

SECTION 01 79 00
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for instructing National Park Service (NPS) personnel, including:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment, including environmental considerations.
 - 3. Demonstration and training video.
- B. See Division 02 through Division 49 sections for specific requirements for demonstration and training for products in those sections.

1.2 GENERAL REQUIREMENTS

- A. Training Scheduling Conference:
 - 1. Prior to preparing Operation and Maintenance Training Schedule Submittal, schedule and hold training scheduling conference, to review:
 - a. Training requirements indicated in the Contract Documents.
 - b. Work to be completed prior to commencing training.
 - c. Work progress and Progress Schedule relative to startup and training.
 - d. Scheduling constraints for Government personnel, relative to days and times of training sessions.
 - e. Preferred days for training.
 - f. Location where training will be performed and facilities available.
 - g. Required Submittals relative to training.
 - h. Other issues relative to training of operations and maintenance personnel.
 - 2. If additional information must be developed to adequately cover agenda items, reconvene conference as soon as possible.
 - 3. Contractor shall prepare minutes summarizing the discussions of conference, decisions made, and agreements and disagreements, and distribute the minutes to each conference attendee and others as appropriate.

1.3 SUBMITTALS

- A. List of System Demonstration and Training requirements: Provide overall summary list of requirements consistent with conditions of Contract and requirements of individual Technical Specification.

- B. Instruction Program: Submit two copies of outline of instructional program for demonstration and training.
 - 1. Operation and Maintenance Training Schedule, including schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 2. For each training session, Contractor shall submit for approval a proposed outline of subjects to be covered. Training shall not be conducted until outline is approved.
- C. Demonstration and Training Video: Submit two copies of each DVD (digital video disc), or format approved by Contracting Officer, for training sessions within 7 days of end of each training module.
 - 1. Label each DVD with date of demonstration or training, instructor's name, and provide an index of contents. Index shall list start and end time of each subject covered during training session. Sequence of training subjects shall follow sequence listed in approved training outline or as actually conducted

1.4 QUALITY ASSURANCE

- A. Facilitator Qualifications: Firm or individual experienced in training or educating maintenance personnel in training program similar in content and extent for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: Factory-authorized service representative, complying with requirements in Section 01 40 00, Quality Requirements, experienced in operation and maintenance procedures and training.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Contracting Officer.

PART 2 PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure:
 - 1. Develop instruction program that includes individual training modules for each system and individual equipment, as required by individual specification sections, including:
 - a. Treatment process equipment, systems and controls.

- b. Building mechanical, HVAC, safety, electrical equipment, systems and controls.
- c. Site operation, security equipment, systems and controls.

B. Training Modules:

1. Develop a learning objective and teaching outline for each module. Include description of specific skills and knowledge that participant is expected to master. For each module, include instruction for:
 - a. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
 - b. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
 - c. Emergencies: Instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
 - d. Operations: Startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
 - e. Adjustments: Alignments and checking, noise, vibration, economy, and efficiency adjustments.
 - f. Troubleshooting: Diagnostic instructions and test and inspection procedures.
 - g. Maintenance: Inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools.
 - h. Repairs: Diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

PART 3 EXECUTION

3.1 INSTRUCTION

- A. Facilitator: Engage qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Contracting Officer for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct NPS personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with NPS through Contracting Officer with at least 30 days advance notice.
2. Conduct training sessions after equipment or system has been accepted and turned over to Government. Coordinate with commissioning requirements.
3. Coordinate with Integrated pest management requirements. Refer to specifications section and approved IPM plan.
4. Individual sections specify duration of training required. If no duration is listed, provide training of sufficient duration to adequately cover subjects.

3.2 DEMONSTRATION AND TRAINING VIDEO

A. General: Engage qualified commercial photographer to record demonstration and training video. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of training module, record each chart containing learning objective and lesson outline.

B. Video Format: Digital Video Disc (DVD), or format approved by Contracting Officer.

C. Video Recording: Record sessions with high resolution equipment. Instructor's voice shall be clearly audible and understandable. Utilize supplemental microphone worn by instructor.

D. Narration: Describe scenes on video by audio narration by microphone while video is recorded. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1. Video recordings with poor video or audio quality will be rejected and training recorded again.

3.3 PERSONNEL TRAINING FOR TREATMENT EQUIPMENT

A. Refer to requirements of individual equipment sections.

- B. Conduct all personnel training after completion of Equipment Startup for the equipment for which training is being conducted.
1. Personnel training on individual equipment or systems will not be considered completed unless:
 - a. All pre-training deliverables are received and approved before commencement of training on the individual equipment or system.
 - b. No system malfunctions occur during training.
 - c. All provisions of field and classroom training specifications are met.
 2. Training not in compliance with the above will be performed again in its entirety by the manufacturer at no additional cost to the Government.
- C. Field and Classroom Training Requirements:
1. Hold classroom training onsite.
 2. Notify each manufacturer specified for onsite training that the Government reserves the right to video record any or all training sessions.
 - a. Organize each training session in a format compatible with video recording.
 3. Training Instructor Qualification: Factory trained and familiar with giving both classroom and “hands-on” instructions.
 4. Training Instructors:
 - a. Be at classes on time.
 - b. Session beginning and ending times to be coordinated with the Contracting Officer and indicated on the master schedule.
 - c. Normal time lengths for class periods can vary, but brief rest breaks should be scheduled and taken.
 5. Organize training sessions into maintenance verses operation topics and identify on schedule.
 6. Plan for minimum class attendance of 15 at each session and provide sufficient classroom materials, samples, and handouts for those in attendance.
 7. Instructors to have a typed agenda and well prepared instructional material.
 - a. The use of visual aids, e.g., films, pictures, and slides is recommended for use during the classroom training programs.
 - b. Deliver agendas to the Contracting Officer a minimum of 7 days prior to the classroom training.
 - c. Provide equipment required for presentation of films, slides, and other visual aids.

8. In the onsite training sessions, cover the information required in the Operation and Maintenance Manuals submitted according to Section 01 78 23, Operation and Maintenance Data, and the following areas as applicable to PCS's.
 - a. Address in the operation sessions:
 - 1) Operation of equipment.
 - 2) Lubrication of equipment.
 - 3) Optimizing equipment performance.
 - 4) Capabilities.
 - 5) Operational safety.
 - 6) Emergency situation response.
 - b. Address in the maintenance sessions:
 - 1) Maintenance and repair of equipment.
 - 2) Troubleshooting of equipment.
 - 3) Preventive maintenance procedures.
 - 4) Adjustments to equipment.
 - 5) Inventory of spare parts.
 - 6) Takedown procedures (disassembly and assembly).
- D. Maintain a log of classroom training provided including instructors, topics, dates, time, and attendance.

END OF SECTION