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MCAS EL TORO
SSIC # 5090.3

Regional location map
Map with all 19 sites.

UNITED STATES NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHWEST DIVISION
COMPREHENSIVE LONG TERM ENVIRONMENTAL ACTION NAVY (CLEAN)

IMPLEMENTATION PLAN
CTO #0018
WORK PLAN FOR A REMEDIAL
INVESTIGATION/FEASIBILITY STUDY AT THE
MARINE CORPS AIR STATION, EL TORO
SANTA ANA, CALIFORNIA

PREPARED FOR
UNITED STATES NAVY
SOUTHWEST DIVISION
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1.0 INTRODUCTION

On 27 November 89 the Department of the Navy, Naval Facilities Engineering Command, Southwest Division (Navy), issued Contract Task Order (CTO) #0018. This Implementation Plan (IP) is in response to the CTO requirement for submittal within 30 days of the date the CTO was issued.

This IP outlines the work to be performed under each task in the Scope of Work (SOW) dated 16 November 89 for CTO #0018. The IP describes the tasks necessary to develop a Work Plan for the conduct of a Remedial Investigation/Feasibility Study (RI/FS) at the Marine Corps Logistics Air Station (MCAS) El Toro, Santa Ana, California. The RI/FS Work Plan is an important document to allow the Navy review of the scope and commit funds to the RI/FS effort and for the PjM to plan and execute the project. In addition, it allows for state and other regulatory agency comment on the scope and methodologies proposed. In addition to the RI/FS Work Plan the SOW requires the preparation of Sampling and Analysis Plan (SAP), site specific Health and Safety Plan, Site Management Plan, review and update of the Administrative Record, and revision of a Community Relations Plan (CRP),

This IP for the MCAS El Toro RI/FS Work Plan and supplemental plans has been prepared by the Jacobs Team in response to the SOW for CTO #0018 under the Comprehensive Long-term Environmental Action Navy (CLEAN) program, Contract N68711-89-D-9296.

In May 1988, Naval Energy and Environmental Support Activity (NEESA) released their Initial Assessment Study (IAS) of the Marine Corps Air Station, El Toro, California. The purpose of the IAS was to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations. Based on information from various records, aerial photographs, and personnel interviews, a total of 17 potentially contaminated sites were identified in the IAS. The sites are:

- Site 1 Explosive Ordinance Disposal Range - Two 100-foot diameter pits used for the disposal of sulfur trioxide chlorosulfonic acid (FS smoke).
- Site 2 Magazine Road Landfill - Approximately 1,000,000 cubic yards of wastes including oils, solvents,

paint residue, transformers, household refuse, solid municipal solid waste, and others.

- Site 3 Original Landfill - Approximately 163,500 to 243,000 cubic yards of waste material, similar to that at Site 2, that was burned prior to burial to reduce volume.
- Site 4 Ferrocene Spill - Approximately five gallons of ferrocene in a hydrocarbon carrier was spilled during an overflow incident.
- Site 5 Perimeter Road Landfill - Approximately 50,000 to 60,000 cubic yards of waste material, similar to that at Site 2 with the exception of transformers.
- Site 6 Drop Tank Drainage Area, No. 1 - An estimated 1,400 gallons of JP-5 and 300 gallons of lubricating oils were released here due to drop tank rinsing and leakage.
- Site 7 Drop Tank Drainage Area, No. 2- An estimated 23,460 gallons of JP-5 were released here due to drop tank rinsing, dust control, and a spill.
- Site 8 DPDO Storage Yard - Several gallons of transformer oil was spilled here and subsequently excavated for off-site disposal.
- Site 9 Crash Crew Pit, No. 1 - Approximately 8,170 gallons of AVGAS, 4,080 gallons of JP-5, and 120 gallons of crankcase oil has been released to the soil during crash crew training activities.
- Site 10 Petroleum Disposal Area - Approximately 52,000 gallons of petroleum wastes were sprayed over an area of approximately 960,000 square feet.
- Site 11 Transformer Storage Area - A 30 by 30 foot concrete pad used for transformer storage where approximately 60 gallons of transformer oil leaked and flowed onto the soil.
- Site 12 Sludge Drying Beds - Approximately 880 cubic yards of secondary wastewater treatment plant sludge was spread in this area for dewatering.
- Site 13 Oil Change Area - Approximately one quarter acre site where approximately 7,000 gallons of waste

crankcase oil was disposed of. The soil was later scraped into a pile for disposal.

- Site 14 Battery Acid Disposal Area - Approximately 210 gallons of battery acids, oily wastes, and paint wastes were released to the soil.
- Site 15 Suspended Fuel Tanks - Approximately 500 gallons of diesel fuel is reported to have been spilled on the soil in this area.
- Site 16 Crash Crew Pit, No. 2 - Two pits used during training exercises in which approximately 27,400 gallons of JP-5, AVGAS, hydraulic fluid, and crankcase oil have been released to the soil
- Site 17 Communication Station Landfill - The discharge point for a 1,000-gallon vacuum truck. Wastes were largely cooking grease but waste oils and fuel were also reported.

The IAS concluded that 9 of the identified sites warranted confirmation studies. These included Sites 1, 2, 3, 5, 9, 11, 14, 16, and 17. In addition, Site 4 was recommended for remedial measures.

Subsequent to the completion of the IAS and following negotiations with federal, state, and local agencies, it was determined that two additional sites should be investigated. These sites are:

- Site 18 Perimeter Investigation -- was added to evaluate whether trichloroethene (TCE) contamination observed in three off-station agricultural wells was a result of past waste disposal practices at the station.
- Site 19 ACER Site -- the site of an early 1986 failure of an aboveground, 20,000-gallon-capacity fuel bladder that reportedly released an estimated 15,000 gallons of fuel onto the ground.

1.1 Objective

The objective of this IP is to present the technical approach, cost estimate, and schedule for the development of the RI/FS Work Plan, SAP, site specific Health and Safety Plan, revised CRP, site management plan, and administrative record.

Include possible phases within 3 RI/FS

(within objective) THE RI/FS shall be CONDUCTED IN ACCORDANCE with CERCLA/SARA regu^lments, EPA and NAVY guidelines, rules, regulation and criteria.

The purpose of performing the referenced tasks is to acquire sufficient information so that risks to human health and the environment from the contaminated sites at the MCAS El Toro can be estimated and remedial strategies evaluated. The approach described in this IP is based on initial review of background documents, a site visit and discussions with the Navy Remedial Project Manager (RPM), Mr. Larry Nuzum.

1.2 Project Organization

Jacobs has identified Mr. Edward J Rogan as the Project Manager for this CTO. Other project management and lead technical personnel are identified in Section 4.0, Cost Estimate.

2.0 TECHNICAL APPROACH

In accordance with the SOW outlined in CTO #0018 Jacobs will prepare the RI/FS Work Plan, SAP, site specific health and safety plan, site management plan, administrative record, and revise the CRP. Each task is described in detail below.

2.1 Task 1 - Background Review

Available background information on the MCAS El Toro will be compiled and reviewed. The Navy RPM has already provided Jacobs with several site specific documents. Conversations with the RPM indicate that the documents received constitute the majority of the information available through the Navy on the site. Approximately one, four drawer file cabinet, one two drawer file cabinet and ~~10~~ linear feet of shelved documents remain to be reviewed at the MCAS El Toro offices. Other sources of information are anticipated to include the Regional Water Quality Control Board (RWQCB), Santa Ana District, EPA, and U. S. Geological Survey. All work will be conducted in accordance with the latest EPA, state of California, RWQCB, Navy Installation Restoration Program regulations and guidance. The Navy will be responsible for providing Jacobs with reproducible copies of all site topographic maps and available construction drawings.

Specific attention will be focused on data relating to the varieties and quantities of hazardous wastes disposed of at the site. The results of previous sampling events will be summarized in terms of physical and chemical characteristics, contaminants identified and their respective concentrations. Compiled information will include demographic and land use information as well as geology, hydrology, hydrogeology,

meteorology, toxicology and ecology. Data deficiencies will be identified and the Work Plan focused to fill critical data needs. If sites are identified which appear to pose an imminent threat to human health or the environment these sites will be evaluated for potential removal actions described under Section 2.2.3.

Each of the 17 disposal sites identified in the Initial Assessment Study and the two subsequently identified sites will be evaluated to determine whether it merits further study through the RI/FS. In consultation with the RPM and installation personnel, a determination will be made regarding which sites to include under the succeeding tasks.

As a deliverable to this task Jacobs will prepare a Summary Report which describes all of the work undertaken to date at the MCAS El Toro with respect to the RI/FS and IR program. This report will include a list of all specific sites which are proposed to be investigated under the RI/FS and their rationale for inclusion or exclusion. This report will be delivered 30 calendar days following approval of the IP. It is anticipated that the format of the summary report would be suitable for insertion as a section in the RI/FS Work Plan. Five copies of the summary report will be submitted to the RPM. The final summary report will be delivered 14 days following receipt of government comments, ~~assuming major revisions are not required.~~ Five copies of the final report will be provided to the RPM.

2.2 Task 2 - RI/FS Work Plan

The RI/FS Work Plan will describe the procedures and programs necessary to characterize the nature and extent of contamination present at the sites identified at the MCAS El Toro. The Work Plan will incorporate and expand on the work outlined in the Site Inspection Plan of Action, prepared by James M. Montgomery Consulting Engineers and dated August 1988. It will also describe the procedures necessary to develop, screen and evaluate potential remedial action alternatives. The Work Plan will identify the staff and the approximate level of effort required to perform to activities described. It will inform the Navy of potential conflicts, unrealistic schedule demands and issues of concern to the affected communities. The Work Plan will include detailed descriptions of the assumptions made so that the Navy will be able to identify the rationale behind the approach. by site

Initial efforts associated with the RI/FS Work Plan will involve continued data acquisition and review as well as site

orientation of investigation team. It is intended that this RI/FS Work Plan will compliment the off station investigations Work Plan.

2.2.1 Monitor Well Inventory

The monitoring wells and supply wells present on site will be assessed to determine their status, condition and usability. Assessment for usability will be determined through a review of the well logs and completion details. A site visit will confirm the well condition in the field. Criteria for usability will be developed with the concurrence of the Navy RPM and are expected to include documentation of acceptable well drilling and installation techniques, construction with suitable materials, suitable screen length, annular seal, surface seal and protection. It is anticipated that some wells may be determined as suitable for non-critical data such as water levels while others will be suitable for more critical parameters such as hazardous constituent sampling.

2.2.2 Preliminary Baseline Risk Assessment

Jacobs will prepare a Preliminary Baseline Risk Assessment (BRA) for the hazardous waste sites located at MCAS El Toro. This BRA will provide a preliminary evaluation of the potential adverse effects or risks to human health and the environment from these sites in the absence of remedial or removal actions. The BRA will also include a comparison of the chemical and location-specific ARARs (Applicable or Relevant and Appropriate Requirements) to site-specific contaminant concentrations in the media (i.e. air, water, soil, etc.). The latest EPA risk assessment guidance documents will be utilized during BRA preparation.

The BRA will primarily consist of the following components:
1) a review of background documentation (such as the Initial Assessment Study and Confirmation Studies), 2) the identification and prioritization of risk areas, operable units and contaminants of concern (i.e., hazard identification), 3) an environmental fate and transport analysis, 4) an exposure assessment which constitutes the identification of complete exposure pathways and the determination of what levels of exposure an individual may encounter, 5) a toxicity assessment which constitutes the determination of what contaminant intake levels could produce an adverse effect, 6) a preliminary ARARs analysis, 7) a risk characterization which estimates the likelihood that an adverse effect would occur, and 8) an environmental effects assessment which constitutes the determination of potential

The level of effort required to conduct a BASELINE RISK ASSESSMENT dependent on specific site complexity.

FINAL BASELINE Risk Assessment to be completed by END OF RI, AND AN ARAR'S ANALYSIS AS AN APPENDIX TO THE FS.

9.) *Levels of uncertainty associated with above components.*

adverse effects to flora and fauna that have occurred or may occur as a result of exposure to site contaminants. The BRA will also include a conclusion/recommendation section which will summarize the BRA findings, discuss uncertainties in the data and analysis, and identify data needs and environmental modelling requirements for the comprehensive baseline risk assessment.

✓ 2.2.3 Removal Action Evaluation

The need for removal actions on the site will be evaluated. The criteria for determining if a removal action is necessary or appropriate depends upon whether there is a threat to public health or the environment. Specific factors which would be taken into consideration include: actual or potential exposure to hazardous substances, actual or potential contamination of drinking water supplies, hazardous substances, pollutants or contaminants in drums or other bulk containers which pose a threat of release, high levels of hazardous substances in soils at or near the surface that may migrate. Removal actions are typically restricted to an expenditure of \$2,000,000 over a time frame of one year. Removal actions which will be considered include site security measures, drainage control, covering or capping contaminated sludges or soils, treatment to retard migration, excavation, removal of drums or other bulk containers, and provision of an alternate water supply.

✓ 2.2.4 Preliminary ARARs Analysis

A preliminary list of state, federal and local ARARs will be compiled. The list will focus on chemical specific and location specific ARARs. Action specific ARARs are typically waived until later in the RI/FS process. A formal determination as to whether the rule or regulation is applicable under the law or relevant and appropriate will be determined. A master table will be used to present the information. The final ARARs analysis will be conducted under the RI/FS and will be recommended to be included as an appendix to the RI/FS report.

2.2.5 Community Relations Plan

The RI/FS Work Plan will include, as a task, technical support of the implementation of the CRP described in Section 2.5. The implementation of the CRP will include as a minimum the preparation of information sheets and/or attendance at public meetings.

2.2.6 Evaluate Potential Remedial Actions

The background information will be analyzed and a conceptual understanding of the site developed. Potential remedial action objectives will be identified for each contaminated medium and a preliminary range of remedial actions developed. This will consist of a general classification of potential remedial actions based on the expected routes of exposure and identified receptors. Although this is not meant to replace the more detailed identification and screening of remedial action alternatives that will be evaluated during the RI/FS it will help to focus the data gathering efforts so they support likely remedial actions. The preliminary list of remedial actions will include the SARA mandate to address treatment which significantly reduces the toxicity, mobility and volume of waste; containment with little or no treatment; and, of course, the no action alternative.

The Work Plan will describe the methodologies to evaluate and compare the remedial action technologies under consideration. The remedial actions developed will be subject to screening based on effectiveness, implementability and cost in the RI/FS.

2.2.7 Treatability Evaluation

Based on the identification of potentially applicable remedial technologies, an evaluation as to whether treatability studies should be conducted under the RI/FS will be made, if possible. The decision process for determining if a treatability evaluation is necessary consists of the following steps: determining data needs, reviewing existing data to determine if they are sufficient to evaluate the alternatives and proposing treatability testing if available information is not sufficient.

2.2.8 Deliverables

Three deliverables will be provided for Task 2: the Preliminary Draft, Draft and Final RI/FS Work Plans. The RI/FS Work Plan will include a detailed description of the procedures and programs necessary to characterize the nature and extent of contamination at the sites. It will contain the proposed methodology to develop, screen and evaluate remedial action alternatives. A baseline risk assessment will be included within the Work Plan. It will also contain an executive summary as well as a summary listing of monitoring and analytical requirements by site. As part of the Work Plan the preparation of the proposed plan and the Record of

Decision document will be specified as late FS tasks. The Preliminary Draft RI/FS Work Plan will be delivered within 90 days of IP approval. Three copies will be provided to the RPM and 3 copies to the MCAS El Toro. The Draft RI/FS Work Plan will be delivered within 21 days of receipt of Navy and MCAS El Toro comments, assuming the comments do not require extensive Work Plan revisions. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. The final Work Plan will be delivered within 21 days of RPM comments and direction to finalize the report, assuming the comments do not require extensive Work Plan revisions. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and the Final deliverables will be provided to the MCAS El Toro.

2.3 Task 3 - Sampling and Analysis Plan

Jacobs will prepare the documents necessary to complete a SAP in accordance with federal, state and local guidance. The SAP consists of two parts: the Quality Assurance Project Plan (QAPP) and the Field Sampling Plan (FSP). These documents will be submitted as separate deliverables.

2.3.1 Quality Assurance Project Plan (QAPP)

Data quality objectives (DQOs) will be addressed early in the QAPP process. The required level for the investigation will be assessed and verified with the RPM. Once DQOs are established, a Navy approved, CLP laboratory will be identified for sample analysis. The QAPP will describe the policy, organization and functional activities necessary to achieve the DQOs. It will describe the procedures which will be used to document and report precision, accuracy, representativeness, completeness and comparability of environmental measurements. As much as practical, Jacobs' previously prepared standard operating procedures will be utilized in the QAPP. SOPs which are presently available are listed on Table 1. Based on EPA guidance the QAPP will have each of the required 16 elements. The regional EPA office will be contacted to determine if certain portions of the QAPP documentation, if any, have been standardized for this region.

Depending on the agreed upon DQOs the QAPP may require additional items such as use of a close support lab, use of a non CLP lab, and use of non-standard analytical or sampling procedures. It is intended that the QAPP will be general enough to use in off station investigations.

The preliminary draft QAPP will be delivered within 90 days from approval of the IP. Three copies will be provided to the RPM and 3 copies to the MCAS El Toro. The draft QAPP incorporating government comments will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. The final QAPP will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and Final deliverables will be provided to the MCAS El Toro.

2.3.2 Field Sampling Plan (FSP)

The field sampling plan will address the objectives of the sampling effort, the rationale for the sample locations, number of samples, and analytical parameters. Site maps depicting the sample locations will be included. The FSP will describe the sample collection techniques, disposal of contaminated materials, equipment decontamination, sample containers, sample preservation, sample shipment, sample documentation, and quality assurance/quality control. Specifics regarding sample blanks, duplicates, splits and spikes will be described. Where data needs overlap with the QAPP they will not be reiterated but rather referenced as being contained in the QAPP. The QAPP and FSP, when used together, will be complete enough so that qualified hazardous waste samplers, unfamiliar with the site, could conduct the sampling effort.

The preliminary draft FSP will be delivered within 90 days from approval of the IP. Three copies will be provided to the RPM and 3 copies to the MCAS El Toro. The draft FSP incorporating government comments will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. The final FSP will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and Final deliverables will be provided to the MCAS El Toro.

TABLE 1
Standard Operating Procedures For
The Navy CLEAN Contract

SOP NUMBER	TITLE
1.0	ADMINISTRATION
2.0	HEALTH AND SAFETY TRAINING
3.0	REPORTING AND RECORDKEEPING
4.0	MEDICAL PROGRAM
5.0	SITE SAFETY PLAN
6.0	GENERAL HEALTH AND SAFETY PRACTICES
7.0	SURVEY AND RECONNAISSANCE
8.0	LEVELS OF PROTECTION
9.0	WORK ZONES
10.0	PERSONNEL DECONTAMINATION
11.0	FIELD LOGBOOK/PHOTOGRAPHS
12.0	FIELD MEASUREMENT OF TEMPERATURE
13.0	FIELD MEASUREMENT OF pH
14.0	FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE
15.0	FIELD MEASUREMENT OF ORGANIC VAPORS
16.0	FIELD MEASUREMENT OF RADIATION
17.0	FIELD MEASUREMENT OF SAMPLE LOCATIONS
18.0	SAMPLING PLAN
19.0	SOLIDS
20.0	SOILS
21.0	SLUDGES AND SEDIMENTS
22.0	BULK MATERIALS
23.0	SURFACE WATERS
24.0	CONTAINERIZED LIQUIDS
25.0	GROUNDWATER
26.0	FIELD DECONTAMINATION PROCEDURES FOR EQUIPMENT USED IN GROUND WATER DATA COLLECTION
27.0	FIELD FILTRATION OF GROUNDWATER SAMPLES FOR DISSOLVED METALS ANALYSIS
28.0	SAMPLE PRESERVATION AND ANALYSES METHODS
29.0	CLP SAMPLE CONTAINER REQUIREMENTS
30.0	SAMPLE DOCUMENTATION
31.0	SAMPLE PACKAGING AND SHIPMENT
32.0	FIELD CLASSIFICATION AND DESCRIPTION OF SOILS
33.0	IN-SITE HYDRAULIC CONDUCTIVITY DETERMINATION
34.0	INSTALLATION/SERVICING OF TENSIOMETERS AND MEASUREMENT OF SOIL WATER POTENTIAL
35.0	SOIL WATER SAMPLER INSTALLATION AND USE

TABLE 1 (Continued)
Standard Operating Procedures For
The Navy CLEAN Contract (continued)

SOP NUMBER	TITLE
36.0	MONITOR WELL INSTALLATION
37.0	WELL DEVELOPMENT
38.0	FIELD MEASUREMENT OF STATIC WATER LEVELS AND TOTAL DEPTH IN GROUND WATER MONITORING WELLS
39.0	FIELD MEASUREMENT OF IMMISCIBLE COMPONENTS IN GROUNDWATER MONITORING WELLS
40.0	AQUIFER PUMPING TESTS
41.0	SLUG TESTING
42.0	PACKER TESTING
43.0	GEOPHYSICAL TECHNIQUES
44.0	SOIL GAS SAMPLING
45.0	HEADSPACE ANALYSIS FOR VOLATILE ORGANICS IN SOILS: FIELD METHOD

2.4 Task 4 - Site Specific Health and Safety Plan

A written site Health and Safety Plan will be prepared which establishes policies and procedures to protect workers and the public from potential hazards posed by each site. The purpose of the Plan is to provide information about the site being investigated, evaluate the hazards present, establish personal protective measures for personnel assigned to the operation and to outline emergency action procedures. The Plan is prepared by the Project Manager (PjM) or by the Site Safety Officer (SSO) and is submitted to the Jacobs Corporate Health and Safety Manager for approval.

The following documents will be used as guidance in preparing the Health and Safety Plan:

- o EPA Standard Operating Safety Guidelines, completed November 1984
- o NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, completed October 1985
- o Technical Method for Investigating Sites Containing Hazardous Substances, prepared by the EPA in 1981 as part of the National Contingency Plan
- o Applicable Occupational Safety and Health Agency (OSHA) regulations
- o Recommendations from the National Institute of Occupational Safety and Health (NIOSH), the American Conference of Governmental Industrial Hygienists (ACGIH), the Practices for Respiratory Protection by the American National Standards Institute (ANSI Z88.2).

The Health and Safety Plan will also conform to:

- o FAR Clause 52.236.13, Accident Prevention
- o Applicable CAL/OSHA Regulations
- o U.S. Department of Labor OSHA Standards for General Industry (29 CFR 1910.120), Interim Final Rule; and (29 CFR 1926) Construction Industry standards

The preliminary draft Health and Safety Plan will be delivered within 90 days from approval of the IP. Three copies will be

provided to the RPM and 3 copies to the MCAS El Toro. The draft Health and Safety Plan incorporating government comments will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. The final Health and Safety Plan will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and Final deliverables will be provided to the MCAS El Toro.

2.5 Task 5 - Revise/Incorporate a Community Relations Plan (CRP)

Jacobs will revise a CRP being prepared under separate contract. It will describe how the community will be kept informed of project planning and field activities, and how and when the community would be involved in project decisions during the RI/FS phase. This CRP will be revised in close consultation with, and with guidance from, MCAS El Toro personnel or their designees and will include the RI/FS schedule developed under CTO #018. In addition to EPA, state and local regulatory agency, and Navy guidance, the following guidance documents will be followed:

- o "Community Relations in Superfund, A Handbook," Interim Version, U.S. Environmental Protection Agency, June 1988.
- o "Installation Restoration Public Affairs Plan," Department of Navy, Office of Information, 26 January 1989.

The CRP will include a schedule of Technical Review Committee (TRC) members and of key project milestones requiring TRC meetings.

The Preliminary Draft CRP will be delivered within 90 days from receipt of the existing CRP from the government. Three copies will be provided to the RPM and 3 copies to the MCAS El Toro. The Draft CRP incorporating government comments will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies to the MCAS El Toro. The Final CRP will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies to the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and Final deliverables will be provided to the MCAS El Toro.

2.6 Task 6 - Site Management Plan

The site management plan will present the schedule, interrelationships and integration of the RI/FS tasks specified under this CTO. It will be prepared under the assumption that the site will be included on the NPL in the near future. The purpose of the site management plan is to organize the approach to the RI/FS to maximize the usefulness of the data that is generated. It is also intended to bring together the major elements of the RI/FS investigation to

provide an overview of the overall program for upper management and others. As there are multiple tasks which are to be performed simultaneously, particular attention will be focused to avoid duplication of effort. A presentation of the most cost and time effective approach for achieving IR program goals will be provided, possibly including a discussion of operable units. The site management plan will be used as a tool to help work progresses according to the priorities and objectives established for the completion of the RI/FS. Review of preliminary draft and draft reports by the Navy and regulatory agencies will be highlighted on the Gantt charts developed. Activities that are on a critical path to the completion of the RI/FS effort will be clearly depicted on the Gantt charts.

95/120
The preliminary draft site management plan will be delivered within 60 days from approval of the IP. The plan will include an executive summary section. Three copies will be provided to the RPM and 3 copies to the MCAS El Toro. The draft site management plan incorporating government comments will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies to the MCAS El Toro. The final site management plan will be delivered within 21 days from receipt of comments assuming major revisions are not required. Five copies will be provided to the RPM and 15 copies to the MCAS El Toro. In addition to the copies required above, an unbound, camera-ready copy of the Draft and Final deliverables will be provided to the MCAS El Toro.

2.7 Task 7 - Review and Update the Administrative Record

* An up to date copy of the AR shall be kept at a locked library. (to be identified by MCAS El Toro.)
Documents, maps and photographs pertinent to the IRP at the site will be compiled. The RPM has already provided Jacobs with some of the key reports developed for the site. * Files available at the MCAS El Toro, EPA and the Santa Ana RWQCB will also be reviewed. Reports, data and correspondence which relate to the actions taken or contemplated at the site will be copied. Within 90 days a relatively complete file will be established for review by the RPM. Although the SOW requests the compilation of an Administrative Record, based on discussions with the RPM an Administrative File is expected. ~~This is because the selection of the remedy(s) will probably not be completed at the end of this contract. 4/8/80.~~

The purpose of the Administrative Record is to provide a compilation of all the documents that were considered or relied upon to select the response actions. The contents of the Record should be able to demonstrate the rationality of

the response decision. It must include documentation of public participation and be adequate for judicial review. The record should include information in support of the decision, information in opposition to the decision and justification for all statements in the ROD including facts, analysis of facts, policy and legal analysis, comments, response to comments, decision documents, QA/QC'd documents, chain of custody forms, data summary sheets, and an index.

The Administrative File is an ongoing collection of documents that the RPM anticipates will constitute the Administrative Record. The index to the file will be on a computerized data base management format that is reviewed and approved by the RPM. While selecting the software to use Jacobs will include an evaluation of the Paradox system as this is the system that the Navy currently employs. All relevant documents compiled, screened and approved by the RPM will be numbered and placed in the Administrative File. New documents will be added to the file as they are generated. The cost of this task was estimated based on the amount of documents received to date and the report that approximately one, four drawer file cabinet, one two drawer file cabinet and 126 linear feet of shelved documents remain to be reviewed at the MCAS El Toro offices.

2.8 Task 9 - Meetings, Progress Reports

Jacobs personnel will attend meetings as needed to keep Southwest Division personnel, the MCAS El Toro personnel and regulatory agency personnel informed as to the status of the project. For cost estimating purposes, it is assumed that one meeting per month will be required. Jacobs will provide minutes of meetings attended within seven days of meeting occurrence. Following approval of the IP a kick off meeting will be scheduled to clarify project implementation. Internal meetings of the Jacobs team are anticipated to include coordination and scheduling meetings and "brainstorming" sessions to develop innovative solutions to site and project problems. Some monthly meetings are expected to coincide with planned deliverables. This will allow for an informal presentation of the material being delivered.

Two copies of monthly progress reports will be provided to the RPM and the MCAS El Toro for the duration of this CTO as outlined in the CLEAN contract.

CONTRACTOR
SHALL ATTEND
THE TRC MEETINGS
AND PROVIDE
MINUTES.

3.0 SCHEDULE

Appendix A identifies each of the activities necessary to complete the CTO. The schedule shows the start and finish dates with applicable logical ties. Using the IP approval date as a starting point, the schedule calls for the delivery of all plans/reports in accordance with the 30, 60 and 90 day requirements specified in the CTO. Navy review times were developed based upon the anticipated length and complexity of the deliverable and discussions with the RPM. The general, 30 days will be allowed for Navy and state/TRC reviews. This schedule may be adjusted subject to the reviewers schedules/availability. The schedule calls for delivery of draft and final reports within 21 days from receipt of comments. If comments require extensive revisions, additional time will be required for Jacobs to respond.

4.0 COST

The cost estimate is provided in Appendix B. It identifies lead technical personnel and functional code personnel by functional code category, contract rate category, hours and amount required to complete CTO #0018. Additionally, anticipated travel costs are identified in Exhibit 1 and other direct costs are provided in exhibit 2.

The Navy's interim funding budget provided in CTO #0018 is \$142,289. The Jacobs estimate developed results in an estimated cost of \$_____ which is ___% over the Navy's authorized budget. The Jacobs budget was created by developing the detailed activities and the associated budget necessary to accomplish each activity. A summary of this cost estimate is provided in Appendix B, Schedule A1. The schedule and associated budget for each activity provides a high level of detail justifying the increased costs for review by the Navy.

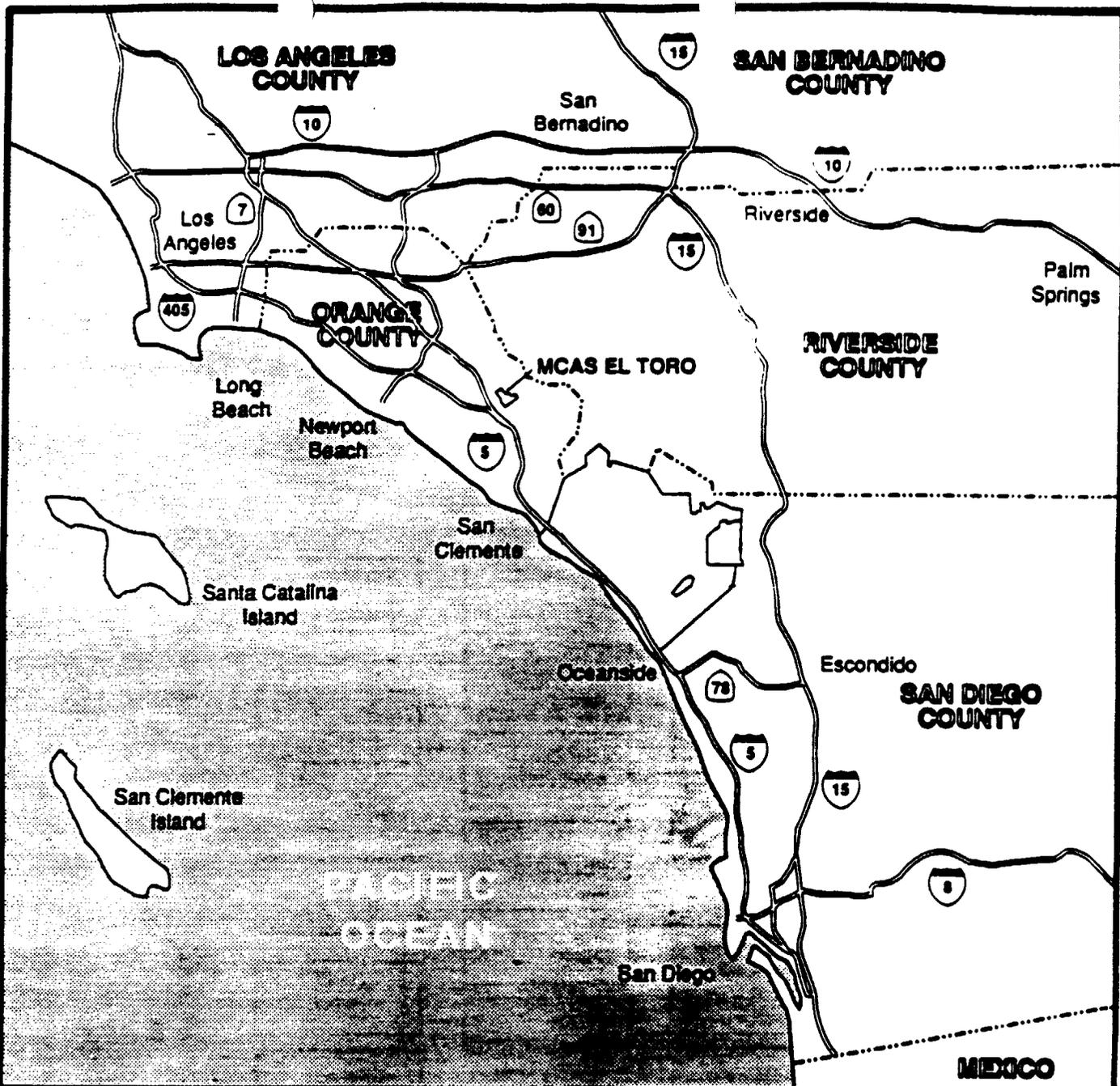
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FIGURE(S)

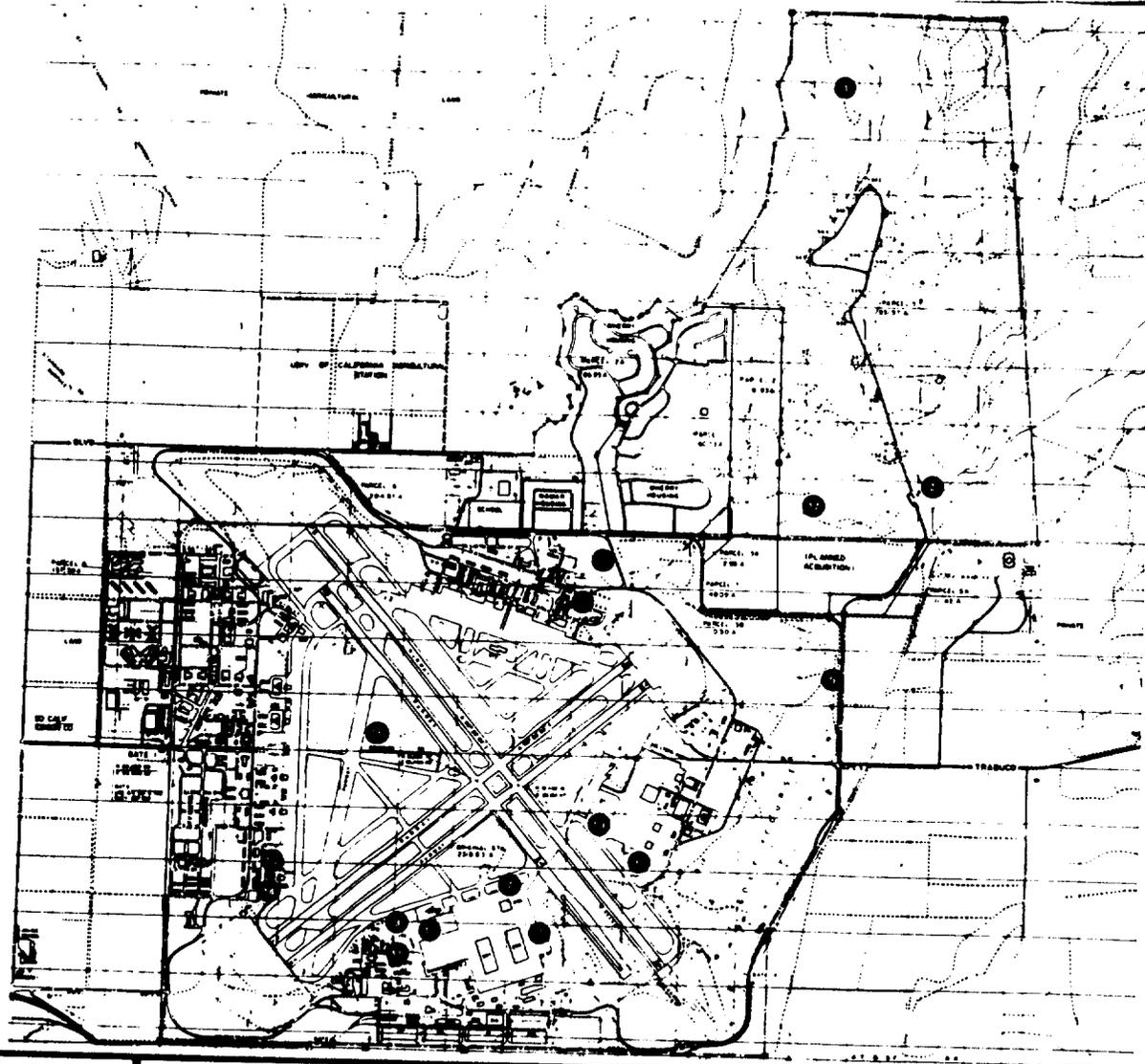


Source: U.S. Navy. MCAS Tustin Master Plan, Existing Conditions Report. April 1988.



INSTALLATION RESTORATION PROGRAM
MARINE CORPS AIR STATIONS
TUSTIN AND EL TORO, CALIFORNIA

FIGURE 1-4
VICINITY MAP



SITE NO.	DESCRIPTION
1	EXPLOSIVE ORDNANCE DISPOSAL (EOD) RANGE
2	MAGAZINE ROAD LANDFILL
3	ORIGINAL LANDFILL
5	PERIMETER ROAD LANDFILL
6	DROP TANK DRAINAGE AREA NO. 1
7	DROP TANK DRAINAGE AREA NO. 2 (NORTH AREA ONLY)
9	CRASH CREW PIT NO. 1
10	PETROLEUM DISPOSAL AREA
11	TRANSFER STORAGE AREA
13	OIL CHANGE AREA
14	BATTERY ACID DISPOSAL AREA
16	CRASH CREW PIT NO. 2
17	COMMUNICATION STATION LANDFILL
4	FERROCENE SPILL AREA Δ
19	ACER SITE Δ

Δ REVISED 5/89



INSTALLATION RESTORATION PROGRAM
MARINE CORPS AIR STATIONS
TUSTIN AND EL TORO, CALIFORNIA

LEGEND
● SITE NUMBER AND LOCATION



FIGURE 1-1
VERIFICATION STEP STUDY SITES
MCAS EL TORO, CALIFORNIA

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APPENDIX A

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A-1 LOGIC DIAGRAM

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QUESTIONS MAY BE DIRECTED TO:

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SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132**

TELEPHONE: (619) 532-3676

**A-2 ACTIVITY LISTING BY ACTIVITY NUMBER,
EARLY START**

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A-3 PREDECESSOR AND SUCCESSOR REPORT

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A-4 WORK PACKAGE SCHEDULE

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A-5 LEGEND FOR WORK PACKAGE SCHEDULE

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APPENDIX B

APPENDIX B

B-1 - SCHEDULE A1 SUMMARY OF COSTS BY WBS CODE – CTO #00186

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B-2 SCHEDULE A2 SUMMARY OF TOTAL COSTS AND FEES – CTO #0018

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) MBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S) <small>which begin after comp.</small>	(6) RELATIONSHIP RELATIONSHIP (W, S, C, J, I) W S C J I LAG	ACTIVITY RESOURCE		(9) EXPLANATION	LINE ITEM COSTS	
						(7) RESOURCE NAME	(8) HOURS/ TRAVEL ODC \$		(10) MULT= MARK-UP= 15.00%	(11) SUBTOTAL BY TASK
010-000	RECEIVE CTO	2H600A010	1	010-001	FS O I					\$0
010-001	PREPARE IMPL- MENTATION PLAN JEG SCOPES PRELIM RISK ASSESSMENT MEETING REVIEW OF BACKGROUND DOCS	2H600A010	16	015-001 010-002	FS S I FS O I	IP (Geo) PG (Man) IN P4 (Man) SP (Man) P3 (Hydr) OD IC TV OD EE (Em) OD	60.0 40.0 (32) 5.0 20.0 16.0 (40) 12.0 0.0 0.0 0.0 12.0 (40) 0.0		\$3,136 \$2,980 \$137 \$1,652 \$732 \$704 \$0 \$0 \$0 \$0 \$462 \$0	
010-002	IT & JEG REVIEW & COMMENT	2H600A010	3	010-003	FS O C I J J J	P4 IP PJ TV SP	4.0 0.0 0.0 0.0 0.0			\$330 \$0 \$0 \$0 \$0
010-003	ISSUE IMP. PLAN TO NAVY	2H600A010	1	010-004	FS O N					\$0 \$0
010-004	NAVY REVIEWS AND APPROVES IMPLEMENTATION PLAN	2H600A010	7	050-001 050-002 200-001 210-001 230-001 124-001 224-001 222-001 221-001	FS O N FS O FS O FS O FS O FS O FS O FS O FS O			ENDS ON		\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
010-040	PMO OPERATIONS		125	990-001	J J J	PH PC CA	3.0 8.0	CRP NOT ON CRITICAL PATH		\$269 \$544 \$0
*****									SUBTOTAL=	\$11,092

WORK
DAY

9,803.-

330.-

269.-
544.-

010 = I

040 = PMO

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
ACTIVITY NUMBER	ACTIVITY DESCRIPTION	WBS NUMBER	DURATION (IN WORK DAYS)	SUCCESSOR ACTIVITY(S)	RELATIONSHIP	RESOURCE NAME	HOURS/ TRAVEL ODC \$	EXPLANATION	COSTS	SUBTOTAL BY TASK
A B					[W] [REL] [SHIP] [LAG]				MULT= 2.97 MARK-UP= 15.00%	
200-001	REVIEW DOCUMENTS AT IT OBTAIN AND REVIEW NON-NAVY DOCUMENTS	2H600A200	11	200-003 200-002	FF 3 I SS 2 I	IB IP IP RI RI EE OD	6.0 22.0 24.0 50.0 0.0 0.0 0.0	TRAVEL TIME XERON 500p CAR+MILES	\$545 \$1,150 \$1,254 \$50 \$0 \$0 \$0	
200-002	VISIT NCAS EL TORO, COLLECT DATA & CONDUCT INTERVIEWS	2H600A200	7	200-003	FF 5 I	IP RI EE OD	45.0 0.0 0.0 0.0	CAR+MILES	\$2,352 \$0 \$0 \$0	2,949
200-003	WRITE SUMMARY REPORT: INCLUDE IR JOB TABLE	2H600A200	7	200-004	FS 0 I	IB IP IN	8.0 40.0 10.0		\$726 \$2,091 \$274	2,352
200-004	SUBMIT DRAFT TO JEG, JEG REVIEW, IT REWRITE	2H600A200	5	200-005	FS 0 I	IB IP IN PJ	2.0 6.0 2.0 8.0		\$182 \$314 \$55 \$516	3,091
200-005	SUBMIT DRAFT SUMMARY TO NAVY	2H600A200	1	200-006 250-001 260-001	FS 0 FS 0 FS 0			TV + ODCs= \$1,002	\$0 \$0 \$0	1,067
200-006	NAVY COMMENTS	2H600A200	10	200-007	FS 0				\$0	1,002
200-007	IT REWRITE, SUBMIT TO JEG	2H600A200	10	200-008	FS 0 I	IB IP IN	1.0 4.0 1.0	TOTAL HRS IN SUMMARY 179	\$91 \$209 \$27	327
200-008	FINAL TO NAVY	2H600A200	1	990-001	FS 0				\$0	
*****									SUBTOTAL= \$10,839	10,788

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) WBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S)	(6) (7) (8)			(9) EXPLANATION	(10) (11)	
					RELATIONSHIP (SHIP LAG)	RESOURCE NAME	HOURS/ TRAVEL ODC \$		COSTS MULT= 2.97 MARK-UP= 15.00%	SUBTOTAL BY TASK
210-001	JEG DFINS ARARS CMTNMANTS/CNCRN IT:INVNTY MMs	2H600A210	15	210-002 220-001	SS 0 J	EE	75	INC LT REV	\$2,888	
					FS 0 C	P4	4	&INTRVIEWS	\$307	
						P3	19	INC CHK MW	\$1,091	
210-002	REGS REVIEW - MCP, CERCLA, ARARS, NAVY	2H600A210	5	210-003	FS 0 C	P4	2		\$184	
						P3	6		\$349	
						T1	0		\$16	
210-003	PRELIMINARY DRAFT OF RI/FS UPDATE JEG: TOXICITY/ ENV. FATE ANAL; PATHWAY ANAL; RISK CALCS; ENV EFFECTS ANAL	2H600A210	48	210-004	FS 0 C	P4	9	19 SITES +	\$712	
						P3	155	BACKGROUND	\$9,066	
						T1	9	FS & RA	\$367	
						IY	37	50 A-FIGS	\$1,084	
						P3	19	50 A-FIGS	\$1,091	
						I	\$518	1	\$518	
						J	30	J PRA HRS:	\$638	
	J	215	410	\$8,278						
210-004	JEG REVIEW, IT REWRITE OF RIFS PRELIM. DRAFT JEG/IT MEETING RE:RISK ASSESS.	2H600A210	10	210-005	FS 0 C	P4	0		\$30	
						P3	10		\$567	
						T1	1		\$23	
						J	62		\$2,375	
						J	73		\$73	
	I	96		\$5,257						
210-005	P-DRAFT TO NAVY	2H600A210	1	210-006	FS 0 P				\$0	
210-006	NAVY REV.P-DRFT	2H600A210	15	210-007	FS 0 N				\$0	
210-007	IT WRITE, JEG REVIEW DRAFT RI/FS, FSP/QAPP, HSP & CRP JEG:CHANGE&PRO- DUCE DRAFT PRA (TASKS 2-5)	2H600A210	14	210-008	FS 0 C	P4	0	INCLUDES	\$40	
						P3	10	FSP QAPP	\$567	
						T1	1	H&SP CRP	\$23	
						IY	2	(- CH	\$60	
						I	96	HRS TO	\$5,257	
						J	62	WRITE	\$2,375	
						J	10	P-DRAFT)	\$213	
210-008	F-DRAFT TO NAVY	2H600A210	1	210-009	FS 0			RI+ODCs =	\$0	
210-009	NAVY REV.FDRAFT	2H600A210	15	210-010	FS 0			\$6,292	\$0	
210-010	IT WRITE AND JEG REVIEW OF FINAL RI/FS, FSP/QAPP, HSP, CRP & PRA (TASKS 2-5)	2H600A210	14	210-011	FS 0 C	P4	0	INCLUDES	\$11	
						P3	3	FSP QAPP	\$158	
						T1	0	H&SP CRP	\$6	
						IY	1	0.372	\$17	
						I	27	TOTAL HRS	\$1,467	
						J	46	IN RI/FS:	\$1,781	
						J	8	1085		
210-011	FINAL TO NAVY	2H600A210	1						\$0	
									*****SUBTOTAL= \$53,182	

from P. 210-009

210-RI/FS

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) WBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S)	(6) W REL TION SHIP &LAG	ACTIVITY RESOURCE			(9) EXPLNATION	LINE ITEM COSTS	
						(7) RESOURCE NAME	(8) HOURS/ TRAVEL ODC \$	(10) MULT=		(11) SUBTOTAL BY TASK	
220-001	RI/FS HEALTH & SAFETY PLAN	2YE00220	38	220-002	FS 0 I	IB	11			\$1,001	
						IJ	55			\$3,534	
						IN	17			\$453	
						IO	14	ODCs =		\$751	
								\$718			
220-002	JEG REVIEW, IT REWRITE	2H600A220	10	210-005	FS 0 I	IB	3			\$250	
						IJ	11	2.7551020		\$707	
						IN	6	TOTAL HRS		\$151	
						PJ	3	N&S PLAN:		\$178	
						EE	17	135		\$636	
*****										SUBTOTAL=	\$8,380
221-001	RI/FS COMMUNITY RELATIONS PLAN	2H600A221	45	221-002	FS 0 I	IB	4.0	GBP COSTS=		\$363	
						IP	8.0	\$1,635		\$418	
						IN	3.0	INCLUDING		\$82	
						GG	25.0	AWARD FEE		\$1,486	
						IK	3.0			\$198	
221-002	JEG REVIEW, IT REWRITE	2H600A221	15	210-005	FS 0 I	IB	2.0	ODCs =		\$182	
						IP	4.0	\$282		\$209	
						IN	1.0	TOTAL HRS		\$27	
						PJ	1.0	FOR CRP:		\$65	
						EE	2.0	53		\$77	
*****										SUBTOTAL=	\$3,390

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) WBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S)	(6) REL TION SHIP &LAG	ACTIVITY RESOURCE			(9) EXPLANATION	(10) LINE ITEM COSTS MULT= 2.97 MARK-UP= 15.00%	(11) SUBTOTAL BY TASK
						(7) RESOURCE NAME	(8) HOURS/ TRAVEL ODC \$				
222-001	RI/FS SITE MANAGEMENT PLAN	2N600A222	29	222-002	FS 0 C C C	P4 P3 T1	3 19 6			\$263 \$1,122 \$272	1,657
222-002	CPM SCHEDULE WITH GANTT CHARTS	2N600A222	7	222-003	FS 0 C C J	P4 P3 T1 SP	13 58 5 38			\$1,053 \$3,413 \$204 \$1,751	6,421
222-003	JEG REVIEW, IT RE-WRITE SITE MANAGEMENT PLAN	2N600A222	5	222-004	FS 0 C C J J J	P4 P3 T1 SP PJ EE	3 13 3 13 2 13			\$263 \$748 \$136 \$584 \$103 \$491	2,325
222-004	ISSUE P-DRFTSMP	2N600A222	1	222-005	FS 0 J					\$0	
222-005	NAVY REV&COMMENT	2N600A222	15	222-006	FS 0 N					\$0	
222-006	IT WRITE, JEG REVIEW FINAL DRAFT SMP	2N600A222	14	222-007	FS 0 C C J J	P4 P3 T1 SP EE	3 13 3 13 3			\$263 \$748 \$136 \$584 \$123	1,854
222-007	ISSUE F-DRFTSMP	2N600A222	1	222-008	FS 0 N				ODCs =	\$0	
222-008	NAVY REV&COMMENT	2N600A222	15	222-009	FS 0 N				\$1,378	\$0	1,378
222-009	IT WRITE, JEG REVIEW FINAL DRAFT SMP	2N600A222	14	222-010	FS 0 C C J J	P4 P3 T1 EE SP	3 13 3 3 13		1.5938461 TOTAL HRS IN SMP:	\$263 \$748 \$136 \$123 \$584	1,854
222-010	ISSUE F-DRFTSMP	2N600A222	1		FS 0 N					\$0	
*****										SUBTOTAL= \$15,488	

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) WBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S)	(6) RELATIONSHIP (REL SHIP &LAG)	ACTIVITY RESOURCE			(9) EXPLANATION	LINE ITEM	(11) SUBTOTAL BY TASK
						(7) RESOURCE NAME	(8) HOURS/ TRAVEL ODC \$	(10) COSTS MULT= 2.97 MARK-UP= 15.00%			
230-001	ADMINISTRATIVE RECORD-COLLECT FROM AGENCIES	2H600A230	5	230-002	FS 0 C	P4	8.0	TRIP TO	\$661		
						P3	24.0	SAN FRAN-	\$1,408		
						Q1	\$542.00	CISCO EPA	\$542		
230-002	REVIEW, EDIT ADMINISTRATIVE RECORD	2H600A230	58	230-003	FS 0 C	P4	10.0	TASK	\$826		
						P3	80.0	INCLUDES	\$4,693		
						T1	4.0	TRIPS TO	\$170		
						Q1	\$0.00	SARVOCB	\$0		
						RI	\$50.00	CADONS	\$50		
						T1	16.0	SCAQND	\$682		
						PJ	2.0	& XEROXING	\$129		
						EE	6.0	THERE	\$231		
230-003	DRFT AR TO NAVY	2H600A230	1	230-004	FS 0 J			03/30/90	\$0		
230-004	NAVY REVIEW	2H600A230	21	230-005	FS 0				\$0		
230-005	IT INCORPORATE NAVY COMMENTS ENTER/ORGANIZE DOCUMENTS JEG REVIEWS FINAL AR	2H600A230	20	230-006	FS 0 C	P4	8.0		\$661		
						P3	55.0	ORG INDEX	\$3,226		
						T1	40.0	TP INDEX	\$1,705		
						T1	16.0	XEROXING	\$682		
						PJ	1.0	ODCs =	\$65		
						EE	4.0	\$3,991	\$154		
230-006	ISSUE FINAL AR	2H600A230	1			J		05/30/90	\$0		
*****										SUBTOTAL= \$19,875	

(1) ACTIVITY NUMBER A B	(2) ACTIVITY DESCRIPTION	(3) WBS NUMBER	(4) DURATION (IN WORK DAYS)	(5) SUCCESSOR ACTIVITY(S)	(6) RELATION SHIP &LAG	ACTIVITY RESOURCE			(9) EXPLANATION	LINE ITEM	(11) SUBTOTAL BY TASK
						(7) RESOURCE NAME	(8) HOURS/ TRAVEL ODC \$	(10) COSTS MULT= 2.97 MARK-UP= 15.00%			
990-001	CTO CLOSEOUT	2H60QA990				J	PM	2.0		\$179	
						J	PC	2.0		\$136	
						J	SP	4.0		\$183	
						J	CA	2	ODCs =	\$110	
									\$90	\$0	
						I	IB	3		\$272	
						I	IN	2		\$55	
						I	OI	2		\$88	
										SUBTOTAL	\$699

SUBTOTAL \$152,158
 ODCs = 3514.64 HOURS * \$5.32/HOUR = \$18,698
 AWARD FEE=10% OF (SUBTOTAL PLUS ODCs LESS TRAVEL) = \$17,002
 TOTAL = \$187,858 X

SUMMARY OF COSTS BY RESOURCE NAME

SUMMARY OF COSTS BY RESOURCE NAME						TOTAL HOURS	
IT M.O.P.	IT GEOLOGIST	IT TYPIST	IT SEC	IT TRAVEL	OTHER IT	IT TOTAL	IT
\$9,431	\$28,996	\$4,866	\$0	\$767	\$23,594	\$67,653	1875
104	555	178	0	767	1039 (HIGH)		2642 - 767
JEG PH	JEG PJ	JEG ENVSCI	JEG WP	JEG TRAVEL	OTHER J	JA TOTAL	JACOBS
\$448	\$2,432	\$19,993	\$851	\$73	\$8,224	\$32,022	781
5	38	519	48	73	172 (HIGH)		854 - 73
CH P4	CH P3	CH T1		OTHER CH		CH TOTAL	CH2M HILL
\$13,222	\$33,217	\$4,557		\$0		\$50,996	
160	566	107		0			833
GRIGSBY-BRANFORD-POWELL						\$1,486	GBF
						25	25
						ODCs	\$18,698
TOTAL						\$170,881	3514
							4395
10% AWARD FEE						\$17,004	
GRAND TOTAL						\$187,885 X	

APPENDIX B

B-3 – EXHIBIT 1 OTHER DIRECT COSTS – JACOBS ENGINEERING

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APPENDIX B

B-4 – EXHIBIT 2 TRAVEL COSTS – JACOBS ENGINEERING

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