Section 2.16 – Construction Management

WAC 463-60-245
Proposal – Construction management.

The application shall describe the organizational structure including the management of project quality and environmental functions.

(Statutory Authority: RCW 80.50.040 (1) and (12). 04-21-013, amended and recodified as § 463-60-245, filed 10/11/04, effective 11/11/04. Statutory Authority: RCW 80.50.040(1) and Chapter 80.50 RCW. 81-21-006 (Order 81-5), § 463-42-245, filed 10/8/81.)

Section 2.16 Construction Management

2.16.1 Construction Management Organization

The Applicant has hired industry professional contractors to complete the design of the project and will contract with (one or more) engineering, procurement, and construction (EPC) contractors, or construction management firm. Those parties will be responsible for the design, procurement, construction, and startup of the facility. The main EPC contractor or construction manager will be responsible for managing subcontractors.

The EPC contractor will employ a lead project manager, along with a project engineer, a site manager supported by a field engineering team, quality assurance and quality control (QA/QC) specialists, environmental specialists, and a site safety officer. The EPC contractor will be required to implement a safety plan, a QA/QC plan, an environmental protection plan, an SWPP plan, and an SPCC plan.

2.16.2 Safety Program

In addition, before any on-site construction work begins, the EPC contractor will be required to develop a construction safety plan that applies to the employees of the EPC contractor and all subcontractors working at the project site. The construction safety plan will ensure compliance with all applicable laws, ordinances, regulations, and standards concerning health and safety. The EPC contractor's safety manager will have the authority to issue stop work orders when health and safety procedures are violated by the employees of either the EPC contractor or a subcontractor. Upon identification of any health and safety issue, the safety manager will work with the responsible site managers and employees to correct the issue. The construction safety plan will include, but will not be limited to, the following areas:

- Description of the company safety program
- Fire protection and life safety
- Hazard communications
- Hearing conservation
- High temperature work areas
- Job hazard analysis
- Material handling
- Personal protective equipment (PPE) requirements
- Respiratory protection
- Safety administrative controls
- Tools, machinery, and equipment safety
- Compressed gases
- Electrical arc protection work practices
- Confined space entry
- Control of hazardous materials
- Crane/hoist operations and safety
- Electrical appliances
- Electrical safety
- Excavation, trenching, and shoring
- Fall protection

During operations, the Applicant will implement a site- and project-specific operations safety program, addressing all applicable laws, ordinances, regulations, and standards concerning operations health and safety. The program will be documented in the Rail Operating Safety and Maintenance Plan and the Facility Construction and Operations Safety Plan which includes, but is not limited to, the following areas:

- Description of the company safety program
- Fire protection and life safety
- Hazard communications
- Hearing conservation
- High temperature work areas
- Job hazard analysis
- Rail operations
- Material handling
- Personal protective equipment (PPE) requirements
- Respiratory protection
- Safety administrative controls
- Tools, machinery and equipment safety
- Compressed gases
- Electrical arc protection work practices
- Confined space entry
- Control of hazardous materials
- Crane/hoist operations and safety
- Electrical appliances
- Electrical safety
- Excavation, trenching and shoring
- Fall protection

2.16.3 Environmental Protection Program

During construction, the Applicant will require that its EPC contractor and all subcontractors implement an environmental protection program to ensure that construction activities comply with the conditions, limits, and specifications required by the site certification agreement and any other applicable federal permits and regulations. Copies of all applicable permits and approvals will be kept on site. The EPC project manager, and all contractor and subcontractor employees, will be required to read, follow, and be responsible for all required compliance activities and the prompt correction of deficiencies. The environmental protection program will include, but not be limited to, the following:

- Avoidance of sensitive areas by construction activities
- Waste handling and storage
- Stormwater management
- Spill prevention and control
- Any additional requirements of the site certification agreement and other issued permits and approvals and applicable regulations

2.16.4 Training Programs

During construction, the EPC contractor will be required to provide a training program to ensure that any contractor or subcontractor employees entering the construction area are instructed on applicable health and safety requirements and protocols. The training will include, but not be limited to, the following areas:

- Drug and alcohol free workplace policy
- Personal health and safety
- Fall safety
- Confined space
- Excavation
- Crane and rigging
- Equipment and operations safety
- Fire prevention
- Electrical safety
- Emergency response
- Hazards communication
- Stormwater pollution prevention
- Spill prevention, control, and countermeasures

Similarly, extensive training of operations employees will begin prior to their beginning work at the project facilities. All employees will receive training regarding operations-related health and safety, hazards communication, emergency response, stormwater pollution prevention, and spill prevention, control, and countermeasures. Task-specific training will be provided to ensure project facilities are operated and maintained in accordance with industry standards and all applicable permits, approvals, and regulations.

2.16.5 Quality Control Systems and Record Keeping

A QA/QC program will be implemented during all phases of the project to ensure that the engineering, procurement, construction, and startup of the Facility are completed as specified. The elements of the QA/QC program will include:

- A formal QA/QC program that ensures equipment suppliers deliver their components as designed and specified and that the installation of equipment is completed as specified.
- A procedures manual describing activities at the Facility from the initiation of final design through project startup.
- A description by the EPC contractor of the activities and responsibilities within the contractor's organization and the measures taken to assure quality work, including design control, configuration management, and drawing control.
- A review by independent QA/QC personnel of all documentation and their witness of field activities as an organization parallel to the construction organization to assure compliance with the specifications.
- Field inspectors' acceptance for the installation, alignment, and commissioning of all major equipment.

Typical QA/QC checks include:

- Factory QA/QC
  - Inspection of major equipment at manufacturer's facilities
  - Review and inspection of third-party test verification reports
  - Review and inspection of manufacturer's QA/QC procedures
  - Manufacturing drawing review and verification
  - Visual inspection
  - Witness and/or review of testing
  - Verification of welding procedure specifications compliance
  - Inspection of flange interface flatness measurements, finishing, and protection
  - Witness or review of turbine run-in load testing
  - Inspection of paint finishing and protection
  - Shipment packaging and handling, tracking, and identification
  - Pre-commissioning field testing and verification
- Field Inspection QA/QC
  - Reviewing equipment and material delivery acceptance inspection procedures
  - Inspection of all critical interfaces
  - Verification of all mechanical assembly work including erection of major components
  - Verification of field wiring and tagging
  - Pre-commissioning field testing and verification
- Concrete/Structural
  - Inspection of forms, structural steel, and rebar prior to backfilling and prior to casting
  - Field engineer's witness of concrete pouring
  - Inspection of concrete testing during pour (slump) and verification of break test results
  - Inspection of field welds
  - Tank Construction
  - Internal monitoring of tank shape
  - Hydrostatic testing
- Electrical System Installation
  - Inspection of terminations and termination hardware
  - Witness and/or review of polarity, cable marking, and phase rotation tests
  - Witness and/or review of grounding system resistance measurements
  - Inspection of all lock-out/tag-out locations and energizing sequences and plan
  - Inspection of painting/tagging/wiring/preparation for shipment
  - Verification of field wiring and tagging

The Applicant will audit the EPC contractor periodically, including reviews of documentation and surveillances of field activities, to ensure compliance with the specifications and with the requirements of the QA/QC plan. Checks may include:

- Verification of drawings
- Verification of materials
- Verify compliance with engineering specifications
- Verify compliance with environmental permits and regulations
- Verify compliance with health and safety program

Records will be maintained at the on-site administration building in accordance with the Applicant's records management program and any additional record-keeping requirements of project permits and approvals.