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SECTION C - Descriptions and Specifications

C-1 STATEMENT OF WORK

The work hereunder shall be performed in accordance with the following:

STATEMENT OF WORK
For
Implementation of Pollution Prevention (P2) Technologies
at Department of Defense Installations

1.0 DESCRIPTION OF WORK:

The Pollution Prevention and Compliance Division at the Naval Facilities Engineering Service Center (ESC), Port Hueneme, California provides a variety of engineering services in the pollution prevention (P2), compliance, and occupational safety and health arena for the Office of the Chief of Naval Operations, major claimants, engineering field divisions, Navy/Marine activities, and other service activities. One of CNO's missions is to provide policy and guidance to assist activities to reduce the amount of toxic chemicals and pollutants released to the environment or transferred off-site from Navy and Marine Corps installations. The purpose of this contract is to assist CNO and other DoD activities by implementing technologies that result in the reduced generation of hazardous waste, wastewater, toxic air emissions, and non-hazardous solid waste.

1.1 BACKGROUND:

DoD activities are required by Executive Order 12856 to achieve a 50 percent reduction in the release or off-site transfer of toxic chemicals or pollutants by 1999 using quantities reported in 1994 as the baseline. In addition, each Navy installation is required to have a pollution prevention plan in place by Dec. 1995 that establishes milestones and responsibilities for implementing technologies, materials and management practices that reduce or eliminate pollution. To achieve the 50 percent reduction goal, DoD activities will have to immediately begin implementation of technologies identified in their pollution prevention plan. Many of both commercially available and innovative, preproduction technologies are needed at a large number of Navy and Marine Corps installations. Therefore, CNO has initiated a centralized implementation program, and has selected the ESC as one of the major equipment implementation agents.

1.2 PURPOSE:

The purpose of this contract is to acquire engineering services to assist the ESC in the implementation of P2 technologies at DOD installations world wide. Implementation includes on-site assessment, technology assessment/evaluation, equipment fabrication, procurement of the necessary equipment, delivery, installation including site preparation, data collection, on-site training of activity personnel, and other logistics support (i.e. O&M manuals) required to make the technology fully operational. Specific types of equipment will be identified in individual delivery orders. On-site assessment services may also be obtained under individual delivery orders to survey DoD installations for providing recommendations for implementation of the best P2 technologies/systems for specific applications.

2.0 APPLICABLE DOCUMENTS:

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The following is a list of documents that contain Federal, DoD, and Navy requirements and industry standards. All work performed by the contractor under this contract shall meet these requirements. Any additional requirements shall be provided under each delivery order by the government.

U.S Army Corp of Engineers (COE) "Safety and Health Requirements Manual" EM-35-1-1, Apr 1981, revised Oct 1987

OSHA Standards 29 CFR 1910, current version

OSHA Standards 29 CFR 1926, current version

ASTM A 880, 1989 Criteria for use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys

ASTM C 1007, 1990 laboratories Testing Concrete and Concrete Aggregates for use in Construction and Criteria for Laboratory Evaluation

ASTM D 3666, 1990 (Rev. A) Evaluating and Qualifying Agencies Testing and Inspecting Bituminous Paving Materials

ASTM D 3740, 1988 Evaluation of Agencies Engaged in the Testing and/or Inspecting of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329, 1990 Use in the evaluation of Testing and Inspection Agencies as Used in Construction

ASTM E 543, 1989 (Rev A) determining the Qualifications of Nondestructive Testing Agencies

Military Standard 129, Marking for Shipment and Storage, current version

29 Code of Federal Regulations (CFR) 1910.1001

Industrial Security Manual for Safeguarding Classified Material

Applicable Security Requirements Guide

Joint Travel Regulations, current version

Federal Travel Regulations, current version

Espionage laws, Title 18, USC Sections 793 and 794

Federal Acquisition Regulations, current version

Naval Facilities Engineering Command, P-442, Economic Analysis Handbook

OPNAV P45 120 10 94 Navy Shore Installation Pollution Prevention Planning Guide

3.0 SCOPE OF WORK:

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The contractor shall provide the personnel, equipment, materials and facilities to respond to multiple concurrent requests under this scope of work at various DoD installations world wide and shall perform tasks in accordance with individual delivery order work statements. Work under this contract is divided into three functions; P2 opportunity assessments/plans, P2 technology evaluation and performance validation, and P2 technology site assessment and implementation.

3.1 POLLUTION PREVENTION (P2) OPPORTUNITY ASSESSMENT/ PLANS.

As specified by individual delivery orders, the contractor will be required to survey and collect data from specific DoD installations, by work center, that use toxic pollutants and generate hazardous waste or emissions. Based on the data collected, the contractor shall identify technical options to reduce pollution for each process evaluated. Options shall be listed based on the following hierarchy in most to least preferred order: source reduction, in-process recycling, on-site recycling, on-site treatment, off-site treatment, incineration, disposal.

3.2 P2 TECHNOLOGY EVALUATION AND PERFORMANCE VALIDATION

For "pre-production" equipment that has not been validated at Navy or Marine Corps installations, the contractor shall coordinate with the equipment developer to modify equipment, analyze and evaluate the performance, collect data, and/or provide engineering services based on requirements provided in the individual delivery order.

3.3 P2 TECHNOLOGY SITE ASSESSMENT AND IMPLEMENTATION.

Equipment to be implemented will be described in the individual delivery orders. Each delivery order may require the implementation of several pieces of P2 equipment/technologies at more than one DoD installation. Site assessment may include some or all of the following: site visit to determine specific P2 needs and compare with identified equipment requirements, evaluate proposed equipment site suitability, provide a work plan identifying how the P2 equipment will be implemented on site, and estimate benefits achieved by implementation of equipment including reductions in toxic chemicals and pollutants and cost savings. Implementation may include some or all of the following: acquire equipment, proper storage and handling, assistance in obtaining a permit for equipment operation, coordinating shipping and installation arrangements with the receiving installation and ESC personnel, on-site preparation including utilities work and minor construction incidental to equipment operation, providing spare replacement parts as necessary, providing operations and maintenance manuals as well as any shop drawings and specification data, and on-site training of activity personnel in the proper use and maintenance of the equipment

3.3.1 Types of P2 Equipment. The types of P2 equipment implemented under this contract will vary widely; however, all of the P2 equipment will replace or complement existing equipment and will result in reduced generation or off-site transfer of toxic pollutants from DoD installations, and increase overall efficiencies of operation.

The majority of the P2 equipment to be implemented is commercially available, off-the shelf equipment that can be easily installed. A portion of the P2 equipment will be "pre-production" equipment that has not been fully tested at a Navy or Marine Corps site. For the installation of pre-production equipment, the contractor may be required to conduct a performance analysis to determine if the equipment is ready and/or appropriate for Navy-wide implementation.

The following are examples of commercially available P2 equipment that may be identified for implementation under the individual delivery orders. This list is only an example and does not preclude the implementation of other P2 equipment under this contract:

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Aqueous Parts Washers
Hydraulic Fluid Recycling Equipment
Hydraulic Fluid Particulate Counters
Can and Drum Crushers
Solvent Distillation Equipment
High Volume Low Pressure Paint Spray Equipment
Powder Coat Painting Equipment
Vehicle Wash Rack Closed Loop Waste Water Recycling System
Antifreeze Recycling Equipment
High Pressure Water Depainting Technologies
Refrigerant Recyclers
Abrasive Blasting Systems
Solid Waste Recycling Equipment
Hazardous Material Storage Lockers
Dry Filter Particulate Emissions Control Systems for Paint Booths
Paint Gun Washer

4.0 GOVERNMENT FURNISHED MATERIAL/PROPERTY/ INFORMATION

The contractor shall assume custody of government furnished material, property and information (GFM/GFP/GFI) and provide proper controls, maintenance, protection, as required by the contract clause herein. All GFM/GFP/GFI shall be returned to the government upon completion of each individual delivery order.

4.1 GOVERNMENT FURNISHED INFORMATION

The government will furnish the following information upon award of the contract:

1. Economic Analysis Handbook, NAVFAC P-442.
2. Navy Shore Installation Pollution Prevention Planning Guide, OPNAV P45 120 10 94

5.0 TECHNICAL TASKS/REQUIREMENTS

5.1 SPECIFIC REQUIREMENTS

The contractor shall perform any or all of the following services as specified in the individual delivery orders:

5.1.1 Work Center Data Collection - The contractor shall visit all specified work centers at the installation. At each work center the contractor shall interview shop personnel, determine processes, review chemical/material records, and tour the work center. The contractor shall prepare a report that contains the following: a description of each work center with the functions performed, materials used, waste/emissions generated, equipment used, organizational code, location, and other relevant information. The report shall also contain process flow diagrams, all actual or estimated quantities of hazardous materials used and wastes generated, and identify and quantify all EPCRA Section 313 constituents within each hazardous material.

5.1.2 Toxic Chemical Summary - The contractor shall provide engineering services to develop a toxic chemical database, total toxic chemical quantities, identify reportable toxic chemicals, and develop mass balances for each toxic chemical.

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5.1.3 Pollution Prevention Opportunity Assessments - The contractor shall develop and prioritize candidate projects to reduce each toxic chemical.

5.1.4 Management Survey - The contractor shall perform a survey to obtain general information regarding organizational, environmental management, recycling, waste operations, and management commitment to pollution prevention.

5.1.5 Site Assessment - Prior to obtaining the P2 equipment specified in the individual Delivery Order, the contractor shall conduct a preliminary visit to each activity scheduled to receive equipment unless otherwise stated in the delivery order. The contractor may be accompanied on preliminary visit by the ESC Project Engineer. The purpose of the visit is to identify specific P2 needs and compare these needs with the identified equipment requirements. The contractor shall discuss the planned equipment implementation(s) with activity representatives including: equipment capabilities, required delivery schedule, installation site, and support requirements. The contractor shall meet with the Navy Technical Representative (NTR) at the activity to coordinate installation and facility requirements. The contractor shall provide the site specific requirements (including but not limited to permitting needs, safety considerations, and environmental requirements) necessary to implement the equipment.

5.1.6 Work plan - Based on the equipment requirements identified in paragraph 5.1.5, the contractor shall prepare an implementation work plan with equipment specifications, vendor information, site requirements including all information necessary to install the equipment, and an implementation schedule.

5.1.7 Site Preparation/Equipment Installation - On a limited basis the contractor shall coordinate delivery, provide proper controls, maintenance, protection and installation of P2 equipment with the NTR, DoD installation personnel, and other ESC personnel. The contractor shall oversee the installation of the equipment at the designated installation sites. As required, the contractor shall design, provide facility modifications and/or provide support for activity modifications for equipment installation. The contractor shall ensure that all DoD activity requirements are met including, but not limited to, safety and health, fire protection, and permitting.

5.1.8 Investigative Site Reports/Permits - The contractor shall investigate permitting issues, occupational safety and health requirements, and other requirements that need to be met prior to operation of the technology, and provide recommendations on how to meet those requirements.

5.1.9 Provide Operation and Maintenance Manual - The contractor shall develop written documentation to obtain the necessary permits to install and operate the equipment. The contractor shall supply the activity with an operational and maintenance manual for the P2 equipment. It will be the responsibility of the contractor to ensure adequacy of the documents.

5.1.10 Support for Equipment Start-up - The contractor shall perform on-site testing to validate the performance of equipment prior to government acceptance.

5.1.11 Training - The contractor shall train activity personnel in proper use and maintenance of the equipment, and provide sufficient consumable spares for the first year of operation as necessary.

5.1.12 Preproduction Technology Evaluation - The contractor shall coordinate with the NTR to fabricate/modify equipment and perform data collection of innovative P2 technologies.

5.1.13 Cost Benefits and Pollutant Analysis - The contractor shall develop (1) methodology to estimate reductions in toxic pollutants and cost savings associated with implementation of each item of equipment under each individual Delivery Order. The contractor shall use this methodology to (2) create a baseline estimate of toxic pollutant

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generation and use, (3) estimate the generation and use of toxic pollutants after implementation of the P2 equipment, and (4) calculate the savings/investment ratio using the Type II economic analysis procedure as provided in NAVFAC P-442.

6.0 REPORTS, DATA, AND OTHER DELIVERABLES

The contractor shall submit any or all of the following deliverables as specified in individual delivery orders issued under this contract:

6.1 **PLANS OF ACTION AND MILESTONES.** Upon award of the Delivery Order, the contractor shall prepare a Plan of Action and Milestones (POA&M) showing major tasks, activities, and milestones. The contractor shall submit the POA&M to ESC fifteen calendar days after award of the Delivery Order. The contractor shall meet with ESC seven calendar days after submission of the POA&M to discuss the critical activities and to coordinate schedules. The POA&M shall be the basis for tracking contractor progress during the remainder of the Delivery Order.

6.2 **STATUS REPORT.** The contractor shall submit a monthly summary and status report for each active delivery order issued under this contract. The status report shall provide the following information:

- a. Progress during reporting period,
- b. Problems encountered and recommended solutions.
- c. Updated POA&M showing current project status and projected dates for equipment delivery, installation and startup.
- d. Hours expended during reporting period and cumulative hours for each labor category and/or individual.
- e. Material, equipment and other direct costs incurred during reporting period.
- f. Projected work for next reporting period.

6.3 **IMPLEMENTATION WORK PLAN.** The contractor shall prepare work plans for large implementations of equipment as required at specified installations. The implementation work plan shall include equipment specifications, vendor information, site requirements, and a POA&M for implementation of the equipment at the activity.

6.4 **ENGINEERING DRAWINGS.** The contractor shall prepare engineering drawings as specified in each DO. The contractor shall consult with the ESC Project Engineer to establish which drawings are necessary. The drawings may include a site plan, an installation plan, a mechanical drawing, an electrical drawing, and other drawings as necessary.

6.5 **OPERATIONS AND MAINTENANCE MANUALS.** For each item of equipment, the contractor shall supply the vendor's operation and maintenance manual and other vendor literature. If the ESC Project Engineer or the NTR determines that the vendor's manual is deficient, the contractor shall prepare an operation and maintenance manual to supplement the vendor's information.

6.6 **P2 EQUIPMENT COSTS BENEFITS AND POLLUTANT REDUCTION ANALYSIS:** The contractor shall develop a P2 Equipment Cost Benefits and Pollutant Reduction Analysis providing summary information from the benefits methodology performed in Paragraph 5.1.13. The contractor shall provide an analysis for each major item of equipment.

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6.7 **P2 OPPORTUNITY ASSESSMENT REPORT.** The contractor shall develop a P2 Opportunity Assessment Report providing information from the services performed in Paragraphs 5.1.5 through 5.1.10.

6.8 **P2 PREPRODUCTION ASSESSMENT REPORT.** Contractor shall develop a Pre-production Assessment report providing information from the services performed in Paragraphs 5.1.12 through 5.1.13.

6.9 **P2 PLAN.** The contractor shall prepare a P2 Plan following OPNAVINST 5090. 1B, which may include the following elements: (1) the purpose of the Plan, (2) policy statement by the Commanding Officer, (3) applicability and scope of the P2 effort, (4) description of ashore installations, (5) management and administrative elements, (6) planned process-specific improvements, (7) priorities, (8) potential barriers to the P2 Plan, (9) other relevant plan requirements, (10) Commanding Officer's approval, and (11) appendices containing a detailed POA&M for implementing the P2 Plan.

7.0 PERIOD OF PERFORMANCE

A delivery schedule/period of performance for each service ordered shall be defined in each individual delivery order issued under this contract.

8.0 PERSONNEL REQUIREMENTS

Educational and experience qualifications of personnel presented in the Contractor's proposal shall meet the desired contract qualification standards and shall become the standard for personnel performing under the contract. The Contractor shall be bound by these standards throughout the contract.

8.1 REVIEW OF RESUMES. INTENTIONALLY LEFT BLANK

8.2 **CONTRACTOR WORK FORCE RESPONSIBILITY.** Organize, furnish, maintain, supervise, and direct a work force which, within the limitations of the provisions of the contract, is thoroughly capable and qualified to effectively perform the work set forth in the contract.

8.3 **PERSONNEL DUTIES, REQUIRED EXPERIENCE, AND QUALIFICATIONS OF PERSONNEL.** Personnel shall be required to have a minimum of experience and/or education which will enable them to effectively carry out the work as stated in the contract.

8.3.1 **Program Director.** Responsibilities include the overall management of all delivery orders under this contract. Duties include: monitoring and controlling project costs, schedule, and quality control; assigning project managers and other personnel consistent with contract requirements; ensuring compliance with contract requirements; and performing as the Contractor's chief representative. The qualified individual for this position shall have a Bachelor of Science degree in engineering or the equivalent from an accredited university. A professional engineering license and advanced degrees in engineering or related disciplines are highly desirable. The qualified individual shall have a minimum of 10 years of progressively responsible experience in specification, procurement, installation, and implementation of industrial equipment; training of equipment operators; preparation of P2 plans, pollution reduction estimates, EPCRA evaluations environmental permits, and other engineering reports; cost estimating and economic analysis and design, specification, and construction of facility modifications. At least five of the 10 years of experience shall be at the project manager level or higher.

8.3.2 **Project Manager.** Responsibilities include; managing technical, cost, and schedule performance on individual delivery orders under this contract under the direction of the program director. Duties include;

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ensuring that elements of the project plans and specifications can be implemented within schedule and within budget, recommending and justifying changes orders, developing or modifying a method of tracking materials and resources, coordinating work accomplished by subcontractors, and complying with regulatory requirements. The qualified individual shall be a Bachelor of Science degree in engineering or the equivalent from an accredited university. A professional engineering license is highly desirable. The qualified individual shall have a minimum of six years of experience in specification, procurement, installation, and implementation of industrial equipment; training of equipment operators preparation of P2 plans, pollution reduction estimates, EPCRA evaluations environmental permits, and other engineering reports; cost estimating and economic analyses; and design, specification, and construction of facility modifications. At least one of the years of experience shall be at the project manager level.

8.3.3 Contract Administration Manager. Responsibilities include administering and managing contract delivery orders in compliance with Federal, DOD, and Navy acquisition regulations. Duties include meeting the contract terms and conditions; maintaining an adequate purchasing system, which includes overseeing procurement of subcontractor and vendor services and products, maintaining an adequate estimating system, which includes ensuring the adequacy of proposals; monitoring and controlling project costs; and interfacing with Navy contracts personnel regarding contractual matters. The qualified individual for this position shall hold a Bachelor of Science or Arts degree from an accredited four-year university. Additionally, the individual shall have five years of experience in managing Federal, DOD, or Navy contracts.

8.3.4 Senior Engineer. Responsibilities include performance of delivery order tasks requiring highly developed technical skills. The qualified individual shall have a Bachelor of Science degree in engineering or the equivalent from an accredited university. A professional license is highly desirable. The qualified individual shall have a minimum of six years of experience in specification, acquiring equipment, installation, and implementation of industrial equipment, environmental permitting, design and construction of facility modifications.

8.3.5 Construction Manager. Responsibilities include management of facility construction projects as needed for the installation of P2 equipment. Duties include; scheduling construction activities and milestones, establishing subcontracts for specialized construction tasks, purchasing and staging construction materials, renting and/or mobilizing company owned construction equipment, obtaining grading, excavation, and all other required construction permits; obtaining construction bonds; supervising construction personnel; controlling construction activities; and coordinating all work with the Resident Officer in Charge of Construction. The qualified individual will be a licensed General Engineering Contractor in at least one state with a minimum of eight years of construction experience in an industrial and/or DOD environment.

8.3.6 Equipment Engineer. Responsibilities include acquiring P2 equipment and coordination of equipment delivery schedules. Duties include performance of market surveys to identify equipment vendors and costs, preparation of equipment specifications, coordination of shipping requirements, and coordination of equipment delivery schedules. The qualified individual will have a Bachelor of Science degree from an accredited university with a minimum of three years of experience in procurements of industrial equipment.

8.3.7 Environmental Engineer. The qualified individual must have a minimum of a Bachelor of Science degree in environmental engineering or a related degree from an accredited university with a minimum of three years of experience in environmental engineering investigations, studies, and designs, including compliance and permitting work under the requirements of RCRA, EPCRA, and related State regulations; preparations of P2 plans; estimates of pollutant reductions; preparation of feasibility and cost analyses for

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environmental systems and processes; and design of environmental systems including; water and wastewater connections.

8.3.8 Electrical/Instrumentation Engineer. The qualified individual must have a Bachelor of Science degree in electrical engineering or a related degree from an accredited university with a minimum of three years of experience in electrical and instrumentation engineering. Experience shall include design of power connections for equipment, design of equipment instrumentation and controls, field investigations to determine equipment electrical and instrumentation requirements at industrial facilities, oversight of electrical and instrumentation installations by equipment vendors and construction contractors. The qualified individual shall have demonstrated knowledge of national and regional electrical code requirements.

8.3.9 Mechanical Engineer. The qualified individual must have a Bachelor of Science degree in mechanical engineering or a related degree from an accredited university with a minimum of three years of experience in heating, ventilation, and air conditioning (HVAC systems, industrial equipment, and air pollution control devices. Experience shall include design of industrial HVAC equipment; field investigations to determine HVAC, equipment, and air pollution control requirements; and oversight of mechanical work by equipment vendors and construction contractors. The qualified individual shall have demonstrated knowledge of national and regional mechanical code requirements.

8.3.10 Civil/Structural Engineer. The qualified individual must have a Bachelor of Science degree in civil and/or structural engineering or a related degree from an accredited university with a minimum of three years of experience in civil/structural engineering. Experience shall include facility structural design, equipment foundation design, field investigations to determine industrial structural requirements; and oversight of civil and structural work by construction contractors. The qualified individual shall have demonstrated knowledge of national and regional civil and structural code requirements.

8.3.11 Chemical Engineer. The qualified individual must have a minimum of a Bachelor of Science degree in Chemical engineering or a related degree from an accredited university with a minimum of three years of experience in chemical engineering investigations. Experience shall include chemical process analysis, data collection and analysis, field experience, and recommending implementation of alternatives to reduce pollution and improve process efficiencies. Additional experience with any of the following areas are preferred as related to DoD weapon systems; painting applications, depainting processes, corrosion prevention, and waste water treatment processes. The qualified individual shall have demonstrated knowledge or background in standard industry practices and specifications in areas of aerospace manufacturing, electronics, and construction industries.

8.3.12 Junior Engineer. Responsibilities include performance of technical tasks under contract delivery orders. The qualified individual shall hold a Bachelor of Science degree in engineering or equivalent from an accredited university. The qualified individual shall have the ability to perform office and field engineering work in the environmental, chemical, electrical, mechanical, or civil disciplines under the supervision of a more senior engineer.

8.3.13 Engineering Technician. This individual must have: (a) a minimum of five years of experience or combination of technical school plus work experience totaling five years, in field technician support to electrical, chemical, mechanical, and civil engineers; (b) demonstrated experience in assembly, disassembly, troubleshooting and operation of equipment in an industrial environment; (c) demonstrated ability to oversee and direct equipment installation work performed by vendors and/or construction contractors; (d)

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experience with prototypic components such as chemical metering and monitoring hardware; (e) experience with data taking, observation and performance analysis.

8.3.14 Engineering Draftsman. This individual must have: (a) a minimum of eight years experience, or a combination of technical school plus work experience totaling eight years, in engineering drafting; (b) demonstrated ability to produce high-quality engineering design drawings in the electrical, mechanical, civil, and structural disciplines; and (c) experience using AutoCAD 14.

8.3.15 Technical Writer/Editor. This individual must have: (a) a minimum of a Bachelor of Arts degree with two years of experience or equivalent military or on the job experience totaling six years; (b) demonstrated ability, under general supervision, to prepare technical reports and operation and maintenance manuals on complex mechanical systems; (c) demonstrated ability to schedule documentation assignments through the various stages of production, including illustration, word processing, quality review, and reproduction; and (d) familiarity with Federal, DOD, Navy, and NAVFAC documentation standards.

8.3.16 Technical Illustrator. This individual must have: (a) a minimum of five years of experience or formal training in technical illustrating; (b) a familiarity with schematics, drawings for technical reports and O&M manuals, all methods of visual communication and artist concepts; (c) ability to translate rough sketches into presentable form for graphic presentation in technical reports; and (d) experience with illustration software in the Microsoft Windows environment.

8.3.17 Publications Coordinator. This individual must have: (a) a minimum of a high school education plus a high degree of typing skills and ability to coordinate assembly of large numbers of documents within the same timeframe; (b) demonstrated ability, under general supervision, to organize rough manuscripts into final technical reports, manuals, or proposal format; (c) demonstrated ability to maintain controls and files on all documents for which responsible; and (d) experience with the following word processing applications: Microsoft Word 6.0 and 7.0.

8.3.18 Technical Trainer. This individual must have: (a) a minimum of a high school education plus a high degree of experience in operating and maintaining P2 equipment, and (b) demonstrated ability to communicate procedures for operating and maintaining equipment in a safe and effective manner to operators and maintenance personnel.

8.4 **KEY PERSONNEL SUBSTITUTION REQUIREMENTS.** In the event that a personnel change must be made, the following substitution requirements apply.

8.4.1 The Contractor shall assign to this contract those persons whose resumes were submitted and approved by the Government. No substitutions shall be made except in accordance with this clause.

8.4.2 The Contractor agrees that during the first 180 days of the contract performance period, no personnel substitutions shall be permitted unless such substitutions are necessitated by an individual's sudden illness, death, or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information required below. After the initial 180-day period, proposed substitutions shall be submitted, in writing, at least 15 days (45 days if security clearance is to be obtained) in advance of the proposed substitutions, to the Contracting Officer, and provide information required below:

(a) Proposed substitutes shall have qualifications that are equal to or higher than the qualifications of the person to be replaced.

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(b) Requests for additions or substitutions shall include a detailed explanation of the circumstances necessitating proposed substitutions or additions, a complete resume for the proposed substitute or addition, and any other information requested by the Contracting Officer. The Contracting Officer will evaluate such requests and notify the Contractor in writing of approval or disapproval.

8.4.3 For purposes of this clause, Key Personnel consist of the following:

- Program Director
- Project Manager
- Contract Administration Manager
- Senior Engineer
- Construction Manager
- Equipment Engineer
- Environmental Engineer
- Electrical Instrumentation Engineer
- Mechanical Engineer
- Civil/Structural Engineer
- Chemical Engineer

The list of key personnel may be amended from time to time by contract modification to either add or substitute personnel in accordance with key personnel substitution requirements specified herein. The Contractor shall submit a list of the key personnel with the technical proposal and the list (which may be changed from time to time) shall be included in the contract as Attachment JC. 1.

8.4.4 Training. Contractors are expected to have personnel with the requisite skills to perform the requirements of this contract. Therefore, the Government will not allow, nor reimburse as direct costs, those costs associated with the training of contractor personnel in any effort to initially attain requirements of this contract. If allowable under FAR Part 31, these costs may be included as indirect costs. Attendance at workshops or symposiums is considered training for purposes of this clause.

9.0 GENERAL REQUIREMENTS FOR DELIVERY ORDERS

9.1 FEDERAL REGULATIONS

The contractor shall comply with federal, state, and local environmental laws and regulations including but not limited to: pertinent Occupational Safety and Health Administration and Department of Transportation requirements; National Environmental Policy Act; Clean Water Act; Clean Air Act; Endangered Species Act; Toxic Substance Control Act; Resource Conservation and Recovery Act; as amended by the Hazardous and Solid Waste Act; and, Comprehensive Environmental Response, Compensation and Liabilities Act as amended by Superfund Amendments and Reauthorization Act. The Contractor shall assure that all activities performed by his personnel, subcontractors and suppliers are executed as required by these laws and regulations.

9.2 STATION REGULATIONS

The Contractor and his employees and subcontractor shall become familiar with and obey all station regulations including fire, traffic, and security regulations. All personnel employed on the station shall keep within the limits of the work (and avenues of ingress and egress) and shall not enter any restricted areas unless required to do so and are cleared for such entry. The Contractor's equipment shall be conspicuously marked for identification.

END OF SECTION C