time of this Agreement. It is based on limited sampling or inconclusive documentation. A confirmation of the presence and an assessment of any risk of these chemicals to potentially exposed populations will be conducted as part of the Remedial Investigation (RI). This list may change as the RI and subsequent work under this Agreement continues.

Chemical Name

Synonym

ORGANIC COMPOUNDS

Benzene
(71-43-2)

Acute: Dizziness, headache, drowsiness, loss of consciousness, respiratory failure, and circulatory collapse.

Chronic: Central Nervous System (CNS) effects, gastrointestinal effects, bone marrow effects such as reduction of many kinds of blood cells (pancytopenia), and leukemia. Class2 A - human carcinogen .

Bis (2-ethylhexyl)
phthalate (BEHP)
(117-81-7)

Diethyl phthalate, DEHP

Acute:

Chronic: Increased liver weight, effects on lipid metabolism, liver damage, decreased fertility, and damage to seminiferous tubules in rats and mice. Class B2 - probable human carcinogen.

1-Chloroethene
(75-01-4)

Vinyl chloride

Acute:

Chronic: Production of hemangiosarcomas (extremely rare tumors) in the liver and brain and lung tumors. Class A human carcinogen.

1,2-Dibromoethane
(106-93-04)

Ethylene dibromide, EDB

Acute: Coma, convulsions, pulmonary edema, dizziness, headache, nausea, vomiting, anorexia, dermal burns, behavioral disturbances, ventricular fibrillation, damage to lungs, liver, and kidneys, squamous cell carcinomas, nasal cavity cancer, neoplasm activity.

Chronic: Injury to lungs, liver, and kidneys, oliguria, anuria, renal failure, organic brain syndrome, pulmonary edema.

1,1-Dichloro-1,1-difluoromethane
(75-71-8)

Freon 12
Halon 122

Acute: Dizziness, involuntary trembling, unconsciousness, death, contact frostbite, cardiac arrhythmia, CNS effects, systemic eye effect, narcotic effects.

Chronic: None known.

1,1-Dichloroethane
(75-34-03)

Ethylidene chloride

Acute: Local irritation, CNS depression, and kidney and liver lesions.

Chronic: Decreased weight gain and increased death rate. Class B2 probable human carcinogen.

1,2-Dichloroethane (1,2-DCA)
(107-06-2)

Ethylene dichloride, EDC

Acute: Irritation, defatting, and burning of skin, irritation and clouding of the cornea if exposure is to eyes. Lesions in liver, kidney, and adrenals.

Chronic: Liver and kidney injury, weight loss, low blood pressure, jaundice, oliguria, and anemia.

1,1-Dichloroethene
(75-35-4)

1,1-DCE
1,1-Dichloroethylene

Acute: Reversible CNS depression, liver, kidney and cardiac toxicity.

Chronic: Neurasthenia and paresthesia, liver, kidney and cardiac effects (in lab animals) Class B2 probable human carcinogen.

1,2-Dichloroethene
Mixture of isomers:
(540-59-0)

1,2-Dichloroethylene

Acute: CNS Depressions.

Chronic: Liver toxicity, lung toxicity (from inhalation exposure), kidney lesions, and blood toxicity.

trans-1,2-Dichloroethene
(156-60-5)

cis-1,2-Dichloroethene
(156-59-2)

1,1-Dichloromethane
(75-09-2)

Methylene chloride

Acute: Mild irritation, CNS depression, liver, kidney and cardiac toxicity.

Chronic: Neurasthenia and paresthesia, liver, kidney and cardiac effects (in lab animals). Class B2 probable human carcinogen.

2,4-Dichlorophenoxy
Acetic acid
(94-75-7)

2,4-D

Acute: Ventricular fibrillation, death, stiffness of extremities, ataxia, paralysis, coma, profound muscular weakness, liver and kidney injury, peripheral neuritis, contact dermatitis, chloracne, CNS effects, depression, gastrointestinal effects, nausea, vomiting, mutations.

Chronic: Tenseness, muscular weakness, soft-tissue sarcoma, mutation.

Ethyl benzene
(100-41-04)

EB
Phenylethane

Acute: Skin and mucous membrane irritation, headache, and sleepiness.

Chronic: Changes in kidney and liver weights in various species, testicular histopathological changes in Rhesus monkeys class D not classifiable as a carcinogen.

1,2,3,4,10,10-Hexachloro-
6,7-epoxy-1,4,4a,5,6,7,8,
8a-octahydro-1,4-endo-exo-
5,8-di-methano-naphthalene
(60-57-1)

Dieldrin

Acute: Headache, nausea, vomiting, dizziness, jerking, convulsions, and liver damage.

Chronic: Liver lesions in rats. Class B2 probable human carcinogen.

Methyl benzene
(108-88-3)

Toluene

Acute: Incoordination, headache, vertigo, light narcosis, dizziness, unconsciousness, death, local irritation, decreased erythrocyte levels, liver and renal toxicity.

Chronic: Skin, CNS, liver.

Mixture of Xylenes:
(1330-20-7)

Xylenes:

Acute: Eye, skin, and mucous membrane irritation, and CNS effects.

Chronic: Eye, kidney, liver, and lung effects. Class D not classifiable as a carcinogen.

1,2-Dimethyl benzene
(95-47-6)

Ortho (o)

Acute: See Mixture of Xylenes.

Chronic: See Mixture of Xylenes.

1,3-Dimethyl benzene
(108-38-3)

Meta (m)

Acute: See Mixture of Xylenes.

Chronic: See Mixture of Xylenes.

1,4-Dimethyl benzene
(106-42-3)

Para (p)

Acute: See Mixture of Xylenes.

Chronic: See Mixture of Xylenes.

N-3-Chlorophenyl-
isopropyl carbamate
(101-21-3)

Chlorpropham
isopropyl
3-chlorocarba-
nilate

Acute: Respiratory effects, peripheral neuropathy, nausea, vomiting, diarrhea, skin and mucous membrane irritation.

Chronic: Possibly carcinogenic and encourages neoplasm.

Phenol
(108-95-02)

Carbolic acid

Acute: Eczema, inflammation, necrosis, and sloughing of skin; irritation of oral cavity from ingestion; CNS effects; and damage to lungs, liver, kidneys, and urinary tract.

Chronic: Nervous disorders, skin eruptions, and liver and kidney damage. Carcinogenicity under review by EPA.

Polychlorinated biphenyls
(1336-36-3)

PCBs
Avoclor

Acute: Chloracne (a form of acne particular to PCB exposure) visual disturbances, gastrointestinal distress, jaundice, and lethargy.

Chronic: Class B2 probable human carcinogen.

Polychlorinated Dibenzo-
p-Dioxins
(None noted)

PCDD
Dioxins

Acute: Chloracne, hepatotoxicity, porphyria cutanea tarda, weight loss, psychological alterations, thymic atrophy, death, thrombocytopenia, suppression of cellular immunity, nausea, vomiting, headache, teratogenic and fetotoxic.

Chronic: Chloracne, elevated porphyrin excretion, hyperpigmentation, hypertrichosis, CNS effects, PNS effects, changes in lipid metabolism, hepatic effects.

Polychlorinated Dibenzo-
Furans
(None noted)

PCDF
Dioxins

Acute: Chloracne, same magnitude of toxicity as PCDD - toxicity increases with number of chlorines.

Chronic: Chloracne, CNS and PNS effects.

1,1,1-Trichloro-2,2-bis
(4-Chlorophenyl)ethane
(50-29-3)

4,4-DDT
p,p'-DDT

Acute: Dizziness, disturbed equilibrium, tremor and convulsions,
and liver damage.

Chronic: Class B2 probable human carcinogen.

1,1,1-Trichloro-2-
(2-chlorophenyl)-2-
(4-chlorophenyl)ethane
(789-02-6)

2,4-DDT
o,p'-DDT

Acute: See 4,4-DDT

Chronic: See 4,4-DDT

1,1,-Dichloro-2,2-bis
(4-chlorophenyl)-ethane
(72-54-8)

4,4-DDD
p,p'-DDD

Acute: See 4,4-DDT

Chronic: See 4,4-DDT

1,1-Dichloro-2,2-
(2-chlorophenyl)-2(4-
chlorophenyl)ethane
(53-19-0)

2,4-DDD
o,p'-DDD

Acute: See 4,4-DDT

Chronic: See 4,4-DDT

1,1-Dichloro-2,2 bis
(4-chlorophenyl) ethene
(72-55-9)

4,4-DDE
p,p'-DDE

Acute: See 4,4-DDT

Chronic: See 4,4-DDT

1,1-Dichloro-2,2-(2-chlorophenyl)-2-(4-chlorophenyl) ethene ()	2,4-DDE o,p'-DDE
Acute: See 4,4-DDT	
Chronic: See 4,4-DDT	
2,3,7,8-Tetrachlorodibenzofuran (51207-31-9)	TCDF
Acute: Same magnitude of toxicity as TCDD, immunotoxic, severe thymic atrophy, chloracne, mucocutaneous pigmentation, increased porphyrin secretion, meibomian gland metaplasia.	
Chronic: Chloracne.	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (1746-01-6)	Dioxin TCDD
Acute: Chloracne, liver toxicity, enzyme induction (increased enzyme levels), depressed disorders, muscle aches and pains, and CNS effects.	
Chronic: Class B2 probable human carcinogen.	
1,1,2,2-Tetrachloroethene (127-18-4)	Tetrachloroethylene Perchloroethylene, PCE
Acute: CNS depression, mucous membrane irritation, and liver and kidney lesions.	
Chronic: Hepatotoxicity (toxicity to liver cells), nephrotoxicity (toxicity to kidneys), pulmonary edema when inhaled, and dermatitis from dermal contact. Class D - not classifiable as a carcinogen.	
1,1,1-Trichloroethane (71-55-6)	TCA
Acute: CNS depressions, cardiac sensitization and arrhythmias.	
Chronic: (Rarely reported in humans) kidney and liver lesions.	

1,1,2-Trichloroethane
(79-00-5)

Acute: CNS depression, contact irritation, and liver toxicity.

Chronic: Skin lesions from dermal exposure, kidney lesions, and liver toxicity. Class C possible human carcinogen.

1,1,2-Trichloroethene
(79-01-6)

Trichloroethylene
TCE

Acute: CNS depression, anesthesia, cardiac sensitization, liver failure, and death.

Chronic: Liver and kidney lesions, peripheral neuritis. Class B2 probable human carcinogen.

1,1,1-Trichloromethane
(67-66-3)

Chloroform

Acute: Anesthesia, liver damage, cardiac arrest, lassitude, digestive disturbances, dizziness, mental dullness, and coma.

Chronic: Enlargement of liver and kidney damage. Class B2 probable human carcinogen.

2,4,5-Trichlorophenoxy
Acetic acid
(93-76-5)

2,4,5-T

Acute: Burning of mouth, esophagus and stomach, irritation of skin, eyes, nose throat, tachycardia, cardiac arrhythmias, vertigo, pulmonary edema, malaise, elevated LDG, SGOT, and SGPT levels, albuminuria, azotemia, acne, peripheral neuritis.

Chronic: Soft-tissue sarcomas, cancers, probably dangerous to fetal life.

2-(2,4,5-Trichlorophenoxy
Propionic acid
(93-72-1)

2,4,5-TP
Silvex

- Acute:** Burning of mouth, esophagus and stomach, irritation of skin, eyes, nose and throat, tachycardia, pulmonary edema, liver damage, vomiting and diarrhea, chloracne, vertigo, malaise, muscle twitching, spasms.
- Chronic:** CNS defects in the control of motor function, effects that are associated with contamination by TCDD.

INORGANIC COMPOUNDS

Calcium hypochlorite
(7778-54-3)

Bleaching powder

Acute: Corrosive action on skin, eyes and mucous membranes, conjunctivitis, blepharitis, corneal ulceration, gingivitis, contact dermatitis, teeth damage, laryngitis, pulmonary edema, gastric irritation.

Chronic: Laryngitis, pulmonary edema, oral, esophageal and gastric irritation.

Calcium hydroxide
(1305-62-0)

Lime

Acute: Caustic irritant to exposed body surfaces, eyes and respiratory tract, dermatitis, dyspnea, pulmonary edema, abdominal pain.

Chronic: Removed from EPA list of hazardous substances.

Phosphoric acid
(7664-38-2)

Acute: Irritation of eyes, skin, respiratory tract, nausea, vomiting, abdominal pain, bloody diarrhea, acidosis, shock, burns of oropharyngeal mucosa, esophagus and stomach, coma, hypocalcemia, hyperphosphatemia, seizures, dermatitis.

Chronic: Dermatitis, mild respiratory irritation.

Sodium hydroxide
(1310-73-2)

Caustic soda
Lye

Acute: Corrosive to body tissues, irritation to eyes leading to blindness, cutaneous burns, perforation of alimentary tract, localized tissue injury, extreme pulmonary irritation, death, pneumonitis.

Chronic: Dermatitis, pulmonary irritation, squamous cell carcinomas, esophageal cancer.

Sulfuric acid
(7664-93-9)

Acute: Burning and charring of skin and mucous membranes, irreparable corneal damage and blindness; perforation of esophagus/stomach, sneezing and coughing, bronchitis, rhinorrhea, lacrimation, epitaxies. DILUTE: Irritant to skin and mucous membranes - especially eye and respiratory tract epithelium, etching of dental enamel and erosion of tooth substance, laryngeal, tracheobronchial and pulmonary edema.

Chronic: Conjunctivitis, frequent respiratory infections, emphysema, dermatitis, erosion of teeth, chronic irritation of eyes, chronic inflammation of nose, throat, bronchial tubes.

METALS

Arsenic
(7740-38-02)

As

Acute: Vomiting and diarrhea due to gastrointestinal damage and general vascular collapse.

Chronic: Skin lesions, peripheral vascular disease, and peripheral neuropathy.

Barium
(7440-39-3)

Ba

Acute: Hypokalemia, stimulation followed by paralysis of muscles, nausea, vomiting, colic, diarrhea, tingling in the extremities, electrocardiographic irregularities leading to cardiac fibrillation, general muscle paralysis, and death from respiratory arrest.

Chronic: Baritosis.

Beryllium
(7440-41-7)

Be

Acute: Pulmonary distress from inhalation in excess of 0.1 mg/cu., nasopharyngitis, tracheobronchitis, and fulminating pneumonitis.

Chronic: Pulmonary disease (berylliosis), dermatitis, ulceration and granuloma of the skin, fibrotic lung disease, liver, spleen and kidney effects.

Cadmium
(7440-43-9)

Cd

Acute: Local irritation, nausea, vomiting, salivation, diarrhea, abdominal cramps, shock, dehydration, and cardio-pulmonary failure.

Chronic: Emphysema (inhalation exposure), kidney damage, joint and muscle pain progressing to osteomalacia.

Calcium
(7440-70-2)

Ca

Acute: (Intravenous injection) fever, nausea, vomiting, oppression of chest.

Chronic: Anorexia, nausea, vomiting, dehydration, lethargy, calcium deposits in soft tissues, coma, lung disease from inhalation of calcium dusts, and death (Note: elevated blood calcium levels generally result from excessive vitamin D intake or abnormal calcium regulating mechanisms, and not excess calcium intake.)

Chromium
(7440-47-03)

Cr

Acute: (Rarely observed) gastrointestinal bleeding, fluid loss, death from shock.

Chronic: Allergic contact dermatitis, skin ulcers, rhinitis, nasal membrane inflammation and ulceration, nasal septum perforation, tooth erosion and discoloration, pulmonary congestion, pulmonary edema, and liver and kidney lesions
Chromium VI is a human carcinogen by the inhalation route. Class A human carcinogen.

Cobalt
(7440-48-4)

Co

Acute: Vomiting, diarrhea, and polycythemia.

Chronic: Goiter, myocardiopathy, respiratory effects, and sensitization similar to allergic dermatitis.

Copper
(7440-50-8)

Cu

Acute: Gastrointestinal irritation, vomiting (including blood), low blood pressure, jaundice due to liver necrosis, coma, and hemolytic anemia.

Chronic: Wilson's disease, which results in lesions of liver, brain, eye, and hemolytic anemia
Class D - not classifiable as a carcinogen.

Lead
(7439-92-01)

Pb

Acute: Fatigue, sleep disturbances, and constipation, followed by colic, anemia, and neuritis.

Chronic: Loss of appetite, metallic taste, constipation followed by obstipation, anemia, pallor, malaise, weakness, insomnia, headache, nervous irritability, muscle and joint pains, fine tremors, kidney damage, chronic nephritis, muscular weaknesses, and lead encephalopathy. Class B2 - probable human carcinogen.

Mercury
(7439-97-6)

Hg

Acute: (Oral) rare; severe kidney malfunction which leads to death.

Chronic: (Oral) kidney disease; (inhalation) CNS disease characterized by tremors, irritability, insomnia, and emotional instability, disruption and degeneration of neurons (nerve cells). Class D - not classifiable as a carcinogen.

Molybdenum
(7439-98-7)

Mo

Acute: (Molybdenum trioxide dust) irritation to guinea pigs; fatty degeneration of liver and kidney in lab animals; loss of appetite, weight, and hair; diarrhea; and muscular incoordination.

Chronic: Loss of appetite, listlessness, diarrhea, reduced growth rate, anemia, gout-like disease, and increased copper excretion in the urine.

Nickel
(7440-02-0)

Ni

Acute: Irritation upon contact with skin or lungs, contact dermatitis, and allergic sensitization.

Chronic: Increases in leukocytes and platelets (constituents of blood cells), bone marrow lesions, and reproductive toxicity (testicular degeneration, lowered body weight and birth weight in female rodents). Class A human carcinogen. (for inhalation of refinery dust)

Radium-226
(7440-14-4)

Ra

Acute: Lung, bone cancers, skin damage, blood dyscrasias.

Chronic: Skeletal deposits, osteosarcomas of skeleton, carcinomas of the mastoid, carcinomas of paranasal sinuses, death, blood dyscrasias.

Silver
(7440-22-04)

Ag

Acute: Gastrointestinal irritation.

Chronic: Argyria, which is characterized by gray-blue to black skin pigmentation, impaired vision, respiratory effects, and kidney lesions. Class D not classifiable as a carcinogen.

Sodium
(7440-23-5)

Na

Acute: Thermal and chemical burns, vomiting, nausea, convulsions, coma, fluid retention may produce pulmonary edema leading to respiratory arrest, tachycardia, hypotension, cerebral edema.

Chronic: Fluid retention may cause pulmonary and/or cerebral edema.

Vanadium
(7440-62-2)

Va

Acute: (Lab animals) constriction of blood vessels of the lungs, spleen, kidneys, and intestines; convulsions, paralysis; and respiratory depression. Approved for carcinogenicity testing by the National Toxicology Program.

Chronic: Irritation, bronchitis and bronchopneumonia, eye and skin irritation, gastrointestinal distress, cardiac palpitation, tremors, nervous depression, and kidney damage.

Zinc
(7440-66-6)

Zn

Acute: Rare; (ingestion) nausea, vomiting, cramps, and diarrhea; (inhalation) "metal fume fever."

Chronic: No observed adverse effects. Carcinogenicity not studied.

REFERENCES

Brown & Caldwell, Initial Assessment Study, 1983

A.L. Burke, Confirmation Study, 1986

Jacobs Engineering, Summary Report, 1990

California Regional Water Quality Control Board Lahontan Region, Cleanup & Abatement Order, 1989

LIST OF ACRONYMS

TPH	- Total Petroleum Hydrocarbons
TDS	- Total Dissolved Solids
TOX	- Total Organic Halides
TCE	- 1,1,2-Trichloroethene
DDT	- 1,1,1-Trichloro-2,2-bis(4-chlorophenyl) ethane
DDD	- 1,1-Dichloro-2,2-bis(4-chlorophenyl) ethane
DDE	- 1,1-Dichloro-2,2-bis(4-chlorophenyl) ethene
2,4-D	- 2,4-Dichlorophenoxy Acetic Acid
2,4,5-T	- 2,4,5-Trichlorophenoxy Acetic Acid
2,4,5-TP	- 2-(2,4,5-Trichlorophenoxy) Propionic Acid
PCBs	- Polychlorinated Biphenyls
PCDD	- Polychlorinated Dibenzop-Dioxins
PCDF	- Polychlorinated Dibenzofurans

FOOTNOTES

¹. Chemical Abstract Services Registry

². EPA ranks carcinogens according to the following weight-of-evidence classification:

- A - Human carcinogen
- B1 - Probable human carcinogen; limited human data
- B2 - Probable human carcinogen; animal data only
- C - Possible human carcinogen
- D - Not classifiable as to carcinogenicity
- E - Evidence of noncarcinogenicity in humans.

DEFINITIONS

Acute Toxicity: Toxicity manifested within a relatively short time interval (i.e., as short as a few minutes to as long as several days). Such toxicity is frequently caused by a single dose of the toxicant.

Chronic Toxicity: The adverse effects manifested after a long time period of uptake of small quantities of a toxicant. The dose is small enough that no acute effects are manifested, and the time period is frequently a significant part of the expected normal lifetime of the organism. The most serious manifestation of chronic toxicity is carcinogenesis, but other types of chronic toxicity are also known (e.g., reproductive effects and behavioral effects).

Attachment C
Statement of Facts

For the purposes of this Agreement, the following constitutes a summary of the facts upon which the Agreement is based. None of the facts related herein shall be considered admissions by any Party, nor shall they be used by any person for purposes unrelated to this Agreement.

Historical Background

The Marine Corps Logistics Base (MCLB) Barstow is located in San Bernardino County, California in the central Mojave Desert, east of the city of Barstow. The MCLB Barstow consists of three areas: Nebo area, Yermo area and the Rifle Range. The Nebo area (1,568 acres) is located on Interstate 40, three and one half miles east of Barstow, and the Yermo area (1,681 acres) is located on Interstate 15, twelve miles east of Barstow. The Rifle Range (2,438 acres) is southeast of the Nebo area.

The MCLB Barstow was established at the Nebo location in December 1942, when the U.S. Navy (Navy) transferred command to the U.S. Marine Corps (Marines). In October, 1946, the Yermo area was annexed by the Marines from the U.S. Army. The Rifle Range was acquired in 1955 and developed as a facility for the Marines to improve their marksmanship skills. The mission of the MCLB Barstow is to procure, maintain, rebuild, store and distribute equipment and to conduct training. Consequently, the majority of wastes historically generated by the MCLB Barstow have been vehicle-related and war surplus.

Vehicle-related wastes include waste oils, grease, hydraulic fluids, fuels, battery acids, bilge waters and antifreeze. Industrial wastes associated with the servicing of vehicles are those generated by the Repair Division while maintaining, rebuilding or preserving the vehicles. These include painting, degreasing, metal parts cleaning, and preservation wastes.

War surplus wastes are those non-vehicle materials that are returned to the United States from overseas military operations. These war surplus materials were commonly called "rollback" because they were rolled back on railroad cars. As a policy, only usable materials were supposed to be brought back, but in expediting these rollback operations, some unusable or unwanted materials were returned and some were damaged. Some hazardous or suspected hazardous wastes were received, including ammunition, various sources of low-level radiation (luminescent dials watches, and scopes), and chemicals such as pesticides, herbicides, and raw materials.

Until the early 1960's, most of the MCLB Barstow's industrial operations were conducted at Nebo; thus Nebo contains the older disposal sites. Starting in 1963, the major industrial operations (and the associated generation and disposal of hazardous wastes) moved to the Yermo area. Presently, Nebo's operations involving hazardous waste include an industrial wastewater treatment plant, a washdown area for pesticide trucks, a motor pool and a packaging facility.

Hydrogeology

The Nebo and Yermo facilities are underlain by the main drinking water aquifers of the Mojave River Basin including a low yield, consolidated bedrock and high yield quaternary alluvium and river channel deposits. The latter two produce most of the Barstow area groundwater.

The regional tectonic setting is dominated by northwest trending uplifted fault blocks of a strike-slip nature. Two faults, the Waterman and Calico Faults displace the surficial Holocene alluvial deposits. These faults are not visible at the surface of the MCLB Barstow. Although concealed, the Waterman Fault lies directly beneath the Nebo area and in pump tests performed by the USGS, acts as groundwater barrier to within 50 feet of the ground surface.

Nebo Area

The Nebo area is underlain primarily by Holocene alluvial fan deposits and to a lesser extent, Holocene fluvial deposits. The fluvial deposits exhibit better sorting and contain lesser amounts of silt and clay, rendering them more permeable and more susceptible to contamination. Permeabilities reported by the USGS range from 0.5 to 150 feet/day.

Water levels range from 150 feet below ground level along the southern boundary of the Nebo Annex to 18 feet below ground level along the northern boundary near the Mojave River. The slope of the water table beneath Nebo has been reported as northeasterly at approximately 15 to 20 feet/mile. The Mojave River is ephemeral and, therefore, is dry part of the year. Surface flow generally does not occur east of the City of Barstow, consequently little direct recharge from the river occurs. However, a 100 year flood could potentially flood part of the Nebo area.

Yermo Area

The Yermo area is underlain by Holocene alluvial deposits that consist of gravel, sand silt and clay. Thin lenses of silt and clay are present, as well as caliche. Some of the layers and lenses of clay and caliche have been cemented, presumably by calcium carbonate.

Depth to ground water ranges from approximately 100 feet to 150 feet. The water table gradient is estimated at 5 feet/mile toward the southeast. 10 feet/day is the reported permeability rate and surface water flow is to the east.

Areas of contamination

Under the Department of Defense Installation Restoration Program (IRP), an Initial Assessment (IA) was completed in 1983 followed by a confirmation study in 1986. The MCLB Barstow went final on the National Priorities List (NPL) in November, 1989 and Remedial Investigation and Feasibility Scoping began in December 1989.

Thirty-eight (38) areas of contamination have thus far been identified at both the Yermo and Nebo areas for further investigation (see Attachment C-1). Additional source identification will also be carried out under the RCRA/CERCLA integration provision of this agreement.

Contaminants detected are noted in both Attachments B and C-1. Further effort is needed during the RI/FS to refine/verify these chemicals and to determine the extent of contamination, Applicable or Relevant and Appropriate and cleanup goals.

No conclusive study has shown the existence, source or extent of off-base drinking water contamination. A limited sampling program of selected private and public well was conducted by the Navy in April, 1990, in consultation with the California Regional Water Quality Control Board (RWQCB) and the EPA. Resulting data did not reach State Action Levels although some areas of expected highest contaminated areas were not sampled because access to these wells was not possible. Further investigation will occur as part of the Remedial Investigations,

In response to a cleanup order issued by the RWQCB in June of 1989, a carbon adsorption system has been installed to mitigate TCE contamination in the Yermo area.

Groundwater within 3.0 miles of the MCLB Barstow is used to supply drinking water to a population of approximately 28,720 in the City of Barstow and outlying areas.

ATTACHMENT C1

The enclosed table represents a Survey of the 38 Hazardous Waste Sites presently known at MCLB, Barstow.

The data presented are estimates for each site of the period of operation, uses, types of general/specific contamination (known and suspected) and amounts.

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-CO9033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
1.	Landfill North of the Golf Course, Nebo	1953-1960	a) Construction debris disposal b) Wastewater sludge disposal	a) Asphalt, concrete b) Dried wastewater sludge from industrial wastes: heavy metals solvents oil	a,b): 20,000 cu.yd.	b) Chromium Phenols
		1940-1974	c) Wastewater sludge disposal	c) Dried wastewater sludge from industrial wastes: heavy metals solvents oil	c) 900 tons	
2.	Pesticide Storage and Washout Area, Nebo	1959-1979	a) Equipment storage/repair	a) Solvents	a) unknown	a) TCE (GW)
			b) Pesticide storage: 1) tank & container washout/cleaning	b) Pesticide/herbicide residue in soils/GW	b) 4000 gal.	b) DDT DDD DDE 2,4-D 2,4,5-T 2,4,5-TP: Silvex
			c) Maintenance operations	c) Solvents Heavy metals	c) unknown	c) TCE (GW) (Dioxins PCDD PCDF) Chlorpropham Dieldrin

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	Waste Types		
				General Contamination	Specific Contaminants (Suspected)	
3.	Wastewater Disposal, Nebo	1942-1972	Sanitary wastewater treatment facility: 1) industrial and domestic waste evaporation/percolation disposal ponds	Wastewater effluent: heavy metals foaming agents total dissolved solids (TDS)	6000 acre ft.	Phenols Chromium TDS
		1952-1972 1978-present	2) Golf course irrigation	solvents oil		
4.	Old Trap and Skeet Range, Nebo	1950	Emergency disposal site	Chloride of lime (bleaching powder)	100,000 gal/ 90,000 cu.ft.	Calcium hydroxide Chlorine gas Calcium hypochlorite Calcium chloro-hypochlorite
5.	Chemical Storage Area, Nebo	1967-1976	a) Unpaved storage areas		a):	DDT TPH (2,4-D) (2,4,5-T) (2,4,5-TP: Silvex)
			1) insecticide (DDT)	Insecticides	1) 300 tons (stored)	
			2) rollback equipment	Waste oil	2) Unknown	
			3) hazardous chemicals	Solvents	3) Unknown	
			b) Industrial waste disposal		b):	
			1) waste oils	Total petroleum hydrocarbons (TPH)	1) Unknown	
			2) solvents	Total Organic Halogens (TOX)	2) Unknown	

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	Waste Types	
				General Contamination	Estimated Quantities Specific Contaminants (Suspected)
6.	Original Trash Landfill, Nebo	1946-1959	Solidwaste landfill	Trash: industrial solid waste hazardous materials lumber building materials paint cans	20,000 cu.yd.
7.	Drum Storage and Landfill, Nebo	1950-1964	a) Storage of excess hazardous materials and wastes b) Principal solid waste disposal site 1) Volume reduction burning 2) Burial	Trash Industrial solid waste Scrap metal Insulated copper wire Paint cans Pesticides Waste solvents Waste oils Fuels	a) 1,000 gal. (spilled) b2) 40,000 cu.yd.
					Sodium hydroxide DDT b1) (Dioxins PCDD PCDF) (2,4-D) (2,4,5-T) (2,4,5-TP; Silvex)
8.	Building 197 Waste Disposal Area, Nebo	1959-1975	Cleaning operations Ground disposal of chemicals	Acidic solvents Alkaline cleaners Detergents Solvents	} Total: 2,000 gal.

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	Waste Types-----	
				General Contamination	Specific Contaminants (Suspected)
9.	Fuel Disposal Area, Nebo	1950-1959	Ground disposal of fuels	Gasoline Diesel fuel Lubrication oil Solvents Pesticides	} Total: 120,000 gal. DDT TPH TOX (2,4-D) (2,4,5-T) (2,4,5-TP: Silvex)
10.	Sodium Valve Burial Site, Nebo	1955-1959	Sodium-filled valves disposal site	Sodium-filled valve 1) steel 2) bronze	3000-5000 valves (20 gal. sodium) Sodium
11.	Fuel Burn Area	1940-1960	Open air combustion of waste fuels	Gasoline Diesel oil	} Total: 1,000,000 gal. DDT (Dioxins PCDD PCDF) (PCBs) TPH

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCH: T24-C09033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
12.	Radiator Cleaning Chemicals Disposal Area	1943-1947	Discharge to ground	Phenolic compounds Anti-freeze	} Total: 4,000 gal.	Chromic acid (Cr VI)
13.	Preservation and Packaging Storage	1949-1957	Storage	Paints Thinners Solvents	} Total: (Unknown) 15,000 gal. (May have burned.)	(Dioxins PCDD PCDF)
14.	Hojave River Bed, Nebo	1945-1974	a) Industrial waste discharge 1) cleaning operations 2) plating operations	Detergents Oil Grease Phenolic compounds Phosphates Acids Solvents Heavy metals	300 acre ft.	Cyanide Chromium

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: TZ4-C09033-RM-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
15.	Oil Storage and Spillage, Yermo	1961-1980	a) Defueling operations b) Bilge water discharge	a) Gasoline Diesel fuel b) Gasoline Diesel oil Oil	a) 3,000 gal. Fuels discharged to ground. b) 140,000 gal. Fuels discharged to ground.	
			c) Waste oil storage	c) Waste oil	c) 4,000 drums	
16.	Battery Acid Disposal, Yermo	? -1980	Waste battery acid discharge to industrial sewer and to ground	Spent battery acid Heavy metals	Unknown	Sulfuric acid Lead Zinc
17.	Industrial Wastewater Overflow Area and Industrial Wastewater Treatment Plant, Yermo	1961-1977	Overflow/drainage area for: 1) industrial waste 2) vehicle cleaning operations 3) bilge tank cleaning	Phenolic compounds Waste oils Gasoline Diesel fuel Waste fuel Detergents Solvents Heavy metals	Unknown	

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	General Contamination	Estimated Quantities	Waste Types
						Specific Contaminants (Suspected)
18.	Sludge Waste Disposal Area, Yermo	1961-1979	Direct discharge to ground Waste oil storage Industrial wastewater overflow	Waste oils Gasoline Deisel fuel Waste fuel Paint sludges Bilge water Industrial wastewater Heavy metals Solvents Vapor degreaser sludge Parts cleaning sludge	50,000- 500,000 gal.	1) Perchloroethylene (PCE) 2) NaOH 3) Volatiles (VOA) (GW) TOX 1,1-Dichloroethene Arsenic Beryllium Barium Chromium Lead Vanadium
19.	First Hazardous and Low-Level Radiological Storage Area, Yermo	1946-1968	Storage & burial	Hazardous materials Low-level radiation equipment	Unknown	(Radium-226) (Radium Chloride)
20.	Second Hazardous and Low-Level Radiological Storage Area, Yermo	1950-1975	Disposal by burial	Radiological waste a) luminescent dials b) insatic compasses Sodium filled valves Chlorinated lime Other hazardous materials	7,000 cu.ft. >28 sites	Sodium metal Calcium hypochlorite (Radium-226) (Tritium)

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

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Site No.	Site Description	Estimated Period of Operation	Process/Use	General Contamination	Estimated Quantities	Waste Types Specific Contaminants (Suspected)
21,	Industrial Waste Area, Yermo	1946-1980	a) Storage of hazardous waste	a) Waste oils Ethylene glycol Waste fuels Pesticides Heavy metals Halogenated hydrocarbons	a) Unknown	DDT 1,2-DCEa EDB Arsenic Lead TOX Vanadium (2,4-D) (2,4,5-T) (2,4,5-TP; Silvex)
		1953-1958	b) Disposal: discharge to ground	b) Gasoline Diesel fuel Lubrication oil	b) 60,000 gal.	Chromium TPH
		1963-?	c) Fire fighting training	c) Waste flammable liquids	c) Unknown	c) (Dioxins PCDD PCDF)
22,	Domestic Wastewater Disposal, Yermo	1942-present	Wastewater treatment facility: evaporation/percolation (Domestic and industrial wastewater)	Oil Pesticides Grease Phenolic compounds Solvents Heavy metals	1,500 acre ft.	Malathion Chromium (2,4-D) (2,4,5-T) (2,4,5-TP; Silvex)

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
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Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
23.	Landfill Area, Yermo	1946-1980	a) Storage for wastes and war roll back equipment	Trash	} Total: 500,000 cu.yd.	c) (Dioxins PCDD PCDF)
			b) Disposal of solid waste and liquid hazardous waste	Automobiles Scrap metal		
			c) Volume reduction by burning	Ammunition Wood Paint cans Rubber Clothing Food Industrial Waste sludges Fuel Combustion products		
		1947-1952	d) Disposal of waste materials	d) Chemical Paints		
		1952-1954	e) Disposal of construction debris	e) Asphalt Concrete Wood		
24.	Tracked Vehicle Test Area, Yermo	1961-1980	Dust suppression Asphalt Production	Waste oil Desert mix	10,000- 50,000 gal.	(PCBs) (Dioxins PCDD PCDF)
25.	Wastewater Treatment Sludge Disposal Area, Yermo	1942-1979	Surface disposal of sludge	Industrial wastes: heavy metals oil solvents	Unknown >50 cu.yd.	

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: TZ4-C09033-RM-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
26.	Building 533 Waste Disposal, Yermo	1959-1979	Discharge to ground	Industrial wastes: Petroleum solvents Oil Preservatives Heavy metals Solvents	6,000 gal.	TCE
27.	Building 436 Fuel Oil Storage Tank, Yermo	?-1978	Leaking UST	Number 6 fuel oil Number 2 fuel oil	Unknown	
28.	West Lot Dust Control, Yermo	1965-1978	Dust suppression and disposal	a) Waste oil Desert mix b) Industrial wastewater effluent: heavy metals solvents	a) 50,000- 200,000 gal. b) 7,000,000 gal.	(PCBs) (Dioxins PCDD PCDF)
29.	Sludge Storage Area, Yermo	1976-1979	Storage of waste sludge Industrial and Domestic	Industrial wastes: heavy metals solvents oil) Total: 500 cu.yd.	

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

DCN: T24-C09033-RN-04174
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Site No.	Site Description	Estimated Period of Operation	Process/Use	Waste Types		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
30.	Locomotive Repair Shop Disposal Area, Yermo	1947-1975	Direct discharge to ground of industrial wastes	Industrial wastes: Detergents Grease Diesel fuel Waste oil Heavy metals	Total: 10,000 gal.	Chromium Phenol Oil/Grease
31.	North Vehicle Test Track Road, Yermo	1965-1978	Dust suppression Road building Disposal	a) Waste oil Desert mix b) Industrial wastewater effluent: heavy metals solvents oil	a) 10,000- 50,000 gal. b) 1,000,000 gal.	(PCBs) (Dioxins PCDD PCDF)
32.	Preservation & Packaging Area, Yermo	1960-1980	Storage, spillage and leakage of hazardous materials	Preservatives Solvents Oils	<6,000 gal.	
33.	Rifle Range Disposal Area	1950-1970	Direct discharge to ground of industrial wastes, sludges and waste oil	a) Industrial waste: 1) heavy metals 2) solvents b) Sludges c) Waste oil	a) >6,000 gal. b) >1,000 cu.yd. c) Unknown	

ATTACHMENT C-1
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Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
34.	PCB Storage Area, Yermo	Not given	Storage of transformers and drums	Waste oil Sludge	Unknown	PCBs
35.	Landfill North of Industrial Waste Treatment Facility, Yermo	Not given	Solid waste disposal site	Solid waste Inert waste Sandblast grit heavy metals	Unknown	TCE
36.	Proposed Paint Combat Vehicle Maintenance Shop, Yermo	Uncertain	Not specified		Unknown	TPH Toluene Total Xylenes (o,m,p) Ethyl benzene

ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES

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Site No.	Site Description	Estimated Period of Operation	Process/Use	-----Waste Types-----		
				General Contamination	Estimated Quantities	Specific Contaminants (Suspected)
37.	Groundwater Contamination, Yermo*	Uncertain	NA	VOCs	Unknown	PCE 1,1-DCE EDB TCE Dichloroethane
38.	Groundwater Contamination, Nebo*	Uncertain	NA	Industrial wastewater effluent: heavy metals solvents oil VOCs	Unknown	TCE

* Will include off-site investigations.

References:

Brown & Caldwell, Initial Assessment Study, 1983

A.L. Burke, Confirmation Study, 1986

Jacobs Engineering, Summary Report, 1990

Lahontan Regional Water Quality Control Board,
Cleanup & Abatement Order, 1989

**ATTACHMENT C-1
38 KNOWN BARSTOW HAZARDOUS WASTE SITES**

DCN: TZ4-C09033-RH-04174
Revised 08/29/90

Site No.	Site Description	Estimated Period of Operation	Process/Use	Waste Types	
				General Contamination	Specific Contaminants (Suspected)

List of Acronyms:

- TPH = Total Petroleum Hydrocarbons
- TDS = Total Dissolved Solids
- TOX = Total Organic Halides
- TCE = 1,1,2-Trichloroethene
- DDT = 1,1,1-Trichloro-2,2-bis(4-chlorophenyl) ethane
- DDD = 1,1-Dichloro-2,2-bis(4-chlorophenyl) ethane
- DDE = 1,1-Dichloro-2,2-bis(4-chlorophenyl) ethene
- 2,4-D = 2,4-Dichlorophenoxy Acetic Acid
- 2,4,5-T = 2,4,5-Trichlorophenoxy Acetic Acid
- 2,4,5-TP = 2-(2,4,5-Trichlorophenoxy) Propionic Acid
- PCBs = Polychlorinated Biphenyls

Attachment D
Installation Restoration Activities

In 1976 the Department of Defense (DOD) initiated the Installation Restoration Program (IRP) to evaluate, characterize, and control the potential migration of possible contaminants resulting from past operations and disposal practices on DOD facilities.

In response to the DOD IRP, the Navy Assessment and Control of Installation Pollutants (NACIP) Program was instituted. NACIP was conceived as a three-phase process, including an Initial Assessment Study (IAS) (identification of sites); Confirmation Study (CS) (investigation of sites), and; Corrective Measures Implementation.

The NACIP Program was replaced by the current IRP in 1983. Since the current IRP was authorized, modifications have been made to include compliance with CERCLA/SARA and use of National Contingency Plan terminology and procedures. As a result of these changes, the Navy now complies with NCP terminology and requirements and follows the EPA Remedial Investigation/Feasibility Study (RI/FS) process.

The major IRP investigation conducted at the MCLB Barstow is documented in the Initial Assessment Study (Brown & Caldwell, 1983) which addressed 33 sites. Confirmation studies, conducted by A.L. Burke Engineers Inc., focused on the following sites: Nebo - pesticide storage and washout Area, chemical storage area, Fuel Disposal and Fuel Burn Area. At Yermo they were: the Sludge Waste Disposal Area, Industrial Waste Disposal Area, Yermo. In addition, the Jacobs Engineering Group Draft Summary Report (February 1990) identified five additional sites: PCB Storage Area, Yermo, Landfill North of the IWTP, Yermo, Proposed Paint Combat Vehicle Maintenance Shop, Yermo, Groundwater Contamination, Yermo Annex, and Groundwater Contamination, Nebo Annex.

The number of sites thus far identified under the IRP is 38 which are described in Attachment C-1, Statement of Facts. It should be noted that the discovery and identification of IR sites (or RI sites) will be an iterative, on-going process. During the course of the investigation new information may be obtained or new sites observed that will require inclusion into the RI/FS. In addition, the RCRA Corrective Action requirements that must be fulfilled under the terms of this Agreement, require identification of Solid Waste Management Units that must be evaluated for inclusion in the RI/FS. State requirements for addressing releases must be included, as well.

Documents prepared or being prepared under the IRP, that are not considered primary or secondary deliverables, include the following:

- (1) Brown & Caldwell.1983. Initial Assessment Study of Marine Corps Logistics Base Barstow, California; September, 1983.
- (2) A.L. Burke Engineers, Inc. Confirmation Study Marine Corps Logistics Base Barstow, California; 1985 & 1986.
- (3) Jacobs Engineering Group, Inc., Summary Report: Remedial Investigation/Feasibilities Studies Work Plan; February, 1990.
- (4) Jacobs Engineering Group, Inc., Final Site Management Plan.
- (6) Jacobs Engineering Group, Inc., Administrative Record Index (to date).