DIVISION 01 - GENERAL REQUIREMENTS

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SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 LOCATION

A. Work is located at Grand Coulee Dam in Okanogan County, Washington.

1.02 PRINCIPAL COMPONENTS OF WORK

A. Inspecting turbine runner, discharge ring, and stay vanes.

B. Installing and removing draft tube platforms.

C. Building and removing temporary scaffolding for accessing repair areas.

D. Metal removal.

E. Welding.

F. Grinding.

G. Coating.

1.03 SPECIFICATIONS REQUIREMENTS

A. Requirements in Division 1, General Requirements, apply to Divisions 2 through 52.

B. Imperative statements in these specifications are Contractor requirements, unless otherwise stated.

C. Where specifications are written in streamlined form, words "shall be" are included by inference where a colon (:) is used within sentence or phrase.

1.04 DEFINITIONS

A. When specifications use a word or term defined in Federal Acquisition Regulations (FAR), definition of the word or term shall be in accordance with FAR sections in effect at the time solicitation was issued.

1.05 ACRONYMS

A. The following acronyms apply to specifications Divisions 1 through 52:

1. CO: Contracting Officer.
2. COR: Contracting Officer's Representative.

3. WPP: Washington Power Plant, Nathaniel 'Nat' Washington Power Plant.
4. MSB: Material Storage Building.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 11 16
WORK BY GOVERNMENT

PART 1 GENERAL

1.01 GENERAL

A. The Government shall perform customary tasks to assist the Contractor with gaining access for the work. The Government makes no guarantee as to the condition of completed tasks. Contractor shall accept the conditions "as-is" and improve conditions as required to complete the work.

B. Prior to the start of work, Government will:

1. Drain and open unit waterway.
2. Install vane axial fans.
3. Install wire rope around runner blades' leading edges.
4. Install wire rope around stay vanes' leading edges.
5. Install string of lights around the periphery of the stay ring.

C. During installation of draft tube platform, Government will:

1. Maintain water level in draft tube waterway from 4 feet to 8 feet below the invert of the draft tube access door:
   a. This has been a customary practice for additional fall protection during draft tube platform installation.

D. After installation of draft tube platform, Government will:

1. Install lighting around the periphery of the draft tube.
2. Drain the draft tube waterway.

E. Upon completion of the work, Government will:

1. Remove and store vane axial fans.
2. Remove and store wire rope around runner blades' leading edges.
3. Remove and store wire rope around stay vanes' leading edges.
4. Remove and store string of lights around the periphery of the stay ring.
5. Remove and store lighting around the periphery of the draft tube.
6. Close and fill waterway in preparation for the unit to return to service.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 14 00
WORK RESTRICTIONS

PART 1 GENERAL

1.01 WORK RESTRICTIONS

A. Perform work during Government's scheduled maintenance outages:

1. The Government makes no guarantee as to the number of units scheduled for maintenance within a 12-month period:

   a. Unit to be repaired will be issued at the Task Order Level.

   b. For information only, this outage schedule is subject to change:

Unit	Megawatt Rating	Start Date	End Date	Purpose
23	805	8/30/2026	4/2/2027	Sexennial Maintenance and stator bar repair
24	805	8/29/2027	3/31/2028	Sexennial Maintenance
21	690	9/3/2028	3/30/2029	Sexennial Maintenance
19	690	9/2/2029	3/29/2030	Sexennial Maintenance
20	690	9/1/2030	3/28/2031	Sexennial Maintenance
22	805	8/24/2031	3/26/2032	Sexennial Maintenance

2. Turbines will be available for repair for a portion of the outage duration.

B. Allowable working hours:

1. Monday through Thursday, 6:00AM to 5:00PM.

C. Allowable delivery hours:

1. Monday through Thursday, 7:00AM to 3:00PM.

D. Schedule time for access by the Government to perform turbine runner and discharge ring initial assessment and final inspection:

1. After draft tube platform installation: 7 days:

   a. Includes all appurtenances for complete access to all work surfaces.

   b. Submit written notification 7 days in advance of the start of scheduled time for access in accordance with Section 01 31 19 – Project Management and Coordination.

2. After completion of repair work and prior to removal of draft tube platform: 7 days:

a. Includes all appurtenances for complete access to all work surfaces.

b. Submit written notification 7 days in advance of the start of scheduled time for access in accordance with Section 01 31 19 – Project Management and Coordination.

E. Schedule time for access by the Government to perform turbine stay vane initial assessment and final inspection:

1. After stay vane coating removal: 7 days:

a. Includes all appurtenances for complete access to all work surfaces.

b. Submit written notification 7 days in advance of the start of scheduled time for access in accordance with Section 01 31 19 – Project Management and Coordination.

2. After completion of repair work and prior to removal of scaffolding: 7 days:

a. Includes all appurtenances for complete access to all work surfaces.

b. Submit written notification 7 days in advance of the start of scheduled time for access in accordance with Section 01 31 19 – Project Management and Coordination.

F. Do not exceed the safe working capacity of the elevator.

1. When necessary to move components in excess of the safe working capacity of the elevator, Government-owned crane will be available to move components between floors using existing hatches. Provide all necessary labor and equipment to move the component to and from the existing floor hatches. Comply with requirements of Section 01 54 20 – Use of Government Crane.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 31 19
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work.

1.02 SUBMITTALS

A. Submit in accordance with Section 01 33 00 - Submittals.

B. RSN 01 31 19-1, Pre-Work Meeting Agenda:

1. Date and time of meeting and proposed attendees.

C. RSN 01 31 19-2, Pre-Load Test of Draft Tube Platform Meeting Agenda:

1. Date and time of meeting and proposed attendees.

D. RSN 01 31 19-3, Pre-Installation of Draft Tube Platform Meeting Agenda:

1. Date and time of meeting and proposed attendees.

E. RSN 01 31 19-4, Notification of Scheduled Time for Access for Initial Assessment of Turbine Runner and Discharge Ring.

F. RSN 01 31 19-5, Notification of Scheduled Time for Access for Final Inspection of Turbine Runner and Discharge Ring.

G. RSN 01 31 19-6, Notification of Scheduled Time for Access for Initial Assessment of Turbine Stay Vanes.

H. RSN 01 31 19-7, Notification of Scheduled Time for Access for Final Inspection of Turbine Stay Vanes.

I. RSN 01 31 19-8, Progress Review Meeting Agenda:

1. Date and time of meeting and proposed attendees.
2. 3-week look-ahead schedule.

J. RSN 01 31 19-9, Progress Review Meeting Minutes.

1.03 COORDINATION MEETINGS

A. Pre-Work Meeting:

1. Date: At least 28 days before each mobilization:
    a. Submit meeting agenda at least 7 days before meeting.
2. Location: Grand Coulee Dam.
3. Purpose: Review with Government personnel the existing condition of unit including the sequencing of work activities and technical requirements from the specifications.
4. Minimum Meeting Attendees:
    a. Prime contractor.
    b. Foreman or other job lead for crews who will perform welding.
    c. Contractor's quality control representative.
    d. Contractor's safety lead.
    e. Third-party welding inspector.

B. Pre-Load Test of Draft Tube Platform Meeting:
1. Date: At least 14 days before start of assembly for load testing:
    a. Submit meeting agenda at least 7 days before meeting.
2. Location: Grand Coulee Dam.
3. Purpose: Review with Government personnel facility practices for assembly and load testing the draft tube platform.
4. Minimum Meeting Attendees:
    a. Prime contractor.
    b. Foreman or other job lead for crews who will perform load testing.
    c. Contractor's quality control representative.
    d. Contractor's safety lead.
5. Frequency: 1 meeting for each awarded task order for load testing.

C. Pre-Installation of Draft Tube Platform Meeting:
1. Date: At least 14 days before start of installation.
    a. Submit meeting agenda at least 7 days before meeting.
2. Location: Grand Coulee Dam
3. Purpose: Review with Government personnel facility practices for installation of the draft tube platform.
4. Minimum Meeting Attendees:
    a. Prime contractor.
    b. Foreman or other job lead for crews who will perform installation.

c. Contractor's quality control representative.

d. Contractor's safety lead.

5. Frequency: 1 meeting for each awarded task order for load testing.

D. Progress Review Meetings:

1. Meeting shall be held weekly at the work site project office and virtually.

2. Submit meeting agenda at least 2 days before the meeting. Include 3-week look-ahead schedule.

3. Attendees: Responsible representatives who have been fully informed of specifications with respect to technical requirements, and coordination necessary to complete construction. Representatives shall be determined on an as needed basis and typically should include:

a. Project Manager from Contractor.

b. Field Superintendent from Contractor.

c. Representatives may attend by telephone or video conference.

4. Purpose:

a. Review schedule, work progress, and coordination:

1) Review meeting minutes from the previous Progress Review meeting.

2) Review status of submittals.

3) Review written notifications for scheduled time and access for Government's initial assessment and final inspection in accordance with Section 01 14 10 – Work Restrictions.

4) Review recently completed work forms:

a) Form B-1: Unit Summary of Runner Damage Records.

b) Form B-2: Runner Damage Record.

c) Form B-3: Unit Summary of Discharge Ring Damage Records.

d) Form B-4: Discharge Ring Damage Record.

e) Form B-5: Unit Summary of Stay Van Damage Records.

f) Form B-6: Stay Vane Damage Record.

5) Review safety, security, environmental, technical concerns, Requests for Information (RFI), Requests for Proposals (RFP), contract modifications, and other project related items.

5. Submit meeting minutes within 24 hours after the meeting.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 31 30
CONTRACT DOCUMENT MANAGEMENT SYSTEM

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19-G24 Contract Document Management System:

1. Payment: lump sum price bid in the Price Schedule M.

1.02 DEFINITIONS

A. CDMS: Contract Document Management System.

1. Contract Documents include, but are not limited to:
   a. Submittals.
   b. DIRs: Daily Inspection Reports.
   c. RFCs: Request for Change (Contractor generated document).
   d. RFIs: Request for Information (Contractor generated document).
   e. Bureau of Reclamation (Reclamation) Inspection Reports.
   f. Damage Records (Reclamation and Contractor generated document).
   g. Contract Schedules.
   h. Meeting Agendas and Meeting Minutes.
   i. Letters and Memos.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittals.

B. RSN 01 31 30-1, Approval Data:

1. Documentation of system capabilities.
2. Instructions for system use.

C. RSN 01 31 30-2, Final Data:

1. USB flash drive of documents uploaded to CDMS.

1.04 QUALIFICATIONS

A. System provider: At least 5 years of successful performance in providing required services.

1.05 CDMS REQUIREMENTS

A. CDMS shall be capable of generating, storing, tracking, categorizing, and managing Contract Documents.

B. Access:

1. Web-based:

   a. Contract Documents are stored and accessed by authorized individuals via an internet site.

   b. Compatible with web browsers Microsoft Edge, Apple Safari, Mozilla Firefox, and Google Chrome.

2. Ability to upload Contract Documents and make available for user download in supported file formats, minimum:

   a. Portable Document Format (pdf).

   b. MS Word.

   c. MS Excel.

   d. MS Project.

   e. Oracle Primavera P6 Project Manager.

   f. Drawing (dwg).

   g. Contract Manager.

3. Allow Contract Documents to be prepared by Contractor or by Government.

   a. Preparing organization will control access of documents. See Document Security and Backup paragraph below.

4. Contractor and Government shall each have a project manager for CDMS:

   a. Each project manager shall have capabilities to assign users within their organization and assign user rights that control access to documents based on user class and document type.

   b. Each organization shall be capable of defining its access hierarchy.

   c. Inclusion of users will be prerogative of organizational project manager.

   d. Government shall be able to create and modify project properties (i.e., Contractor, project location, description, bid amount, project directory, etc.).

5. Email notifications shall be automatically sent to selectable users when new documents are submitted and available for viewing or alerts are generated. Examples:

   a. Updates to project information (e.g., entry of a new submittal);

   b. Changes to project information (e.g., approval of a submittal);

c. Alerts (e.g., submittal under review for >15 days without action).

6. Ability to link files; examples:

a. Submittal linked to a Specification or Drawing.

C. Reports:

1. CDMS shall generate reports that list and sort documents by status; examples:

a. Submittals that have been approved.

b. Invoices paid to date.

c. RFIs under review.

2. Generate alerts when documents requiring action approach or exceed allowable time.

3. Generate customizable summary reports; examples include:

a. Submittal Turn-around.

b. RFI Turn-Around.

c. CM Processing Turn-Around.

d. Total CM costs.

e. Total CM Request Exposure.

4. Printable, exportable as searchable .pdf or printer -friendly HTML, and exportable to Excel, XML, or CSV.

5. Ability to link from an item in a report directly to the item by clicking on it:

a. For example: in a submittal report, clicking on a submittal that is 15-days old takes you directly to information on that submittal.

6. Capable of producing a complete and logically organized set of documents within CDMS in both .pdf and .xml format.

D. Document Security and Backup:

1. SSL encryption for secured data exchange between browser and server (Secure access to documents and information).

2. Allow document access security until authoring party chooses to share it with others:

a. Show parties that have access to a document.

b. Extent of document sharing shall be determined by authoring party.

c. Once documents are shared, track documents so that changes cannot occur without a record of changes.

3. Backup/Archiving to FTP site of documents to which an organization has access on a regular (minimum monthly) basis.

4. Documents shall be downloadable to FTP sites where Government and other organizations can each access their own data confidentially.

E. General Tracking and Control:

1. Documents shall be grouped into categories (Submittals, RFI, Daily Inspection Reports, and Meeting Minutes).
2. CDMS shall track:
   a. When documents were received or returned, as well as status of documents (e.g., Under Review; or Returned, Approved or Rejected, etc.).
   b. Document changes, including who entered or changed document and date change was made.
   c. When a reviewer has opened an item.

F. Submittal Tracking and Control:

1. Ability to create master list of submittals ("Schedule of Submittals".)
2. Customizable standard submittal form for entering information:
   a. Required information includes:
      1) Required submittal number (RSN), title, description, and specification section.
   b. Upload submittal data in electronic format.
3. Track date received, date response due, date returned, and status:
   a. Status designations may be modified to fit Government standard designations – Approved, approved subject to identified changes, or not approved.
4. Supply Submittal Tracking form for Government to enter review comments and action taken. Allow customizing of submittal tracking form:
   a. Allow for Government to route submittal to third parties (e.g., consultant, internal design or operations and maintenance groups, etc.) by generating design-review transmittals with each submittal package item, to track status of individual sub-items within submittal package, and to route each sub-item to the appropriate reviewers.
5. Ability to generate automatic notification after specified days without response.

G. RFI Tracking and Control:

1. Supply standard RFI form to enter information.
2. Ability to create or attach documents to the RFI form or links to other documents within CDMS.
3. Ability for Government to route RFI to appropriate reviewers and for reviewers to enter comments into standard response form.

H. Inspection Reports Tracking and Control:

1. Ability to attach Reclamation standard inspection and report forms into CDMS and ability to create customizable inspection forms in CDMS. Typical forms:

   a. Daily Inspection Report (DIR).

   b. Survey requests.

   c. Plant inspection reports.

   d. Testing reports.

2. Ability to link or attach photos to forms and link forms to other documents within CDMS.

I. Cost Tracking and Payment Request Management:

1. Ability to import payment bid items cost from MS Excel spreadsheets.

2. Ability to edit percent complete and payment amount each month. Format to be spreadsheet, e.g. items available for editing at once, rather than needing to edit one item at a time, save, open next item and edit that, etc.

J. Correspondence:

1. Ability to generate letters and memos:

   a. Ability to attach documents to letters and memos, and to reference other documents within CDMS.

   b. Ability to automatically assign sequential numbers to letters and memos.

2. Ability to generate responses to letters and memos:

   a. System automatically generates memo suffixes; e.g., 1st response to Memo 32 to be 32.1, 2nd response to be 32.2, etc.

3. Official correspondence from Reclamation to Contractor shall contain Reclamation's official letterhead and corresponding logos.

4. Ability to generate meeting agendas and meeting minutes and to attach documents to the minutes:

   a. CDMS shall automatically assign sequential meeting numbers.

K. Miscellaneous Tracking and Controls:

1. Ability to generate logs tracking RFIs, CORs, COs, Submittals, Memos, DIRs, survey requests, plant inspection reports, and testing reports.

2. Ability to filter logs based on criteria, e.g., for Submittals: Specification Section, Days Out, Status (approved, partially approved, approved subject to identified changes and resubmit, or not approved.); for RFI's: Days out, Status (Open/Closed), Specification Section/Dwg No., and Responsibility/Ball-In-Court.

3. Ability to sort logs based on a criterion, e.g., for Submittal, Specification Section, Days Out, Status, or other criteria determined by COR.

4. Ability to provide forms to match Reclamation's CM Form and Progress Payment Form or other forms when needed.
5. Ability to track Cost Exposure with links to RFI and CM requests.
6. Ability to measure productivity benchmarks on a project, such as computing average review days for RFIs and submittals, categorize CMs, and track total CM percentages by category.
7. Ability for keyword search of documents in database.
8. Ability to allow online Payment Requests (electronic invoicing) by Contractor.

PART 2 PRODUCTS

A. Commercially available products having essential characteristics of Parts 1 and 3.

PART 3 EXECUTION

3.01 IMPLEMENTATION

A. CDMS shall be in place and operating before Contractor transmits any Contract Documents, to Government, except RSN 01 31 30-1, Approval Data:

1. CDMS operation includes COR, or other authorized Government representative, having program control to assign users and user rights to Government personnel to access appropriate areas of the system.

B. Input entries to the Schedule of Submittals before making submittals. Include:

1. RSNs listed in Table 01 33 00A – List of Submittals.
2. Scheduled submittal date.

C. Provide a report of submittal status monthly or as requested by COR. Submittal status report shall be in a table format and include:

1. Required Submittal Number (RSN).
2. Section Title.
3. Submittal Title.
4. Date Submitted.
5. Date of Response.
6. Approval Status (approved, partially approved, approved subject to identified changes and resubmit, or not approved.)
7. Days in Review.
8. Due Date.

D. CDMS shall be operational for the duration of the 5-year contract until closeout.

END OF SECTION

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SECTION 01 32 10
CONSTRUCTION PROGRAM

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Costs:

1. Developing Baseline Schedule: Include in lump sum price bid in the Price Schedules for Mobilization and Preparatory Work.
2. Updating and Using Construction Program: Include as part of Contractor's overhead.

1.02 DEFINITIONS

A. Schedule: The Critical Path Method (CPM) of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the project.

B. Project Calendar(s): Cross reference of numerical workdays with calendar days. Project calendars serve as the basis for day/date conversion and assign workdays and non-workdays.

C. Resources: Equipment, labor or crews, materials, subcontractors, fabricators, manufacturers, and consultants.

D. Out of Sequence Work: An activity that starts before its predecessor activities are completed.

1.03 REFERENCE STANDARDS

A. Associated General Contractors of America (AGC)

1. AGC Manual — Construction Planning and Scheduling Manual, 2015

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 – Submittals:

1. Furnish database files in format compatible with Oracle Primavera P6 Professional Project Management.
2. Upon request, provide information and data used to develop and maintain the Construction Program to the CO.

B. RSN 01 32 10-1, Representative Information:

1. Designation of authorized representative to develop and maintain Construction Program. Include resume with training and experience.

C. RSN 01 32 10-2, Baseline Schedule:

1. Include:

a. Construction Program/Schedule database.

b. Definition of project calendars.

c. Primavera layout file (.plf).

d. Primavera file extension (.xer)

e. Gantt chart (Bar chart) for project on 11 by 17-inch print(s) and in portable document format (.pdf).

f. Activity report including logic constraints consisting of predecessors, successors, and constraint dates.

g. Tabular listings of resources and resource limitations used to produce baseline schedule. Correlate resources with schedule assumptions and bid price. Resource listings may be independent of schedule database.

h. Narrative explanation of project schedule development. Include impacts of resource limitations and weather conditions on project schedule development. Include planned number of work hours per day and hours per day for subcontractors.

D. RSN 01 32 10-3, Updated Schedule Reports:

1. This submittal is required for a proper invoice for progress payments in accordance with the clauses at FAR 52.232-27 - Prompt Payment for Construction Contracts. In accordance with subparagraph (a)(i)(A) of the clause at FAR 52.232-27 - Prompt Payment for Construction Contracts, Government disapproval of this submittal will be considered failure of the Contractor to comply with contract requirements and payment due date may be delayed until 14 days after submittal contents are approved.

2. Include:

a. Construction Program database with updated activity and milestone data.

b. Definition of project calendars if revised from baseline calendars.

c. Primavera layout file (.plf).

d. Primavera file extension (.xer)

e. Gantt chart for project on 11-inch by 17-inch print(s) and in portable document format (.pdf).

f. Narrative report specifically stating status of project.

1) When negative float exists, cite specific actions and conditions which caused "behind schedule" condition and provide proposed course of action to complete the project within the specified delivery time. When float changed from previous month's updated schedule, explain reason for change.

2) List of Contractor-initiated changes to current schedule stating reason for action taken and unresolved issues relating to the Construction Program. Government reserves the right to reject Contractor-initiated changes to current schedule which negatively impact Government action which was initiated on the basis of current schedule.

3) Discuss contract milestones and significant activities that were started, continued, or completed during the update period or scheduled during the next update period.

g. Submittal Register:

1) List submittals as listed in Table 01 33 00A.

2) Update Submittal Register monthly to include submittals and revised submittals. Register fields shall include RSN name and number, date submitted, date of response, status (e.g., approved, not approved, resubmittal required).

3) This register document is separate from scheduling database.

E. RSN 01 32 10-4, Time Impact Analysis:

1. Include:

a. Construction Program database with proposed revised activity and milestone data.

b. Proposed revised schedule due to change or delay. Highlight or list added, changed, or deleted activities.

c. Primavera layout file (.plf).

d. Primavera file extension (.xer)

e. Gantt chart for project on 11 by 17-inch print(s) and in portable document format (.pdf).

f. Narrative report explaining results and conclusions.

1.05 QUALIFICATIONS

A. Representative: Experienced in developing and maintaining construction schedules and knowledgeable of activities and progress on-site to develop and maintain accurate and reliable schedules. Experience shall include scheduling for at least two other projects of comparable complexity and Primavera P6 training offered by certified instructors.

1.06 GENERAL

A. Develop, maintain, and use Construction Program to plan, monitor, evaluate, and report accomplishment of work.

1.07 SCHEDULES

A. Prepare construction schedules using Critical Path Method outlined in AGC Manual. Use a computer software program to perform mathematical analysis of scheduling data.

1. Prepare schedule based on required sequence and interdependence of activities. Logically sequence activities.
2. Prepare detailed activity network for accomplishing required work organized by Work Breakdown Structure (WBS). Utilize WBS in lieu of activity codes for organization of schedule. If activity codes are utilized in addition to WBS, use unique activity code names assigned as project codes rather than global codes.
3. Activities except "Award" shall have predecessor activities and activities except "Contract Complete" shall have successor activities.
4. Meet contract requirements; milestone(s) in accordance with the clause at Section H. Clause titled Commencement, Prosecution, and Completion of Work; and relevant clauses and specification sections. Include interim milestone dates, Government interface dates, contract completion date, and other time or seasonal constraints specified in contract documents.
5. Include work of subcontractors, Government interfaces, and contract milestones.
6. Schedule activities to occur as early as possible without unwarranted constraints.
7. Adjust Construction Program/schedule for seasonal weather conditions. Provide a narrative explaining the expected weather and plan for incorporation in schedule. Consider work influenced by high or low ambient temperatures or precipitation. Utilize Primavera P6 calendars to depict historical weather days that impact work. Assign weather calendars to work impacted by weather.
8. Reference activities to contract line item number (CLIN) and specification section identified in the Schedule using user-defined fields.
9. Define activities to level of detail resulting in their durations being no greater than 20 workdays.
    a. Durations for administrative activities (e.g., submittals and reviews) fabrication, manufacturing, and typical level of effort activities (e.g., dewatering, storm water management) shall not be subject to workday duration limitation.
10. Include separate activities for submittal preparation and submittal reviews when submittal addresses work that involves significant quantities, long lead times, is on the critical path or near critical path, or as requested by the COR. Assign Government submittal review activities to a seven-day calendar with durations as

specified in Section 01 33 00 - Submittals. Include Required Submittal Number (RSN) in activity description.

11. Include separate activities for fabrication or manufacturing when work involves significant quantities, long lead times, is on the critical path or near critical path, or as requested by the COR

12. Include contract title, contract number, and Contractor's name on transmittal cover sheet and each sheet of Gantt chart.

13. For each activity on Gantt chart, display activity identification number, activity description, planned or original duration, start date, finish date, total float, and calendar identification. Do not display early start and late start fields.

14. Include table of abbreviations used in the schedule, listed and defined alphabetically.

15. Use finish to start logic relationships between activities. Do not utilize start to start, finish to finish, or start to finish logic relationships. Start to start logic may be utilized on start milestones and finish to finish logic may be utilized on finish milestones only. Do not use positive or negative lead or lag times.

16. Use durations in units of whole workdays.

17. Provide best estimate of time required to complete activity considering quantity of work, work conditions, location of work, and planned resources for activity.

18. Equate durations of Government reviews and other identified actions to maximum number of calendar days specified in their respective paragraphs.

19. Establish workday calendar(s) and use these in the schedule to translate activity's workday duration into calendar dates. Use unique calendar names; do not use software default calendar names. Save calendars as project calendars, not global calendars.

B. Baseline Schedule:

1. Represents Contractor's as-planned approach to accomplishing the work. Do not include actual start dates, percent completes, or actual finish dates.

C. Updated Schedule:

1. Meet monthly with COR at Government's project office, by remote meeting, or at a location approved by the COR, to review progress made to end date of progress payment period. Establish dates that activities were started and completed and remaining duration for each activity started but not completed during the period.

   a. Discuss and mutually agree upon changes to the schedule.

   b. Out-of-sequence activities are not allowed. Revise logic to reflect change in work plan.

   c. Finalize updated Construction Program database with mutually agreed upon changes.

2. Following receipt of executed contract modification, incorporate activity data stipulated in modification into current schedule for inclusion in next scheduled progress update. Provide appropriate logic relationships for revised activities.

3. Following receipt of executed task order award, incorporate activity data stipulated in task order into current schedule for inclusion in next scheduled progress update. Provide appropriate logic relationships for revised activities.

4. Assign a unique project file name for each schedule update.

1.08 TIME IMPACT ANALYSIS

A. Provide time impact analysis for contract changes (e.g., change order, proposed modification, or value engineering change proposal) to support a claim or request for equitable adjustment to the contract due to delay or accelerated schedule.

B. The CO may use time impact analysis to determine if time extension or reduction to contract milestone dates is justified.

1. Time impact analysis is required for contract changes whether the Contractor's current schedule milestone dates are the same as, earlier than, or later than, those required under the contract.

2. Changes, additions, or deletions to activities; activity durations; activity time frames; or activity predecessors and successors shall not automatically determine that extension or reduction of contract time is warranted or due the Contractor.

3. Time extensions for performance will be considered only to the extent that the Contractor's current scheduled milestone dates exceed contract milestone dates.

C. Float is not for exclusive use by or benefit of either the Government or the Contractor.

D. Prepare a single time impact analysis for modifications issued after Notice to Proceed (NTP) and prior to approval update.

E. Perform time impact analyses using data in most recent approved schedule update prior to change or delay event.

1. Prepare proposed revised schedule and narrative description describing and highlighting changes or delays.

2. Prepare summary comparing results of two schedule analyses: One using current schedule data from last approved updated schedule prior to event requiring analysis, and one using proposed schedule data incorporating changes or delays.

a. Show contract milestones and activities whose periods of performance have shifted as result of change which affects production and manufacture schedules, material orders, construction seasons, and labor and equipment utilization.

b. For activities directly affected by change or delay, include the current and proposed items:

1) Activity description.

2) Types and quantities of major pieces of equipment, principal manpower, and pacing materials (materials that affect activity start, duration, or finish).

3) Activity duration.

4) Narrative containing rationale used in developing the proposed logic relationships and activity data.

c. Data date for impacted schedule used in comparison shall be the same as approved updated schedule data date.

d. Base schedule comparisons on status of work and available float at time the CO directs or proposes change to the work, the Contractor submits a value engineering change proposal, or when a delay occurs as shown in approved updated schedule.

1.09 REVIEW AND EVALUATION

A. Baseline Schedule:

1. Within 21 calendar days after receipt of baseline schedule:

a. COR will approve or not approve proposed baseline schedule.

b. Upon request from the CO, meet with COR for a joint review of proposed baseline schedule.

c. If schedule is not approved, revise and resubmit within 7 calendar days following date of rejection letter.

2. Do not proceed with onsite work, except mobilization and surveying, until baseline schedule has been approved by the Government.

B. Updated schedules:

1. Submit updated Construction Program schedule monthly.

2. Submit updated schedule at least seven days prior to the submission of each invoice request for progress payment.

3. If updated schedule is not approved, revise and resubmit updated schedule within 7 calendar days following date of rejection letter.

4. The COR will schedule pre-submittal meeting with the Contractor's representative each month to review draft updated schedule prior to the Contractor submitting RSN 01 32 10-3, Updated Schedule.

C. Failure to include elements of the work in schedules will not release Contractor from completing required work under the contract.

D. Performance will be evaluated by the Government using approved CPM schedules.

1.10 FAILURE TO COMPLY

A. Failure to comply with requirements of this Section shall be grounds for determination by the CO that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within specified time.

B. The CO may terminate the Contractor's right to proceed with the work, or separable part of it, in accordance with default terms of this contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 33 00
SUBMITTALS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work.

1.02 REFERENCE STANDARDS

A. American Society of Mechanical Engineers (ASME)

1.	ASME Y14.1-12	Decimal-inch Drawing Sheet Size and Format

B. National Institute of Building Sciences (NIBS)

1.	NIBS NCS-14	United States National CAD Standards, Version 6

1.03 DEFINITIONS

A. Days: Calendar days.

B. Required Submittal Number (RSN): Identifies items to be submitted together as a complete submittal.

C. Submittal Types, as listed in Table 01 33 00A - List of Submittals:

1. A - Approval:
   a. Government will respond as to adequacy of submittal.
   b. Approval Submittals: Considered "shop drawings" within the terms of the clause at FAR 52.236-21, Specifications and Drawings for Construction.
2. I - Informational:
   a. Government will acknowledge receipt of Informational submittals.
   b. Government may reject an Informational submittal when the submittal does not satisfy contract requirements. Correct mistakes or deficiencies in rejected Informational submittals and resubmit.
   c. Informational Submittals: Considered "shop drawings" within terms of the clause at FAR 52.236-21, Specifications and Drawings for Construction, except that approval by Government is not required.

1.04 SUBMITTAL REQUIREMENTS

A. In case of conflict between requirements of this section and requirements included elsewhere in these specifications, requirements included elsewhere take precedence.

B. General:

1. Prepare in English.
2. Label with contract number and title, and RSN.
3. Measurement Units: US Customary Units.
4. Provide a unique transmittal number for each submittal.

C. Government Forms:

1. Fill in all requested data on forms electronically or by hand.
2. Handwritten data on forms shall be neat and legible.
3. Forms with handwritten data shall be scanned to create high-resolution electronic files.
4. Retain all forms with handwritten data and submit complete set of hardcopies at the completion of each task order.
5. Submit complete set of electronic files on a USB flash drive at the completion of each task order.

D. Product Data:

1. Mark manufacturer's data for commercial products or equipment, such as catalog cut sheets.
   a. Identify manufacturer's name, type, model, size, and characteristics.
   b. Illustrate that product or equipment meets requirements of specifications.
   c. Mark items to be furnished in a manner that will photocopy (no highlighter).
   d. Strike through items that do not apply.

E. Certifications:

1. Certifications by a Registered Professional: Signed and sealed by registered professional.
2. Manufacturer's Certifications: Signed by authorized representative of manufacturer.

1.05 SUBMITTALS PROCEDURES

A. Submit only checked submittals. Submittals without evidence of Contractor's approval will be returned for resubmission.

B. Submit complete sets of required materials for each RSN as specified in "Submittals Required" column in Table 01 33 00A - List of Submittals. A complete set includes listed items for RSNs with multiple parts.

C. Submit sets specified in "Sets to be sent:" columns in Table 01 33 00A - List of Submittals.

1. Submittals identified with "CDMS" in the "Sets to be sent" column shall be submitted electronically in accordance with Section 01 31 30 - Contract Document Management System.

D. Include the following information in transmittal letters:

1. Contract number and title.
2. RSN for each attached submittal.
3. Responsible code.
4. Number of sets for each RSN.
5. Identify submittal as initial or resubmittal.

E. Resubmittal of submittals not approved:

1. Mark changes such that they are readily identifiable and show revision date.
2. Describe reasons for significant changes in transmittal letter.
3. Resubmit returned submittals within 7 days after receiving the comments, unless otherwise directed.
4. Requirements for initial submittals apply to resubmittals.

F. More than one RSN may be submitted under a transmittal letter, provided responsible code is same.

1.06 REVIEW OF SUBMITTALS

A. Time Required:

1. Submittal review will require 28 days for review of each submittal or resubmittal, unless otherwise specified.
2. Time required for review of each submittal or resubmittal begins when complete sets of materials required for a particular RSN are received and extends through return mailing postmark date.

B. Time in Excess of Specified:

1. CO may extend contract completion date to allow additional time for completing work affected by excess review time.
   a. Time extension will be to extent that excess review time caused delay to contract completion date.

b. Time extension will not exceed time used in excess of specified number of days for review of submittals or resubmittals.

c. Concurrent days of excess review time resulting from review of 2 or more separate submittals or resubmittals will be counted only once in extending contract completion date.

2. No time extension will be allowed if Contractor fails to make complete approval submittals in sequence and within time periods specified.

3. Adjustment for delay will be made only to the extent that:

a. Approval was required under the contract, and.

b. Requests for approval were properly and timely submitted and were approved.

4. Adjustment will be subject to terms of paragraphs (b) and (c) of clause at FAR 52.242-14, Suspension of Work; however, no such delay shall be deemed to be a "suspension order" as term is used in that clause.

C. Return of Submittals:

1. Return of submittals will be by CDMS response or hard copy, as applicable.

2. Approval Submittals: 1 set of submittals required for approval will be returned either approved, approved with comments or not approved.

a. Revise and resubmit submittals not approved.

b. Do not change designs without approval of CO after drawings, documentation, and technical data have been approved.

3. Informational Submittals: Government will acknowledge Informational submittals.

a. Informational submittals will not be returned when they satisfy contract requirements.

b. Informational submittals that do not satisfy contract requirements may be returned for resubmittal, or additional information may be requested.

1.07 HARD COPY TRANSMITTALS

A. Addresses for codes listed in Table 01 33 00A - List of Submittals:

1. Contracting Officer (CO), Bureau of Reclamation, Attn: CPN-7300, 1150 N. Curtis Rd, Boise, ID 83706-1234.

2. Construction Field Manager (COR), Bureau of Reclamation:

a. Request address after task order award.

B. Send original transmittal letter with appropriate number of sets to office listed in "Responsible Code" column in Table 01 33 00A - List of Submittals.

C. Send copy of transmittal letter with appropriate number of sets to offices that are not responsible code, but show "Sets to be sent" in Table 01 33 00A - List of Submittals.

D. When "Sets to be sent" is 0, send a copy of transmittal letter to that office.

E. Submittals required by specifications, but not listed in Table 01 33 00A - List of Submittals:

1. Submit in accordance with this section.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

Table 01 33 00A - List of Submittals

* Submittal Types: A - Approval, I – Information
** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
I-1	Release of Claims (1452.204-70)	Release of claims (DI-137) against the United States	Submitted after completion of work and prior to final payment	I		CO	1	0
I-2	Payrolls and Basic Records (52.222-8)	Certified payrolls	Submitted weekly for each week any contract work is performed	I		COR	CDMS	
I-3	Subcontracts (Labor Standards) (52.222-11)	1) List of subcontractors 2) Statement and Acknowledgement Form (SF-1413) for each subcontract	Submitted within 14 days after task order award, and within 14 days after any subcontract award	I		COR	1	0
I-4	Equal Opportunity (52.222-26)	Information required by Executive Order 11246 (SF-100)	Submitted within 28 days following task order award	I		COR	1	0
I-5	Bonds (52.228-15)	Performance and payment bonds	Submitted and approved within 10 calendar days after task order award	A		CO	1	0
I-6	Liability Insurance (1452.228-70)	Acceptable evidence showing that insurance has been obtained	Submitted and approved within 10 calendar days after task order award	A		CO	1	0
I-7	Security Requirements (WBR 1452.237-80)	Security Program	Submitted and approved within 7 days after the task order work starts or another period approved by the Contracting Officer	A		COR	CDMS	
I-8	Security Requirements (WBR 1452.237-80)	List of onsite employees	Submitted within 7 days after the task order work starts or another period determined by the Contracting Officer	I		COR	CDMS	
01 31 19-1	Project Management and Coordination	Pre-Work Meeting Agenda	Submitted and approved at least 35 days before each mobilization	A	Y	COR	CDMS	
01 31 19-2	Project Management and Coordination	Pre-Load Test of Draft Tube Platform Meeting Agenda	Submitted and approved at least 21 days before start of assembly for load testing	A	Y	COR	CDMS	

Table 01 33 00A - List of Submittals

* Submittal Types: A - Approval, I – Information
** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 31 19-3	Project Management and Coordination	Pre-Installation of Draft Tube Platform Meeting Notification	Submitted and approved at least 21 days before start of installation	A	Y	COR	CDMS	
01 31 19-4	Project Management and Coordination	Notification of Scheduled Time for Access for Initial Assessment of Turbine Runner and Discharge Ring	Submitted and approved at least 7 days before start of scheduled time for access	A	Y	COR	CDMS	
01 31 19-5	Project Management and Coordination	Notification of Scheduled Time for Access for Final Inspection of Turbine Runner and Discharge Ring	Submitted and approved at least 7 days before start of scheduled time for access	A	Y	COR	CDMS	
01 31 19-6	Project Management and Coordination	Notification of Scheduled Time for Access for Initial Assessment of Turbine Stay Vanes	Submitted and approved at least 7 days before start of scheduled time for access	A	Y	COR	CDMS	
01 31 19-7	Project Management and Coordination	Notification of Scheduled Time for Access for Final Inspection of Turbine Stay Vanes	Submitted and approved at least 7 days before start of scheduled time for access	A	Y	COR	CDMS	
01 31 19-8	Project Management and Coordination	Progress Review Meeting Agenda	Submitted at least 2 days before the meeting	I		COR	CDMS	
01 31 19-9	Project Management and Coordination	Progress Review Meeting Minutes	Submitted within 24 hours after the meeting	I		COR	CDMS	
01 31 30-1	Contract Document Management System	Approval Data	Submitted and approved within 28 days after task order NTP	A		COR	0	1
01 31 30-2	Contract Document Management System	Final Data	Submitted and approved within 28 days of completion of work	A		COR	CDMS	

Table 01 33 00A - List of Submittals

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** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 32 10-1	Construction Program	Representative Information	Submitted and approved within 7 days after task order NTP	A		COR	0	1
01 32 10-2	Construction Program	Baseline Schedule	Submitted and approved within 28 days after task order NTP	A	Y	COR	CDMS	1
01 32 10-3	Construction Program	Updated Schedule Reports	Submitted and approved monthly, with progress payments, and within 14 days after award of a task order	A	Y	COR	CDMS	
01 32 10-4	Construction Program	Time Impact Analysis	Submitted and approved within 28 days after the CO directs a contract change with schedule impacts Or With proposal for future modification, value engineering proposal, or request or claim for equitable adjustment to the contract when time is requested	A		COR	CDMS	
01 35 20-1	Safety and Health	Safety Program	Submitted and approved within 28 days after task order NTP	A	Y	COR	CDMS	
01 35 20-2	Safety and Health	Job Hazard Analysis List	Submitted and approved within 28 days after task order NTP	A		COR	CDMS	
01 35 20-3	Safety and Health	Asbestos Personnel Protection Plan	Submitted and approved within 28 days after task order NTP	A		COR	CDMS	
01 35 20-4	Safety and Health	Regulated Metals in Coatings Personnel Protection Plan	Submitted and approved within 28 days after task order NTP	A		COR	CDMS	
01 35 20-5	Safety and Health	Asbestos Working Level Test Results	Submitted within 7 days of testing	I		COR	CDMS	
01 35 20-6	Safety and Health	Asbestos Post-Construction Test Results	Submitted within 7 days of testing	I		COR	CDMS	

Table 01 33 00A - List of Submittals

* Submittal Types: A - Approval, I – Information
** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 35 20-7	Safety and Health	Regulated Carcinogenic Coatings Personnel Protection Plan	Submitted and approved within 28 days after task order NTP	A		COR	CDMS	
01 35 20-8	Safety and Health	Monthly Accident Summary Report	Submitted within 28 days of the start of on-site work and monthly thereafter	I		COR	CDMS	
01 35 20-9	Safety and Health	Documentation and Records	Submitted at least 28 days before start of on-site work	I		COR	CDMS	
01 35 30-1	Contractor's Onsite Safety Personnel	Qualifications	Submitted and approved at least 28 days before start of on-site work	A		COR	CDMS	
01 35 30-2	Contractor's Onsite Safety Personnel	Safety Inspection Reports	Submitted within 7 days after inspection	I		COR	CDMS	
01 32 30-3	Contractor's Onsite Safety Personnel	CIH Reports	Submitted within 7 days after inspection	I		COR	CDMS	
01 46 00-1	Quality Procedures	Contractor Quality Control Plan	Submitted and approved at least 28 days before start of on-site work	A		COR	CDMS	
01 46 00-2	Quality Procedures	Contractor's Daily Reports	Submitted within the following workday	I		COR	CDMS	
01 54 20-1	Use of Government Crane	Use of Crane Request	Submitted and approved at least 4 days before crane is used	A		COR	CDMS	
01 54 23-1	Temporary Scaffolding and Platforms	Scaffolding Approval Data	Submitted and approved at least 28 days before starting scaffolding erection	A	Y	COR	CDMS	
01 54 23-2	Temporary Scaffolding and Platforms	Scaffolding Plan	Submitted and approved at least 28 days before start of on-site work	A		COR	CDMS	
01 64 40-1	Government-Furnished Equipment	Shortage Report	Submitted within 24 hours after joint inspection	A		COR	CDMS	
01 64 41-1	Government-Furnished Draft Tube Platforms	Shortage Report	Submitted within 24 hours after joint inspection	A		COR	CDMS	

Table 01 33 00A - List of Submittals

* Submittal Types: A - Approval, I – Information
** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 64 41-2	Government-Furnished Draft Tube Platforms	Load Test Certificate	Submitted within 24 hours after successful completion of draft tube platform load test	I		COR	CDMS	
01 64 41-3	Government-Furnished Draft Tube Platforms	Installation Certificate	Submitted within 24 hours after successful service ready installation of the draft tube platform	I		COR	CDMS	
01 74 00-1	Cleaning and Waste Management	Waste Production and Disposal Plan	Submitted and approved at least 28 days before starting onsite work	A	Y	COR	CDMS	
01 74 00-2	Cleaning and Waste Management	Waste Production and Disposal Records	Submitted within 7 days of waste disposal	I		COR	CDMS	
01 74 00-3	Cleaning and Waste Management	Environmental Consultant Resume	Submitted and approved at least 35 days before beginning site assessment	A		COR	CDMS	
02 82 10-1	Asbestos Containing Materials Survey	Qualifications	Submitted and approved at least 35 days before start of asbestos removal work	A		COR	CDMS	
02 82 10-2	Asbestos Containing Materials Survey	Asbestos Survey Report	Submitted within 7 days of completed survey	I		COR	CDMS	
02 82 20-1	Removal and Disposal of Asbestos Containing Materials	Resumes, Certificates, and Qualifications	Submitted and approved at least 35 days before start of asbestos removal work	A		COR	CDMS	
02 82 20-2	Removal and Disposal of Asbestos Containing Materials	Asbestos Hazard Abatement Plan	Submitted and approved at least 35 days before start of asbestos removal work	A		COR	CDMS	
02 82 20-3	Removal and Disposal of Asbestos Containing Materials	Certificate of Disposal	Submitted within 14 days of disposal	I		COR	CDMS	

Table 01 33 00A - List of Submittals

* Submittal Types: A - Approval, I – Information
** Y indicates Yes, the submittal is required to be shown on the Schedule – see Section 01 32 10 – Construction Program
*** CO indicates Contracting Officer, COR indicates Contracting Officer Representative, and CDMS indicates Contract Document Management System.

RSN	Clause or Section Title	Submittals required	Due date or delivery time	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
05 50 00-1	Metal Fabrications	Material Test Reports	Submitted and approved at least 28 days before the start of weld repairs	A		COR	CDMS	
05 50 00-2	Metal Fabrications	Weld Procedure Specifications	Submitted and approved at least 28 days before the start of weld repairs	A	Y	COR	CDMS	
05 50 00-3	Metal Fabrications	Weld Material Certifications	Submitted and approved at least 28 days before the start of weld repairs	A		COR	CDMS	
05 50 00-4	Metal Fabrications	Qualification Records	Submitted and approved at least 28 days before the start of weld repairs	A	Y	COR	CDMS	
09 96 20-1	Coatings	Approval Data	Submitted and approved at least 28 days before start of coating section work	A		COR	CDMS	
09 96 20-2	Coatings	Final Approval Data	Submitted and approved at least 28 days before start of coating section work	A		COR	CDMS	
09 96 20-3	Coatings	Qualifications	Submitted and approved at least 28 days before start of coating section work	A		COR	CDMS	
09 96 20-4	Coatings	Quality Control Plan	Submitted and approved at least 28 days before start of coating section work	A		COR	CDMS	
09 96 20-5	Coatings	Contractor Quality Testing Report	Submitted within 24 hours after a day of coating work	A		COR	CDMS	
48 13 13-1	Turbine Repair	Secondary Assessment – Runner	Submitted within 24 hours after discovery of damage	A		COR	CDMS	
48 13 13-2	Turbine Repair	Secondary Assessment – Discharge Ring	Submitted within 24 hours after discovery of damage	A		COR	CDMS	
48 13 13-3	Turbine Repair	Secondary Assessment – Stay Vanes	Submitted within 24 hours after discovery of damage	A		COR	CDMS	
48 13 13-4	Turbine Repair	Verification Inspection Report	Submitted within 7 days after passing inspection	A		COR	CDMS	

END OF SECTION

SECTION 01 35 20
SAFETY AND HEALTH

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work.

1.02 DEFINITIONS

A. Asbestos: 29 CFR 1926.1101.

B. CIH: Certified Industrial Hygienist.

C. Coal Tar: a viscous substance obtained by the destructive distillation of coal and containing levels of polycyclic aromatic hydrocarbons in excess of ten thousand milligrams per kilogram.

D. Coatings containing Regulated Metals:

1. May be present in quantities that waste generated from removal operations may be a health hazard to employees. Other contaminates may be present.
2. Metals and compounds are not expected, but may be present in aging paint and coating systems:
   a. Arsenic: 29 CFR 1926.1118.
   b. Cadmium: 29 CFR 1926.1127.
   c. Chromium: 29 CFR 1926.1126
   d. Lead: 29 CFR 1926.6

E. Competent Person:

1. 29 CFR 1926.32: Definitions.
2. 29 CFR 1926.62: Lead.
3. 29 CFR 1926.1101: Asbestos.
4. 29 CFR 1926.1118: Arsenic.
5. 29 CFR 1926.1127: Cadmium.

F. MAP: EPA Asbestos Model Accreditation Program, defined in 40 CFR 763.

G. NIOSH: National Institute of Occupational Safety and Health.

H. NLLAP: National Lead Laboratory Accreditation Program.

I. NVLAP: National Voluntary Laboratory Accreditation Program.

J. PAH: Polyaromatic Hydrocarbons

K. PFT: Pulmonary Function Tests.

L. PLM: Polarized Light Microscopy.

M. PPE: Personal Protective Equipment.

N. Regulated Area: See 29 CFR 1926.1101.

O. SVOC: Semi Volatile Organic Carbons

P. TSP: Total Suspended Particulates.

Q. VOC: Volatile Organic Carbons

R. WAC: Washington Administrative Code

1.03 REFERENCE STANDARDS

A. American Conference of Governmental Industrial Hygienists (ACGIH)

1. Threshold Limit Values (TLVs) Available at www.acgih.org

B. Applicable Tribal and State Safety and Health Regulations for Construction.

C. ASTM International (ASTM)

1.	ASTM D6480-19	Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy
2.	ASTM D6966-18	Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals
3.	ASTM D7035-16	Determination of Metals and Metalloids in Airborne Particulate Matter by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)
4.	ASTM E1368-14	Visual Inspection of Asbestos Abatement Projects

D. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards including revisions posted at https://www.usbr.gov/safety/rshs/index.html
2.	FIST 1-1	Hazardous Energy Control Program available at: www.usbr.gov/power/data/fist_pub.html

E. Code of Federal Regulations (CFR)

1.	29 CFR 1926.32	Definitions, Construction
2.	29 CFR 1926.55	Gases, vapors, fumes, dusts, and mists
3.	29 CFR 1926.62	Lead
4.	29 CFR 1926.103	Respiratory Protection
5.	29 CFR 1926.1101	Asbestos
6.	29 CFR 1926.1118	Inorganic Arsenic
7.	29 CFR 1926.1127	Cadmium]
8.	40 CFR 763	Asbestos

F. Washington Administrative Code (WAC)

1.	WAC 296-800	Safety and Health Core Rules

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 35 20-1, Safety Program:

1. Written safety program in accordance with RSHS.
2. Cover aspects of on-site and applicable off-site operations and activities associated with this contract.
3. Follow the outline in Appendix 1.03-C of RSHS.
4. Will not be accepted for review by the COR unless it addresses, in order, lettered and numbered per Appendix 1.03-C, a narrative for each applicable item in the outline. For items in the outline that do not apply to this contract write "Not applicable to Contract" next to the number/letter.
5. A generic company safety program is not acceptable. Safety Program shall be site specific for this contract.
6. Submitted and accepted prior to commencing onsite work, including mobilization.

C. RSN 01 35 20-2, Job Hazard Analysis List:

1. Provide a list of JHA's that shall be submitted throughout the project.

D. RSN 01 35 20-3, Asbestos Personnel Protection Plan:

1. In accordance with 29 CFR 1926.1101.
2. Reviewed and signed by Competent Person.
3. Include:
   a. Compliance Program for Worker Protection:
      1) Respirator program as required by 29 CFR 1926.103 and 29 CFR 1926.1101.
      2) PFT for respirator usage: Record of diagnostic test and examination by a Board Eligible or Certified Occupational Medicine Physician.
      3) Manufacturers' data for safety and health equipment used in work. Include name, model, capacity, performance characteristics and other pertinent information:
         a) Respirators.
         b) Air Monitoring equipment.
         c) PPE.
   b. Employee Exposure Monitoring Plan:
      1) Monitoring airborne asbestos.
      2) Decontamination of contaminated areas and surfaces.
   c. Clearance testing.

E. RSN 01 35 20-4, Regulated Metals in Coatings Personnel Protection Plan:

1. Worker Protection Compliance Program:
   a. Include information required by 29 CFR 1926.62.
   b. Prepared by the Competent Person.
   c. Exposure Certifications and Test Results:
      1) Employee training certifications: Indicate employee training in hazardous materials and communication with an emphasis on Regulated Metals, respiratory protection, and PPE.
      2) Medical clearance to wear a respirator by a physician or licensed health care professional.
2. Employee Exposure Monitoring Plan:
   a. Plan for monitoring regulated metal levels from employee exposure personal monitors.
   b. Signed by CIH.

F. RSN 01 35 20-5, Asbestos Working Level Test Results:

1. Applicable when asbestos survey determines ACM will be disturbed as part of the work. See Section 02 82 10 – Asbestos Containing Materials Survey.
2. Personal Employee exposure and area monitoring results by personal employee exposure monitors.
3. Compare with preconstruction and during construction test results for increased contaminant levels.
4. Pressure differential recordings for containment area if used.
5. Map indicating location of each sample.
6. Quality control information to supplement analytical data. From blanks, laboratory control samples with percent recovery, duplicates, matrix spike samples with percent recovery, and other appropriate quality control measures.

G. RSN 01 35 20-6, Asbestos Post-Construction Test Results:

1. Applicable when asbestos survey determines ACM will be disturbed as part of the work. See Section 02 82 10 – Asbestos Containing Materials Survey.
2. Personal Employee exposure and area monitoring results by personal employee exposure monitors.
3. Compare with preconstruction and during construction test results for increased contaminant levels.
4. Map indicating location of each sample.
5. Quality control information to supplement analytical data. From blanks, laboratory control samples with percent recovery, duplicates, matrix spike samples with percent recovery, and other appropriate quality control measures.

H. RSN 01 35 20-7, Regulated Carcinogenic Coatings Personnel Protection Plan:

1. Personal Employee exposure and area monitoring plan for PAHs, VOCs and particulates in coatings. Monitor results by personal employee exposure monitors.
2. Chemical hazards and health risks introduced with coal tar, PAHs, and associated VOCs and SVOCs.
3. Include exposure controls including administrative controls, engineering controls, and PPE requirements.

I. RSN 01 35 20-8, Monthly Accident Summary Report:

1. In accordance with RSHS.

J. RSN 01 35 20-9, Documentation and Records:

1. Submit documentation of medical qualifications less than 12 months old for all respirator users at the site for work not covered above.
2. Submit results of fit tests less than 12 months old for all users of tight-fitting negative pressure respirators at the site for work not covered above.

1.05 DOCUMENTATION AND RECORDS

A. Prepare and retain safety plans, programs, training content, and training records that are applicable to the scope of the work and make them available to the COR unless they are already included in the written safety program. Some examples include but are not limited to:

1. Asbestos Exposure Assessment and Training Records.
2. Asphalt Coatings (Coal Tar) Removal and Training Records.
3. Benzene Written Program and Training Records.
4. Cadmium Written Compliance Program and Training Records.
5. Chromium VI Training Records.
6. Confined Space and when deemed necessary by existing and introduced hazards of Permit Required Confined Space through the Written Program and Training Records.
7. Forklifts and Other Industrial Trucks Training Records.
8. Electrical Safety Requirement Training Records.
9. Emergency Action Plans Written Program and Training Records.
10. Fall Protection Written Program and Training Records.
11. Fire Protection and Prevention Written Program and Training Records.
12. Flammable and Combustible Liquids Written Spill Control Plan.
13. General Safety and Health Provisions, Written Safety Program, and Regular Safety Inspection Records.
14. Hazard Communication Written Program and Training Records.
15. Inorganic Arsenic Training Records, if applicable.
16. Ladder Written Compliance Program and Training Records.
17. Lead Written Program and Training Records.
18. Lockout/Tagout: Refer to RSHS Section 15 Hazardous Energy Control Program (HECP) Training Records.
19. Bloodborne Pathogens Exposure Control Plan, Training Records.
20. Methylenedianiline Training Records, if applicable.
21. Occupational Noise Exposure Written Program and Training Audiometric Testing Records.
22. Personal Protective Equipment (PPE) Hazard Assessments and Training Records.
23. Power Operated Hand Tools Training Records.
24. Respiratory Protection Written Program and Training Records.
25. Safety Training and Education Written Program and Training Records.

26. Scaffolds Training Records.
27. Steel Erection Training Records, if applicable.
28. Welding, Cutting, and Brazing Written Program and Training Records.

1.06 SAFETY AND HEALTH

A. Provide and maintain a work environment and procedures that:
   1. Safeguard the public and Government's personnel, and Contractor employees exposed to Contractor operations and activities.
   2. Avoid interruptions of site operations and delays in project completion dates.
   3. Control costs in contract performance.

B. Do not begin on site work, including mobilization, until the COR accepts the Safety Program.

C. Participate in Contractor Safety Program Review meeting prior to mobilization.

D. Minimum work crew shall consist of no less than two (2) people, unless approved by COR.

E. Develop Job Hazard Analyses for each distinct phase of work under the contract:
   1. Do not begin a phase of work until a JHA is acceptable to COR and shared with construction employees.
   2. Activities involving hazardous materials shall have the appropriate Safety Data Sheet(s) attached to the JHA.

F. Comply with RSHS, 29 CFR 1910, 29 CFR 1926, WAC 296-800, FAR 52.236-13:
   1. RSHS is available online at no charge with the link provided above.
   2. Construction Safety and Health Standards promulgated by the Secretary of Labor may be obtained from any regional or area office of the Occupational Safety and Health Administration of the U.S. Department of Labor.

G. Comply with Grand Coulee Power Office Safety and Health Program:
   1. Grand Coulee Power Office Safety and Health Program listed below is made a part of Section L - Attachments:
      a. Hazard Communication and GHS Program, 4-2.
      b. Hazardous Waste Management Plan.

H. Correct safety and health violations identified by the CO or the COR.

I. When the Contractor fails or refuses to correct a compliance directive, the CO may issue an order to stop all or part of the work:

1. When satisfactory corrective action is taken, an order to resume work will be issued.
2. No extension of time or claim for damage or additional compensation by reason of either the directive or stop work order is allowed.
3. Failure of the CO to order discontinuance of the Contractor's operations shall not relieve the Contractor of responsibility for the safety of personnel and property.

J. Maintain accurate record of and report to the CO the following occurrences during performance of this contract:

1. Death.
2. Occupational disease.
3. Traumatic injury to employees or the public.
4. Property damage in excess of $2,500.

K. The rights and remedies of the Government provided in this section are in addition to any other rights and remedies provided by law or under this contract:

1. In the event there is a conflict between requirements contained in RSHS, specification paragraphs, Contractor's approved Safety Program, referenced safety and health codes and standards, or the U.S. Department of Labor Construction Safety and Health Standards, promulgated under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.), as amended, the more stringent requirement shall prevail.

L. Provide appropriate safety barricades, signs, and warnings. Display OSHA compliant signage for asbestos, carcinogen, and lead hazards if hazards are present.

M. Provide first aid and emergency assistance in a timely manner consistent with recognized emergency protocols.

N. In instances where local emergency responders are not readily available, the responsibility to provide emergency services shall default back to the Contractor.

O. Perform all training as required by federal, state, and local regulations prior to any activity that requires it:

1. Training records shall be submitted to the COR upon request.
2. In no case shall an employee perform work until all required training is complete.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

3.01 AIR QUALITY MONITORING BY EMPLOYEE EXPOSURE PERSONNEL MONITORS

A. Perform employee exposure monitoring to determine exposure to Regulated Metals in accordance with NIOSH or OSHA analytical sampling methods.

B. Not to exceed emissions limit standards in:

1. 29 CFR 1926.55.
2. 29 CFR 1926.62.
3. 29 CFR 1926.1118.
4. 29 CFR 1926.1127.

C. At the same time that employee exposure monitoring is done, monitor airborne contaminants at Regulated Area boundary.

D. If emissions exceed specified maximum allowable concentrations, stop work until containment system meets required standards.

END OF SECTION

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SECTION 01 35 30
CONTRACTOR'S ONSITE SAFETY PERSONNEL

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work.

1.02 DEFINITIONS

A. ABIH: American Board of Industrial Hygiene.

B. Asbestos MAP: Asbestos Model Accreditation Plan.

1.03 REFERENCE STANDARDS

A. ASTM International (ASTM)

1.	ASTM E1368-00	Visual Inspection of Asbestos Abatement Projects

B. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards, including revisions posted at https://www.usbr.gov/safety/rshs/index.html

C. Code of Federal Regulations (CFR)

1.	29 CFR Part 1926.32	Definitions
2.	29 CFR Part 1926.1101	Asbestos

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 35 30-1, Qualifications:

1. Part-time Onsite Safety and Health Professional.
2. Certified Industrial Hygienist (CIH).
   a. Asbestos Contractor/Supervisor's course completion certificate, current certificate for refresher training, state license, as applicable.
   b. Copy of current ABIH certificate.
3. Competent Person.

4. Independent testing laboratory:
   a. NLLAP laboratory accreditation number.
   b. NVLAP laboratory accreditation number.
   c. Name, address, and telephone number.

C. RSN 01 35 30-2, Safety Inspection Reports:
1. Prepare detailed weekly safety inspection reports listing noted deficiencies, digital photos, abatement dates and follow-up action for all jobsite activities.
2. Inspection report shall include findings of jobsite walk-through with Government representative.

D. 01 35 30-3, CIH Reports:
1. Detailed monthly summary report for all asbestos related activities.
   a. Summary of exposure monitoring results and sampling activities and interpretation of the data to confirm that the work is being performed in accordance with the approved plans.
2. Detailed monthly summary report for all coatings removal and application activities.
   a. Summary of exposure monitoring results and sampling activities and interpretation of the data to confirm that the work is being performed in accordance with the approved plans.
3. Detailed monthly summary report for any hazardous agents related to work activities.
   a. Summary of exposure monitoring results and sampling activities and interpretation of the data to confirm the work is being performed in accordance with the submitted approval plans.
4. Include noted deficiencies, digital photos, abatement dates and follow-up action.
5. Submit written report to COR within 7 days of the inspection.

1.05 QUALIFICATIONS

A. Contractor's Onsite Safety Representative:
1. Competent supervisory employee with current safety and health related training, experience and duties on at least three projects of similar nature, size, complexity, and work to be performed as the current project
2. OSHA Construction 30-Hour Training Course including applicable elective subjects, for example Confined Space Entry; Cranes, Derricks, Hoists, Elevators, and Conveyors; Ergonomics; Excavations; Fire Protection and Prevention; Materials Handling, Storage, Use and Disposal; Rollover Protective Structures and Overhead Protection; and Signs; Signals and Barricades; Powered Industrial

Vehicles; Safety and Health Programs; Scaffolds; Tools - Hand and Power; Welding and Cutting. Current first aid CPR certification.

3. Include resume with current telephone numbers of references, description of safety representative responsibilities, and copies of training certifications.

B. Contractor's Part-time Onsite Safety and Health Professional:

1. The Contractor shall identify a part-time Safety and Health Professional that is acceptable to Reclamation. The safety professional shall visit the site a minimum of one time per week.

2. Include resume with current telephone numbers of references, description of safety professional responsibilities on similar construction projects, and copies of training certifications and registration.

3. The individual shall be qualified by virtue of education, training, certification, and experience in which professional status in the construction safety field has been established.

4. Meeting the requirements training and experience requirements of Article 1.05A and:

a. Possessing at least a 4-year Bachelor's Degree from an accredited college or university in:

1) Safety Engineering.

2) Safety and Occupational Health.

b. Knowledgeable of current safety trends, industry practices, and can exercise technical expertise.

C. Certified Industrial Hygienist (CIH):

1. The Contractor shall identify an individual meeting the following requirements:

a. Certified by the American Board of Industrial Hygiene.

b. Trained in recognizing complex safety, occupational health, and environmental issues.

c. Knowledgeable of current safety trends, industry practices, and can exercise technical expertise.

d. Demonstrates professional level knowledge of exposure hazards associated with the specific construction activities and can provide best practices on mitigation and/or controls.

2. Include resume, description of CIH responsibilities on similar construction projects and copies of training certifications of the individual proposed as the onsite CIH.

3. For hazardous Materials work, CIH shall be independent from the Contractor.

D. Competent Person:

1. Accredited under State of Washington Asbestos MAP.
2. As defined in 29 CFR 1926.32 and 29 CFR Part 1926.1101.
3. Qualified to perform visual inspections per ASTM E1368.
4. Capable of identifying existing asbestos hazards and selecting appropriate control strategy.
5. Authority to take prompt corrective measures to eliminate hazards
6. EPA Asbestos MAP "Contractor/ Supervisor" Training.
7. On jobsite during asbestos abatement activity.
8. Duties can be performed by CIH, if qualified.

1.06 APPLICATION

A. Designate an employee as the Contractor's Onsite Safety Representative prior to start of construction, and employ Safety Professional for part-time on the job.

1. Safety Professional requirements may be met by retaining appropriate level of services of an acceptable safety consultant.

B. Contractor's Onsite Safety Representative Authorities, Duties, and Responsibilities:

1. Responsible for effectively implementing the Contractor's Safety Program.
2. The Safety Representative shall coordinate all emergency response activities.
3. Recommend controls for observed hazards or predicted hazards.
4. Full authorization to correct unsafe acts on the spot, including the authority to stop work to correct safety and health problems.
5. Lead weekly safety meetings at the jobsite.
6. Onsite, during any and all construction activities.
7. Assemble, review, and sign each Job Hazard Analysis (JHA).
   a. Review of JHA with employees.
8. Verify the correct use of respiratory protection and personal protective equipment.
9. Conduct and prepare weekly safety inspections in conjunction with the onsite government representative listing noted deficiencies, their abatement dates, follow up action. The report shall be available for review onsite.
10. Provide direct oversight and assemble a detailed report of all incident reviews, near-misses, accidents, and emergency response or rescue actions.
11. The Onsite Safety Representative may have other non-safety duties.

C. Contractor's Part-time Onsite Safety and Health Professional Authorities, Duties, and Responsibilities

1. The Onsite Safety and Health Professional's job shall be hazard recognition, control and accident prevention.
2. Shall NOT be supervised by the onsite superintendent, but shall report directly to the corporate manager/owner.
3. Provide guidance and oversite to Contractor's Onsite Safety Representative
4. Shall have full authorization to correct unsafe acts on the spot, including the authority to stop work to correct safety and health problems.
5. Shall visit the site weekly and inspect the site with a Government representative listing noted deficiencies, their abatement dates, and follow up action. The report shall be available for review onsite.
6. Shall participate in the planning and preparation of all activities including but not limited to:
    a. Development and approval of JHA.
    b. Review of equipment and materials.
    c. Employee training.
    d. Observing and reporting on activities.
7. Shall participate in the planning, preparation and execution of high exposure activities.
8. Duties include, but are not limited to the following:
    a. Before start of construction, identify existing and predictable unsanitary, hazardous, or dangerous conditions.
    b. Approve the site-specific Contractor safety and health plans and program prior to submission.
    c. Coordinating all elements contained in the Contractor safety and health program and these specifications, including safety training.
    d. May act as the qualified person for designing fall protection, excavation and scaffolding systems in accordance with the regulatory standards.
    e. Assemble, review and sign each Job Hazard Analysis (JHA).
    f. Review and finalize all incident reviews, near-misses and accident reports in accordance with RSHS.
    g. Conduct, prepare, and submit weekly safety inspections in conjunction with the onsite government representative listing noted deficiencies, their abatement dates, and follow up action. The report shall be available for review onsite.
    h. Attend the Safety Program Review Meeting and Conduct the monthly Joint Safety Policy Meetings in accordance with the RSHS Section 3.

D. Certified Industrial Hygienist (CIH) Duties:

1. CIH duties include, but are not limited to:

   a. Establish work place exposure assessments in accordance with federal, state, and local regulations and standard industrial hygiene practices to ensure personnel exposures are below regulated levels.

   b. Review and sign the Asbestos Hazard Abatement Plan, Emissions Monitoring, Waste Characterization, Handling, and Disposal Plans prior to submission.

   c. Conduct and/or review and sign all asbestos pre-abatement test results, working level test results, post-abatement test results, and clean-up monitoring in accordance with the submitted plans.

   d. Visit the site during start-up of asbestos removal activities and a minimum of one time per week during all asbestos clean-up and removal activities to confirm that the work is being performed in accordance with the submitted plans.

   e. Conduct final asbestos clearance sampling and submit sample data to the COR prior to asbestos containment removal.

   f. Review and sign the Written Compliance Program for Worker Protection, Containment System Plan, Emissions Monitoring Plan, Waste Characterization, Handling, and Disposal Plan, Heavy Metal Exposure Certifications and Test Results, Working Level Test Results, Post-Construction Test Results, and Certificate of disposal.

   g. Conduct and/or coordinate and review and sign all coatings background sampling, surface sampling, waste stream sampling, personal exposure monitoring, area air monitoring, peripheral air monitoring, and clean up monitoring.

   h. Visit the site during start-up of coating removal and application activities and a minimum of one time per week during all coating removal and application activities to confirm that the work is being performed in accordance with the submitted plans.

   i. Conduct functional testing of engineering controls, critical barriers, containments and secondary containments.

   j. Full authorization to correct unsafe acts, stop work, prevent exposures, control contamination, engineering controls and containment failures.

   k. Exposure assessments to select or verify personal protective equipment or respiratory protection inside and outside containments.

   l. Submit detailed monthly CIH inspection reports in accordance with RSN 01 35 30-3.

   m. Attend the Safety Program Review Meeting in accordance with the RSHS Section 3.

n. Assist Onsite Supervisor in implementing Hazardous Materials safety and health requirements during the performance of the required work.

o. Available for emergencies.

p. MAP Contractor/ Supervisor training.

q. Direct air monitoring.

E. Competent Person:

1. Duties include, but are not limited to:

a. Control entry to and from the Regulated Area.

b. Ensure engineering controls in use are in proper operating condition and are functioning properly.

c. Assure employees wear appropriate PPE, are trained in the use of appropriate methods for exposure control, use proper hygiene methods and decontamination procedures.

d. Supervise employee exposure monitoring required by 29 CFR 1926.1101.

e. Responsible for compliance with Federal, state and local regulations and RSN 01 35 20-3 Asbestos Personnel Protection Plan.

f. Review and sign the Asbestos Personnel Protection Plan.

1.07 QUALITY ASSURANCE

A. Contractor's Onsite Safety Representative:

1. The effectiveness of the Contractor's Onsite Safety Representative in prosecuting the safety program will be subject to continued review and approval by the COR.

2. Should the Contractor's onsite safety representative's effort be deemed insufficient the Contractor may be required to provide the services of a qualified, full-time safety and health professional at no additional cost to the Government.

B. Contractor's Part-time Onsite Safety and Health Professional:

1. The effectiveness of the Contractor's Onsite Safety Professional in prosecuting the safety program will be subject to continued review and approval by the COR.

2. Should the Contractor's part-time safety professional effort be deemed insufficient the Contractor may be required to provide the services of a qualified, full-time Safety and Health Professional at no additional cost to the Government.

C. Certified Industrial Hygienist (CIH):

1. The effectiveness of the Contractor's Onsite CIH in prosecuting the asbestos and coatings activities will be subject to continued review and approval by the COR.

2. Should the Contractor's CIH effort be deemed insufficient the Contractor may be required to provide the services of a qualified, full-time CIH during all coatings and asbestos related activities at no additional cost to the Government.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

END OF SECTION

SECTION 01 46 00
QUALITY PROCEDURES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedule for other items of work.

1.02 DEFINITIONS

A. Government Contract Quality Assurance: (from FAR 46.101) Various functions, including inspection, performed by the Government to determine whether a contractor has fulfilled the contract obligations pertaining to quality and quantity.

B. Contractor Quality Assurance / Quality Control (QA/QC): Activities performed by the Contractor to ensure work conforms to contract requirements.

1. The clause at FAR 52.246-12, Inspection of Construction, requires the Contractor to establish an inspection system to ensure quality.
2. Contractor QA/QC includes activities in addition to specified Contractor Quality Testing to ensure work conforms to contract requirements.

C. Contractor Quality Testing: Specified tests shall be performed by the Contractor and where required by the third-party Verification Inspector.

1. The Government will evaluate results of these tests when determining acceptability of work.
2. The Contractor may use the test results as part of Contractor QA/QC.
   a. The Government anticipates that these tests will be part of the Contractor's QA/QC program; however, the tests do not relieve the Contractor of maintaining adequate quality system in accordance with the clause at FAR 52.246-12, Inspection of Construction.

D. Quality Control Representative (QCR): Contractor's designated employee authorized to verify and enforce Contractor's quality control procedures:

1. Weld inspector qualification in accordance with AWS D1.1.

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 46 00-1, Contractor Quality Control Plan:

1. Narrative description of contractor's quality control procedures including, but not limited to:
   a. Designated QCR.
   b. Frequency and types of quality testing.
2. QCR:
   a. Resume.
   b. Certification.

C. RSN 01 46 00-2, Contractor's Daily Reports:

1. As a minimum, the Contractor's Daily Report shall include the following information:
   a. The report shall include a record of the contractor's activities throughout the shift regardless of how minor or complex. The report is to be started at the beginning of the shift, written during the shift, and completed at the end of the shift and include any information pertinent to the report. The finished report shall be prepared in such detail that a person not familiar with the day's work could determine what was done and could calculate the contractor's direct cost for that day. The report shall state specific safety violations noted during the shift including actions taken, including names of people involved in the infraction and who corrected it. In addition, the report shall document significant discussions held between Reclamation and contractor personnel or other parties involved with the project.
   b. The main body of the report shall contain the location and a detailed description of all work, and sketches or photographs where appropriate to assist with the description. This description shall reflect what, where, when, why, who, and how the work was being performed. The report shall provide a record of quantities installed, specific stations and locations of the work. The report shall show labor classification and equipment operated during the shift, work the labor force and equipment is performing, and the period of time labor and equipment is performing. Equipment that is idle or being repaired shall be noted.
   c. The report shall provide a record of:
      1) Pounds of weld filler metal type deposited for repairs.
      2) Hours of hydraulic profile grinding per worker performing the hydraulic profile grinding.
      3) Quality tests performed and results.
   d. Separately attached meeting minutes from Quality Control Plan phase meetings.
2. The report shall contain a list of materials and equipment delivered to the job, what materials were installed, and any materials that were refused or wasted

during the shift. Other items to be reported include changes in site conditions, modifications in design and installation, photographs taken, environmental compliance or noncompliance, hazardous waste and materials concerns, worker complaints, and potential problems observed.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 QUALITY CONTROL

A. Contractor Quality Control Plan shall be based upon definable features of work and include three phases for each feature:

a. Preparatory Phase:

1) Performed prior to the beginning of work and as detailed below:

a) Check to ensure that all materials and equipment have been tested, submitted, and approved.

b) Check to ensure that provisions have been made to provide required control inspection and testing.

c) Examination of the work area to ensure that all required preliminary work has been completed.

d) Physical examination of required materials and equipment to ensure that they are on hand and conform to the submitted data.

e) Review of appropriate job hazard analysis.

f) Discussion of procedures for performing the work including the review of the Government's initial assessment form.

g) Arrange for quality control testing if required.

2) Shall include a "Preparatory Meeting" conducted by the QCR and shall be attended by the Safety Representative, third-party Verification Inspector, and the foreman responsible for the definable feature.

a) Results of the preparatory phase actions shall be discussed in the Preparatory Meeting and shall be documented by separate minutes prepared by the QCR and attached to the Contractor's Daily Report.

b. Initial Phase:

1) Accomplished at the beginning of a definable feature of work.

2) Verify that control for work developed in the "Preparatory Meeting" is implemented and the work is performed to the level of workmanship required.

3) Performed as detailed below:

a) Review minutes of "Preparatory Meeting."

b) Check preliminary work.

c) Verify adequacy of controls to ensure full contract compliance.

d) Establish levels of workmanship.

e) Resolve all differences.

f) Check safety to include compliance with the safety plan and activity hazard analysis. Review the activity hazard analysis with workers.

4) Shall include an "Initial Phase Meeting" conducted by the QCR and shall be attended by the Safety Representative and the foreman responsible for the definable feature.

a) Results of the initial phase actions shall be discussed in the Initial Phase Meeting and shall be documented by separate minutes prepared by the QCR and attached to the daily Contractor's Daily Report.

5) The initial phase shall be repeated for each new crew on the work site, or at any time established level of workmanship is not being met.

c. Follow-up Phase:

1) Daily checks shall be performed to ensure continuing compliance with contract requirements, including quality testing, until completion of the feature of work.

2) Checks shall be made a matter of record in the Contractor's Quality Control documentation.

3) Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work.

4) Quality control representative shall continually refer to the standards set in the "Preparatory and Initial Phases."

B. Coordinate third-party verification inspections with field work in a timely manner to complete the work. Refer to Verification Inspection in 05 50 00 – Metal Fabrications and 48 13 13 – Turbine Repair.

C. Provide adequate access, lighting, and safety equipment needed by inspection personnel.

D. Submit Contractor's Daily Report no later than the end of the following workday.

END OF SECTION

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SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work.

1.02 REFERENCE STANDARDS

A. Institute of Electrical and Electronics Engineers (IEEE)

1. IEEE C2-23 National Electrical Safety Code (NESC)

1.03 PROJECT CONDITIONS

A. Temporary utilities are provided as-is and where-found from the facility with no guarantee of adequate supply to complete the work.

1.04 TEMPORARY ELECTRICITY

A. Electric power from electric service receptacles within the facility will be available for construction purposes:

1. Single phase, 60 hertz, alternating current at approximately 120/240 volts.
2. Three phase, 60 hertz, alternating current at approximately 440 volts:
   a. Provide plugs compatible with facility service receptacles.
3. No charge will be made for power obtained from this source.

B. Provide generators, transmission lines, distribution circuits, transformers, and other electrical equipment and facilities required for obtaining power and distributing power to points of use.

C. Comply with IEEE C2 clearances and spacing for temporary communications and supply lines.

1.05 TEMPORARY WATER

A. Water from service water system within the facility will be available for construction purposes:

1. Government will designate locations from which water may be obtained.
2. No charge will be made for water obtained from this source.

1.06 TEMPORARY COMPRESSED AIR

A. Compressed air from the service air system within the facility will be available for construction purposes:

1. Government will designate locations from which compressed air may be obtained.
2. No charge will be made for compressed air obtained from this source.

1.07 SANITARY FACILITIES

A. Contractor personnel may not use on-site facility restrooms.

B. Provide temporary portable toilets and handwashing facilities for contractor's employees.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 ADEQUACY

A. Provide temporary utilities with adequate supply to complete the work.

3.02 REMOVAL

A. Remove temporary equipment and facilities upon completion of work under this contract.

END OF SECTION

SECTION 01 54 20
USE OF GOVERNMENT CRANE

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include cost in prices bid in the Price Schedules for other items of work.

1.02 SUBMITTALS

A. Submit in accordance with Section 01 33 00 - Submittals.

B. RSN 01 54 20-1, Use of Crane Request.

1.03 REFERENCE STANDARDS

A. American Society of Mechanical Engineers (ASME)

1.	ASME B30.2-2011	Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
2.	ASME B30.26-2010	Rigging Hardware

B. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards, including revisions posted at http://www.usbr.gov/ssle/safety/RSHS/rshs.html

C. Code of Federal Regulations (CFR)

1.	29 CFR 1910.179	Occupational Safety and Health Standards - Overhead and Gantry Cranes

1.04 PROJECT CONDITIONS

A. Government-owned cranes in power plant may be used for:

1. Moving equipment, parts, tools, and supplies through floor hatches between floors.

1.05 CRANE USE

A. Government will provide crane operator. Operation of crane by Contractor personnel is not permitted.

B. Government will provide crane signaler, tag lines, and personnel for directing the load.

C. Safety: Comply with ASME B30.2, RSHS, and 29 CFR 1910.179. Where there is a conflict between the standards, the more stringent shall prevail.

D. Provide slings, shackles, and rigging required for use of crane in accordance with ASME B30.26.

E. Contractor is responsible for proper rigging of equipment, connections to crane, and all rigging equipment below the crane hook required.

1. Comply with ASME B30.2 and 29 CFR 1910.179.

1.06 SCHEDULING

A. Availability: 8:00 AM through 3:30 PM, Monday through Thursday, excluding holidays, lunch, and breaks. Government use of cranes will have priority over Contractor use.

B. Submit request for each use of Government crane to COR at least 4 days before crane is required.

C. Coordinate use of Government cranes with COR during weekly coordination meetings.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 54 23
TEMPORARY SCAFFOLDING AND PLATFORMS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include cost of temporary scaffolding and platforms, as necessary to perform required work, in prices bid in the Price Schedules for other items of work:
2. Include cost of installing and removing Government furnished Draft Tube Platform in prices bid in Price Schedules for corresponding Draft Tube Platform services.

1.02 GENERAL REQUIREMENT

A. Provide temporary scaffolding and platforms as necessary to safely access work areas:

1. Contractor may use Government-furnished equipment, in accordance with Section 01 64 40 – Government-Furnished Equipment.

1.03 REFERENCE STANDARDS

A. American National Standards Institute/American Society of Safety Professionals

1. ANSI/ASSP A10.8-2019 Scaffolding Safety Requirements

B. Bureau of Reclamation (USBR)

1. RSHS Reclamation Safety and Health Standards including revisions posted at https://www.usbr.gov/safety/rshs/index.html

C. Code of Federal Regulations (CFR)

1. 29 CFR 1926 Subpart L Scaffolds

1.04 SUBMITTALS

A. RSN 01 54 23-1, Scaffolding Approval Data:

1. Manufacturer's product assembly and use data.
2. Manufacturer's load rating data.

B. RSN 01 54 23-2, Scaffolding Plan:

1. Narrative describing assembly and disassembly.
2. Inspection checklist.

3. Calculations.

1.05 DESIGN REQUIREMENTS

A. Comply with RSHS.

B. Comply with 29 CFR 1926 Subpart L – Scaffolds.

C. Comply with ANSI/ASSP A10.8-2019.

1.06 EXISTING CONDITIONS

A. Government will perform work to facilitate access, in accordance with Section 01 11 16 – Work by Government.

B. Government will provide equipment, in accordance with Section 01 64 40 – Government-Furnished Equipment and Section 01 64 41 – Government-Furnished Draft Tube Platforms.

PART 2 PRODUCTS

2.01 PLATFORM AND SCAFFOLDING MATERIALS

A. Conforming to ANSI/ASSP A10.8-2019.

PART 3 EXECUTION

3.01 EXAMINATION

A. Conduct a thorough assessment of the site to determine the necessary requirements for scaffolding and platforms.

B. Select design loads based on planned activities and equipment, including anticipated live loads and dynamic loads expected during use.

3.02 INSTALLATION

A. Install scaffolding in accordance with manufacturer's instructions.

B. Ensure that all connections are secure, and that scaffolding is plumb, level, and braced properly.

3.03 MAINTENANCE

A. Conduct regular inspections of scaffolding components, at least weekly.

B. Replace any damaged or worn components immediately.

3.04 DISASSEMBLY

A. Remove scaffolding following the completion of tasks in the area and with approval of COR.

B. Disassemble all components in the reverse order of installation, ensuring safety and structural integrity during removal.

END OF SECTION

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SECTION 01 64 40
GOVERNMENT-FURNISHED EQUIPMENT

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include cost of installing, moving, protecting, and repairing Government-furnished equipment in price bid in the Price Schedules for other items of work:

   a. Draft tube platforms and test stands are excluded from this Section and in accordance with Section 01 64 41 – Government-Furnished Draft Tube Platforms.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 64 40-1, Shortage Report:

1. Written report including:

   a. Shortage in parts with Government-furnished equipment.

   b. Damage to Government-furnished equipment.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Government will deliver and install Government-furnished equipment in individual units, in accordance with Section 01 11 16 – Work by Government.

B. Contractor may transport other Government-furnished equipment from storage and install in individual units when excluded from Section 01 11 16 – Work by Government and in accordance with this Section.

C. All Government-furnished equipment transported by the Contractor from storage shall be returned to storage after completion of the work.

D. Protect Government-furnished equipment from damage during handling.

E. Repair damage, replace components, and otherwise maintain Government-furnished equipment in safe operating condition during handling.

1.04 ACCEPTANCE AT SITE

A. Schedule a joint inspection of Government-furnished equipment with the Government Representative to determine existing condition prior to beginning work. The Contractor

shall be responsible for damage sustained by Government-furnished equipment after this inspection.

B. Submit written report for shortage in parts and damage to equipment observed within 24 hours after inspection.

PART 2 PRODUCTS

2.01 VANE AXIAL FAN

A. Location: top of penstock

B. Function: ventilation of unwatered waterway through partially opened wicket gates and out through opened draft tube doors

C. Quantity: Two per unit. One fan provides sufficient ventilation for most purposes. Second fan functions as a backup and may be operated as needed for additional ventilation.

D. Performance data: 19,850 cubic feet per minute at 1-inch static pressure.

1. Nominal penstock diameter is 35 feet resulting in airflow velocity of approximately 20.5 feet per second.
2. Nominal runner work area volume is 29,530 cubic feet resulting in a single fan providing approximately 40 air volume changes per hour.

2.02 DRAFT TUBE PLATFORMS

A. Excluded from this Section and in accordance with Section 01 64 41 – Government-Furnished Draft Tube Platforms.

2.03 TEST STANDS

A. Excluded from this Section and in accordance with Section 01 64 41 – Government-Furnished Draft Tube Platforms.

2.04 HOOK-AND-WIRE ROPE LADDER

A. Location: along each runner blade.

B. Function: runner blade access.

C. Also called "chicken ladder".

2.05 RUNG LADDER

A. Location: between draft tube platform and runner blade.

B. Function: access from draft tube platform to runner blade.

2.06 CROWN BRACKET

A. Location: on runner blade

B. Function: access to runner crown.

C. Used with individual work platform.

2.07 INDIVIDUAL WORK PLATFORM

A. Location: runner blade

B. Function: access to runner crown.

C. Used with crown bracket.

2.08 WIRE ROPES

A. Location:

1. Around runner blades leading edges.
2. Around the stay vanes leading edges.

B. Function: attachment point for fall protection.

2.09 STRING OF LIGHTS

A. Location: around periphery of stay ring.

2.10 HIGH-INTENSITY LIGHTING

A. Location: around periphery of draft tube.

PART 3 EXECUTION

3.01 INSTALLATION

A. Government will deliver and install Government-furnished equipment in individual units, in accordance with Section 01 11 16 – Work by Government.

B. Install other Government-furnished equipment in the unit in accordance with facility practices.

C. Ensure that all connections are secure, and that Government-furnished equipment is anchored properly.

3.02 MAINTENANCE

A. Protect Government-furnished equipment from damage during use.

B. Conduct regular inspections of Government-furnished equipment components, at least weekly.

C. Repair damage, replace components, and otherwise maintain Government-furnished equipment in safe operating condition during use.

3.03 DISASSEMBLY

A. Government will disassemble and store Government-furnished equipment in individual units, in accordance with Section 01 11 16 – Work by Government.

B. Disassemble other Government-furnished equipment after COR has approved disassembly schedule.

C. Remove other Government-furnished equipment from the unit in accordance with facility practices.

D. Return other Government-furnished equipment to storage.

END OF SECTION

SECTION 01 64 41

GOVERNMENT-FURNISHED DRAFT TUBE PLATFORMS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule B:

   a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

   b. Includes rope access personnel as needed to complete the installation.

B. G19 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule B:

   a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

   b. Includes rope access personnel as needed to complete the removal.

C. G20 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule D:

   a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

   b. Includes rope access personnel as needed to complete the installation.

D. G20 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule D:

   a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

   b. Includes rope access personnel as needed to complete the removal.

E. G21 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule F:

   a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

   b. Includes rope access personnel as needed to complete the installation.

F. G21 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule F:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

b. Includes rope access personnel as needed to complete the removal.

G. G22 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule H:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

b. Includes rope access personnel as needed to complete the installation.

H. G22 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule H:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

b. Includes rope access personnel as needed to complete the removal.

I. G23 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule J:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

b. Includes rope access personnel as needed to complete the installation.

J. G23 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule J:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

b. Includes rope access personnel as needed to complete the removal.

K. G24 Installation of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule L:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage and install in unit draft tube.

b. Includes rope access personnel as needed to complete the installation.

L. G24 Removal of Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule L:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from unit draft tube and return to storage.

b. Includes rope access personnel as needed to complete the removal.

M. Load Testing of G19-G21 Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule M:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage, inspect, assemble, load test, and transport to unit for installation.

N. Load Testing of G22-G24 Draft Tube Platform:

1. Payment: lump sum price bid in the Price Schedule M:

a. Includes labor, fasteners, customary materials, and equipment necessary to remove the draft tube platform from storage, inspect, assemble, load test, and transport to unit for installation.

1.02 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 64 41-1, Shortage Report:

1. Written report including:

a. Shortage in parts with Government-furnished equipment.

b. Damage to Government-furnished equipment.

C. RSN 01 64 41-2, Load Test Certificate:

1. Written certificate documenting the successful completion of the draft tube platform load test.

D. RSN 01 64 41-3, Installation Certificate:

1. Written certificate documenting the service ready installation of the draft tube platform.

1.03 DELIVERY, STORAGE, AND HANDLING

A. When load testing is not required, transport draft tube platform from storage to unit for installation.

B. When load testing is required, transport Government-furnished equipment from storage to load test area for load testing:

1. Storage of draft tube platform is located on lower levels of Washington Power Plant:

a. Washington Power Plant is approximately 370 yards in length.

2. Storage of test stands is located inside the Material Storage Building.

3. Load test area is on concrete pad next to Material Storage Building.

4. Distance between Washington Power Plant and Material Storage Building is approximately 200 yards across an asphalt paved surface.

C. Government-furnished equipment transported by the Contractor from storage shall be returned to storage after completion of the work.

D. Protect Government-furnished equipment from damage during handling.

E. Repair damage, replace components, and otherwise maintain Government-furnished equipment in safe operating condition during handling.

1.04 ACCEPTANCE AT SITE

A. Schedule a joint inspection of Government-furnished equipment with the COR to determine existing condition prior to beginning work. The Contractor shall be responsible for damage sustained by Government-furnished equipment after this inspection.

B. Submit written report for shortage in parts and damage to equipment observed within 24 hours after inspection.

PART 2 PRODUCTS

2.01 DRAFT TUBE PLATFORMS

A. Function: used as a work surface to access the turbine runner for repairs.

B. Quantity: 2:

1. Draft tube platform sized for use in units G19-G21:
   a. Design load: 50 pounds per square foot, or 15,000 pounds at the center.
2. Draft tube platform sized for use in units G22-G24:
   a. Design load: 45 pounds per square foot, or 14,000 pounds at the center.

2.02 TEST STANDS

A. Function: used for suspending either size of draft tube platform for load testing.

B. Quantity: 10.

PART 3 EXECUTION

3.01 LOAD TEST

A. Assemble draft tube platform and test stands in accordance with drawings and facility practices.

B. Ensure that connections are secure and that the draft tube platform is plumb, level, and suspended properly from test stands.

C. Furnish and apply testing weight:

1. From 100 percent to 110 percent of rated load.
2. Evenly distributed on platform surface.
3. Protect platform decking from damage by testing weight.

D. Maintain detailed documentation during testing, including:

1. Test setup and conditions.
2. Measurement data and observations.
3. Any incidents or irregularities that occur during testing.

E. Upon successful completion of load testing, submit a load test certificate stating the draft tube platform has demonstrated its capacity to safely support its rated load.

F. Disassemble draft tube platform and transport to unit for installation.

3.02 INSTALLATION

A. Install the draft tube platform in the unit in accordance with drawings and facility practices:

1. Facility practices include the use of rope access personnel to access the perimeter of the discharge ring from the spiral case through the runner blades to mount 10 lifting eye brackets from which to suspend the platform assembly.

B. Ensure that connections are secure and that the draft tube platform is plumb, level, and anchored properly.

C. Upon successful installation, submit an installation certificate stating the installed draft tube platform is ready for service.

3.03 MAINTENANCE

A. Protect draft tube platform from damage during use.

B. Conduct regular inspections of draft tube platform components, at least weekly.

C. Repair damage, replace components, and otherwise maintain draft tube platform in safe operating condition during use.

D. Do not allow blast media accumulation to exceed the load rating of the draft tube platform. Remove accumulated blast media routinely.

3.04 DISASSEMBLY

A. Remove the draft tube platform from the unit in accordance with drawings and facility practices:

1. Facility practices include the use of rope access personnel to access the perimeter of the discharge ring from the spiral case through the runner blades to remove 10 lifting eye brackets from which the platform assembly is suspended.

B. Return draft tube platform to storage.

END OF SECTION

SECTION 01 74 00
CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices bid in the Price Schedules for other items of work except as specified.
2. Cost of environmental site assessments are the Contractor's responsibility.

1.02 DEFINITIONS

A. Hazardous waste: Defined as hazardous by 40 CFR 261.3; or by other Federal, State, or local laws or regulations.

1.03 REFERENCE STANDARDS

A. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards, including revisions posted at https://www.usbr.gov/safety/rshs/index.html

B. Code of Federal Regulations (CFR)

1.	40 CFR 261.3	Definition of Hazardous Waste
2.	49 CFR 171-179	Transportation - Hazardous Waste Regulations

C. Washington Administrative Code (WAC)

1.	WAC 173-303	Dangerous Waste Regulations

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 01 74 00-1, Waste Production and Disposal Plan:

1. For each type of waste, list estimated quantity and planned disposal location.

C. RSN 01 74 00-2, Waste Production and Disposal Records:

1. For each type of waste, list quantity and disposal location.
2. Include certifications that waste was properly disposed.

3. Hazardous wastes manifests.

D. RSN 01 74 00-3, Environmental Consultant Resume:

1. Describe experience on similar project.
2. EPA ID number.
3. DOT HAZMAT Certification.

1.05 QUALIFICATIONS

A. Environmental consultant: Licensed and certified in the State of Washington for dangerous waste generation, transportation and disposal.

1.06 REGULATORY REQUIREMENTS

A. Comply with Federal, State, and local laws and regulations.

B. Comply with RSHS.

C. Conform to most stringent requirement in cases of conflict between specifications, regulatory requirements, and RSHS.

D. Comply with Grand Coulee Power Office Safety and Health Program:

1. Hazard Communication and GHS Program, 4-2.
2. Hazardous Waste Management Plan.

1.07 PROJECT CONDITIONS

A. Report waste materials discovered at jobsite to COR:

1. Cease work in areas where waste may be hazardous until waste materials are investigated by the Government.
2. If waste is hazardous, the CO may order delays in time of performance and changes in work.
3. If such delays and changes are ordered, an equitable adjustment will be made in the contract in accordance with applicable clauses of the contract.

1.08 RESTRICTIONS

A. Do not discharge anything but clear water into the building drainage system.

B. Do not discharge dust or fumes into the powerhouse ventilating system.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. Keep work and storage areas free from accumulations of waste materials and rubbish.

B. Adhere to designated accumulation areas.

3.02 FINAL CLEANUP

A. Remove temporary plant facilities, buildings, concrete footings and slabs, rubbish, unused materials, concrete forms, and other similar materials which are not part of permanent work.

B. Leave premises "broom clean."

C. Remove temporary labels, stains, and foreign substances.

D. Clean equipment and fixtures to a sanitary condition.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, and drainage systems.

G. Sweep paved areas.

3.03 DISPOSAL

A. Nonhazardous waste materials:

1. Reuse at jobsite or reuse or recycle waste materials removed from jobsite whenever possible.
2. Dispose of materials not reused at jobsite by removal from jobsite.
3. Dispose of nonhazardous waste materials that are not reused or recycled at appropriately permitted disposal facilities.
4. Combustible waste materials: Dispose by removal from jobsite.
5. Noncombustible waste: Dispose by removal from jobsite.
6. Disposal by Removal:
   a. Reuse or recycle waste materials whenever possible.
   b. Dispose of nonhazardous waste materials that are not reused or recycled at appropriately permitted disposal facilities.
7. Do not burn waste materials.
8. Do not bury waste materials.

B. Hazardous Waste Disposal:

1. Follow Grand Coulee Power Office Safety and Health Program. See Section 51 48 13 – Grand Coulee Power Office Safety and Health Program:
   a. Hazardous Waste Management Plan.
2. Dispose by removal from jobsite.
3. Recycle hazardous waste whenever possible.
4. Dispose of hazardous waste materials that are not recycled at appropriately permitted treatment or disposal facilities.
5. Transport hazardous waste in accordance with 49 CFR 171-179.

C. Certification: Certify that wastes are disposed of in accordance with Federal, State, and local regulations.

3.04 SITE ASSESSMENT

A. Upon completion of work, perform site assessment at following areas for work done under these specifications:
   1. Hazardous waste accumulation areas.
   2. Petroleum dispensing and storage areas where aggregate storage of petroleum at jobsite was over 110 gallons.
   3. Hazardous material storage areas.

3.05 RECORDS

A. Submit records of types and amounts of waste materials produced.

B. Submit records and certifications of waste material disposal.

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS

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SECTION 02 82 10
ASBESTOS CONTAINING MATERIALS SURVEY

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule B.

B. G20 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule D.

C. G21 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule F.

D. G22 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule H.

E. G23 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule J.

F. G24 Asbestos Survey:

1. Payment: lump sum price bid in the Price Schedule L.

1.02 DEFINITIONS

A. ACM: Asbestos Containing Material

B. Asbestos: Includes chrysolite, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos.

C. Certified Industrial Hygienists (CIH).

D. Friable: Material that when dry can be crumbled, pulverized, or reduced to powder by hand pressure.

E. PCM: Phase contrast microscopy.

F. PFT: Pulmonary function tests.

G. PLM: Polarized light microscopy.

H. Regulated area: Areas where work around ACM is performed that is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, and debris. Areas on project site where Action Level is exceeded for asbestos levels.

I. TEM: Transmission Electron Microscopy.

J. TSCA: Toxic Substances Control Act.

1.03 REFERENCE STANDARDS

A. ASTM International (ASTM)

1.	ASTM D5755-03	Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading
2.	ASTM D6480-05	Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy
3.	ASTM E1368-05	Visual Inspection of Asbestos Abatement Projects.

B. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards, including revisions posted at http://www.usbr.gov/ssle/safety/RSHS/rshs.html

C. Code of Federal Regulations (CFR)

1.	29 CFR 1910.1001, Appendix G	Asbestos, Substance Technical Information for Asbestos - Nonmandatory
2.	29 CFR 1910.134	Respiratory Protection
3.	29 CFR 1926.103	Respiratory Protection
4.	29 CFR 1926.1101	Asbestos
5.	40 CFR 61, Subpart A	National Emission Standards for Hazardous Air Pollutants, General Provisions
6.	40 CFR 61, Subpart M	National Emission Standards for Hazardous Air Pollutants, National Emissions Standard for Asbestos
7.	40 CFR 61.145 (b)	Standard for Demolition and Renovation, Notification Requirements

8.	40 CFR 61.150	Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations
9.	40 CFR 61.154	Standard for Active Waste Disposal Sites.
10.	40 CFR 61.156	Cross-Reference to Other Asbestos Regulations
11.	40 CFR 262, Subpart B	Standards Applicable to Generators of Hazardous Waste, The Manifest
12.	40 CFR 763	Asbestos
13.	40 CFR 763, Subpart G	Asbestos Abatement Projects
14.	49 CFR 107	Hazardous Materials Program Procedures
15.	49 CFR 171	General Information, Regulations, and Definitions
16.	49 CFR 172	Hazardous Materials Table; Special Provisions, Hazardous Communications, Emergency Response Information, , and Training Requirements
17.	49 CFR 173	Shippers- General Requirements for Shipments and Packaging's

D. Washington Department of Ecology

1. Solid Waste Guidelines WAC 173-303
2. General Regulations for air pollution sources WAC 173-400
3. Conformity of transportation activities to air quality implementation plans WAC 173-420
4. Controls for new sources of toxic air pollutants WAC 173-450
5. Removal and encapsulation of asbestos 296-65 WAC

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 02 82 10-1, Qualifications:

1. Asbestos Inspector:
   a. Copy of current AHERA certification card.
   b. Resume.
2. Independent Testing Laboratory:

a. NVLAP laboratory accreditation number.

b. Name, address, and telephone number.

C. RSN 02 82 10-2, Asbestos Survey Report:

1. Signed by Asbestos Inspector.

1.05 SAFETY AND HEALTH REGULATIONS

A. Comply with 29 CFR 1926.

B. Provide required written reports as required in Plan for approval in accordance with Section 01 35 20 – Safety and Health.

C. Limit employee exposure to asbestos and other airborne contaminants in accordance with 29 CFR 1926.1101.

1.06 PROJECT CONDITIONS

A. Existing materials may contain asbestos. The structures were built prior to 1973 indicating the likely presence of ACM.

1.07 CONTRACTOR'S RESPONSIBILITIES

A. Conduct and document a walkthrough for the asbestos survey area.

B. All waste generation and disposal shall be documented, and records required by Washington Ecology and TSCA shall be maintained by the contractor for a period of no less than 3 consecutive years. The records shall be submitted to Reclamation in accordance with 02 82 20 Removal and Disposal of Asbestos Containing Materials.

1.08 QUALIFICATIONS

A. Independent Testing Laboratory:

1. Proficient in conducting Polarized Light Microscopy (PLM) and accredited by NIST under the NVLAP for asbestos analysis.

2. Proficient in conducting Phase Contrast Microscopy (PCM) of airborne samples using methods specified by 29 CFR 1926.1101, OSHA Method ID-160, the most current version of NIOSH Method 7400.

B. Asbestos Inspector

1. AHERA-certified Building Inspector.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 ASBESTOS SURVEY

A. Perform an Asbestos Survey of stay vane coating for areas where the coating is to be removed during the project:

1. Collect at least 5 bulk samples of stay vane coating at different locations equally spaced around the stay vane structure.
2. Collect additional bulk samples of stay vane coating as deemed appropriate by the Asbestos Inspector and approved by COR.

B. Analyze samples utilizing a NIST accredited laboratory for asbestos.

C. Submit written report complete with sample description and photographs for each sample.

3.02 REPORTABLE RELEASES

A. Notify applicable agencies and COR.

END OF SECTION

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SECTION 02 82 20
REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule B.

B. G20 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule D.

C. G21 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule F.

D. G22 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule H.

E. G23 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule J.

F. G24 Removal and Disposal of Asbestos Containing Materials:
   1. Measurement: square footage of surface with coating removed.
   2. Payment: price per square foot bid in the Price Schedule L.

1.02 DEFINITIONS

A. ACM: Asbestos Containing Material.

B. Asbestos: Includes chrysolite, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos.

C. Certified Industrial Hygienists (CIH).

D. Friable: Material that when dry can be crumbled, pulverized, or reduced to powder by hand pressure.

E. Handling: Includes containment, collection, storage, and transportation.

F. PCM: Phase contrast microscopy.

G. PFT: Pulmonary function tests.

H. PLM: Polarized light microscopy.

I. Regulated area: Areas where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers or debris. Areas on project site where Action Level is exceeded for asbestos levels.

J. TEM: Transmission Electron Microscopy.

1.03 REFERENCE STANDARDS

A. ASTM International (ASTM)

1.	ASTM D5755-03	Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading
2.	ASTM D6480-05	Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy
3.	ASTM E1368-05	Visual Inspection of Asbestos Abatement Projects.

B. Bureau of Reclamation (USBR)

1.	RSHS	Reclamation Safety and Health Standards, including revisions posted at https://www.usbr.gov/safety/rshs/index.html

C. Code of Federal Regulations (CFR)

1.	29 CFR 1910.1001, Appendix G	Asbestos, Substance Technical Information for Asbestos - Nonmandatory
2.	29 CFR 1910.134	Respiratory Protection
3.	29 CFR 1926.103	Respiratory Protection
4.	29 CFR 1926.1101	Asbestos

5.	40 CFR 61, Subpart A	National Emission Standards for Hazardous Air Pollutants, General Provisions
6.	40 CFR 61, Subpart M	National Emission Standards for Hazardous Air Pollutants, National Emissions Standard for Asbestos
7.	40 CFR 61.145 (b)	Standard for Demolition and Renovation, Notification Requirements
8.	40 CFR 61.150	Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations
9.	40 CFR 61.154	Standard for Active Waste Disposal Sites.
10.	40 CFR 61.156	Cross-Reference to Other Asbestos Regulations
11.	40 CFR 763	Asbestos
12.	40 CFR 763, Subpart G	Asbestos Abatement Projects
13.	49 CFR 107	Hazardous Materials Program Procedures
14.	49 CFR 171	General Information, Regulations, and Definitions
15.	49 CFR 172	Hazardous Materials Table; Special Provisions, Hazardous Communications, Emergency Response Information, , and Training Requirements
16.	49 CFR 173	Shippers- General Requirements for Shipments and Packages

D. Washington Department of Ecology

1. Solid Waste Guidelines WAC 173-303
2. General Regulations for air pollution sources WAC 173-400
3. Conformity of transportation activities to air quality implementation plans WAC 173-420
4. Controls for new sources of toxic air pollutants WAC 173-450
5. Removal and encapsulation of asbestos WAC 296-65
6. Asbestos, Tremolite, Anthophyllite, and Actinolite WAC 296-62 Part I-1

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 02 82 20-1, Resumes, Certificates, and Qualifications:

1. Resumes:
   - a. Onsite supervisor:
     - 1) "Contractor/Supervisor" course completion certificate for asbestos and most recent certificate for required refresher training.
   - b. Accredited Asbestos Project Designer:
     - 1) "Contractor/Supervisor" course completion certificate for asbestos and most recent certificate for required refresher training.
     - 2) Copy of State of Washington Accreditation for Abatement Project Designer.
   - c. CIH:
     - 1) "Contractor/Supervisor" course completion certificate for asbestos and most recent certificate for required refresher training.
     - 2) Copy of current valid ABIH certificate.
     - 3) Include address and telephone number.
   - d. Independent testing laboratory:
     - 1) NVLAP laboratory accreditation number.
     - 2) Name, address, and telephone number.
   - e. Abatement workers:
     - 1) First Aid and CPR certificates for persons designated to provide first aid during asbestos abatement. Copy of State of Washington Accreditation for Abatement Project Designer.
2. Certificates of employee training:
   - a. For each employee who will perform asbestos abatement operations.
   - b. Training course completion certificates and most recent refresher.
   - c. Signed by each employee.
   - d. Indicates that employee:
     - 1) Has received training in proper handling of materials and wastes that contain asbestos in accordance with 29 CFR 1926.1101; 40 CFR 763 Subpart E, Appendix C; and WAC 296-65.
     - 2) Understands health implications and risks involved, including illnesses possible from exposure to airborne asbestos fibers.
     - 3) Understands use and limits of respiratory equipment to be used.

4) Understands results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101.

e. Document dates of training, training entity, names of instructors, and qualification of instructors.

3. Transporter qualifications:

a. Written evidence that the transporter to be used is approved for asbestos transport by the EPA, state, and local regulatory agencies.

4. Disposal Facility qualifications:

a. Written evidence that the landfill to be used is approved for asbestos disposal by the EPA, state, and local regulatory agencies.

C. RSN 02 82 20-2, Asbestos Hazard Abatement Plan:

1. In accordance with 40 CFR 763, Subpart G WAC 296-65.

2. Prepared by Accredited Asbestos Project Designer.

3. Reviewed and signed by CIH.

4. Include the following elements:

a. Materials and Equipment:

1) Manufacturers data for materials and equipment to be used in work:

a) Include name, model, capacity, performance characteristics and any other pertinent information, certificates of any encapsulants to be used, material safety data sheets for all chemicals to be used.

b) Include data on the following, but not be limited to:

i. High efficiency filtered air (HEPA) local exhaust.

ii. Vacuum cleaning equipment.

iii. Pressure differential monitor for HEPA system.

iv. Respirators.

v. Air monitoring equipment.

vi. Personal protective clothing and equipment.

vii. Glove-bag.

viii. Disposal containers.

ix. Sheet plastic.

x. Wetting agent.

xi. Prefabricated decontamination unit.

xii. Chemical encapsulant, or encasement material.

b. Compliance Program for Worker Protection:

1) Respirator program as required by 29 CFR 1926.1101 and 29 CFR 1926.103.

2) Pulmonary function tests (PFT) for respirator usage: Record of diagnostic test and examination by a Board Eligible or Certified Occupational Medicine Physician.

c. Containment System:

1) If it is determined by the accredited asbestos project designer that an enclosed containment regulated area is required for the abatement operations.

2) Descriptions, detail project drawings, and site layout:

a) Include work site containment area techniques, local exhaust ventilation system locations, decontamination units, temporary waste storage facility, location of temporary utilities, and boundaries of each regulated area.

3) If a modified containment area, glove-bag or outdoor technique can be safely used, these should be specified in detail.

d. Emissions Monitoring:

1) Plan for monitoring airborne asbestos:

a) Minimum of 2 pumps per enclosure and 3 pumps per 25 cubic meters of work area.

2) Plan for monitoring and reporting releases.

3) Plan for decontamination of contaminated areas and surfaces.

4) Plan for clearance testing.

e. Waste Characterization, Handling, and Disposal:

1) Plan for handling, storage, transporting, and disposal of project-generated waste and cleaning of reusable items.

2) Plan for disposal of wastewater:

a) Include name, location, and address of proposed treatment facility and contact person at proposed treatment facility.

3) Name, address and qualifications of transporter.

4) Name, address and qualifications of disposal facility to include acceptance of asbestos waste.

5) Written notice from owner or operator of disposal facility documenting permits and agreement to accept waste generated under this contract.

D. RSN 02 82 20-3, Certificate of Disposal:

1. Certificate that ACMs have been shipped, received, and properly disposed.

1.05 QUALIFICATIONS

A. Competent person:

1. Defined in 40 CFR 1926.32 and 1101, 40 CFR 763 Subpart E, Appendix C.
2. Experienced in administration and supervision of asbestos abatement projects under OSHA and EPA regulations.
3. Successfully completed training and is therefore accredited under a legitimate State of Washington Model Accreditation Plan as defined in 40 CFR 763 and has successfully completed the National Institutes of Occupational Safety and Health (NIOSH) 582 course ASampling and Evaluating Airborne Asbestos Dust or equivalent.
4. Appropriately licensed in the State of Washington.
5. Qualified to perform visual inspections as indicated in ASTM E1368.

B. Onsite Supervisor:

1. Competent Person:
   a. Capable of identifying existing asbestos hazards and selecting appropriate control strategy.
   b. Has the authority to take prompt corrective measures to eliminate them.
   c. Has EPA Model Accreditation Plan "Contractor/Supervisor" training.
2. On jobsite during all asbestos abatement activity.
3. Duties include:
   a. Control entry to and from any regulated area.
   b. Supervise employee exposure monitoring required by 29 CFR 1926.1101.
   c. Assure employees wear appropriate PPE, are trained in the use of appropriate methods for exposure control, use proper hygiene methods and decontamination procedures.
   d. Ensure engineering controls in use are in proper operating condition and are functioning properly.
   e. Responsible for compliance with applicable Federal, State of Washington, and local requirements, the contractor's Accident Prevention Plan (Safety Plan), and Asbestos Hazard Abatement Plan.
   f. Have input to and sign the Asbestos Hazard Abatement Plan.

C. Accredited Asbestos Project Designer:

1. Competent person.

2. Has EPA Model Accreditation Plan "Contractor/Supervisor" Training.
3. Accredited Abatement Project Designer in accordance with WAC 173-230-250.
4. Duties include:
    a. Prepare Asbestos Hazard Abatement Plan.

D. Certified Industrial Hygienists (CIH):
1. Certified by American Board of Industrial Hygiene (ABIH).
2. Has EPA Model Accreditation Plan "Contractor/Supervisor" training required by 40 CFR 763, Subpart E, Appendix C.
3. Completely independent from the contractor according to federal, state or local regulations.
4. Duties:
    a. Have input to, review, and sign the Asbestos Hazard Abatement Plan.
    b. Prepare and perform training.
    c. Direct air monitoring.
    d. Assist Onsite Supervisor in implementing safety and health requirements during the performance of the required work.
    e. Visit the site at least once per week for the duration of asbestos activities.
    f. Be available for emergencies.

E. Asbestos Abatement Workers:
1. Meet requirements contained in 29 CFR 1926.1101, 40 CFR 61, Subpart M and other applicable federal, State of Washington, and local requirements.

F. First Aid and CPR Trained Persons:
1. Designate at least 2 persons currently trained in first aid and CPR to be on site during asbestos abatement operations.
2. Immediately available to render first aid when needed.
3. May perform other duties.

G. Independent Testing Laboratory:
1. Proficient in conducting Polarized Light Microscopy (PLM) and accredited by NIST under the NVLAP for bulk asbestos analysis.
2. Proficient in conducting Phase Contrast Microscopy (PCM) of airborne samples using methods specified by 29 CFR 1926.1101, OSHA Method ID-160, the most current version of NIOSH Method 7400.

H. Transporter:

1. Approved for asbestos transport by the EPA, state, and local regulatory agencies.
2. Meet requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 and registration requirements of 49 CFR 107.

I. Disposal Facility:

1. Approved for asbestos disposal by the EPA, state, and local regulatory agencies.
2. Meet 40 CFR 61.154 or 155 requirements as designated in 40 CFR 61.150(b).

1.06 SAFETY AND HEALTH REGULATIONS

A. Comply with RSHS 7.17, Section 8, and Section 21.

B. Comply with 29 CFR 1926.

C. Provide required written reports as required in Plan for approval.

D. Limit employee exposure to asbestos and other airborne contaminants in accordance with 29 CFR 1926.1101.

1.07 PROJECT CONDITIONS

A. Existing materials may contain asbestos. See Asbestos Survey completed in section 02 82 10. The asbestos may be friable or may become friable upon disturbance and removal. All handling, removal, and disposal of ACM shall be conducted in accordance with Federal, State and local Regulations.

B. The Contractor will be considered the co-generator of any Dangerous waste, in accordance with WAC 173-303.

1.08 CONTRACTOR'S RESPONSIBILITIES

A. Comply with applicable worker protections listed in WAC 296-65.

B. Manage and document asbestos activities in accordance with WAC 296-62.

C. Obtain certificate of disposal from disposal facility when asbestos waste has been accepted.

D. Obtain required transportation permits.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 ASBESTOS ABATEMENT

A. Handle and dispose of ACM in accordance with federal, state, and local regulations.

3.02 REPORTABLE RELEASES

A. Notify applicable agencies and COR.

3.03 CLEARANCE TESTING

A. Visual methods: In accordance with ASTM E1368.

1. Performed by competent person.
2. Visible dust: Where visible dust is present, additional wipe samples shall be taken in accordance with ASTM D6480 to analyze dust for asbestos.

B. Wipe samples:

1. Take wipe samples to collect surface dust at a minimum of five locations inside each abatement area locations indicated in accordance with approved Emissions Monitoring Plan. Locations shall be within and immediately adjacent to work areas.
2. Wipe sampling of porous surfaces: In accordance with ASTM D5755.
3. Wipe sampling of nonporous surfaces: In accordance with ASTM D6480.
4. Analyze samples for asbestos fibers.
5. Acceptance criteria: Less than 50,000 s/cm^2. (Asbestos structures per square centimeter of surface area sampled.)

C. Air samples:

1. Any air samples used to show site is clean, shall be done with sweeping of walls and floor surface while sampling.
2. Acceptance criteria: at or below the EPA background level of 70 s/mm^2 (asbestos structures per square millimeter of filter), or 0.01 fibers/cc by TEM.

3.04 DECONTAMINATION OF CONTAMINATED AREAS

A. Decontaminate contaminated areas in accordance with approved plan.

END OF SECTION

DIVISIONS 03 AND 04 – NOT USED

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DIVISION 05 – METALS

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SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include cost in applicable prices bid in the Price Schedules for which welding is required.

1.02 ACRONYMS

A. WPS – Weld Procedure Specification.

B. NDE – Non-Destructive Examination, also referred to as NDT – Non-Destructive Testing.

1.03 DEFINITIONS

A. Miscellaneous metalwork: Where specified elsewhere in these specifications or this Section, "miscellaneous metalwork" means metal fabrications and metal repair as used in this Section.

B. Verification Inspector: This inspector is the duly designated person who acts for, and in behalf of, the Owner on all inspection and quality matters within the scope of the contract documents. This is a 3rd party inspector hired by the Contractor to provide independent inspection.

C. Contractor's Inspector: This inspector is the duly designated person who acts for, and in behalf of, the Contractor on all inspection and quality matters within the scope of the contract documents.

1.04 REFERENCE STANDARDS

A. American Welding Society, Inc. (AWS)

1. AWS D1.1/D1.1M:2025 Structural Welding Code - Steel
2. AWS D1.6/D1.6M:2017 Structural Welding Code – Stainless Steel

1.05 SUBMITTALS

A. RSN 05 50 00 – 1, Material Test Reports.

B. RSN 05 50 00 – 2, Weld Procedure Specifications.

C. RSN 05 50 00 – 3, Weld Material Certifications.

D. RSN 05 50 00 – 4, Qualification Records:

1. Welder performing repairs:

a. Name.

b. Qualified weld procedures and date of last qualification.

2. Weld inspectors performing inspections:

a. Verification Inspector:

1) Name.

2) Company name.

3) Certifications.

b. Contractor's Inspector:

1) Name.

2) Certification.

1.06 QUALIFICATIONS

A. Verification Inspector:

1. Current certification as an AWS Certified Welding Inspector in conformance with the requirements of AWS QC1, Standard for AWS Certification of Welding Inspectors.

2. NDT Level II.

B. Contractor's Inspector:

1. Qualification in accordance with AWS D1.1.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect from corrosion, deformation, and other types of damage.

B. Store items in an enclosed area free from contact with soil and weather.

C. Remove and replace damaged items with new items.

PART 2 PRODUCTS

A. Carbon steel:

1. Consistent with approved WPS for tested material type in accordance with AWS D1.1.

B. Stainless steel:

1. E309LT1-4.

PART 3 EXECUTION

3.01 MATERIAL TESTING

A. Confirm material type with testing prior to repairs:

1. Runner:
   a. Crown.
   b. Blade.
   c. Band.
   d. Cone.
2. Discharge ring.
3. Stay vane:
   a. Test a minimum of one stay vane per unit.

B. Submit material test reports and weld material certifications.

3.02 PREPARATION

A. Where locations and dimensions of miscellaneous metalwork are dependent upon existing equipment and/or equipment furnished, confirm locations and dimensions prior to fabrication of miscellaneous metalwork.

3.03 REMOVING METAL

A. Only in areas authorized for repair.

B. Acceptable metal excavation methods:

1. Air carbon arc gouging followed by power-tool grinding to sound, bright metal.
2. Grinding to sound, bright metal.
3. Follow procedures outlined in 48 13 13 – Turbine Repair.

3.04 WELDING

A. Only in areas authorized for repair.

B. Perform welding in accordance with applicable standards AWS D1.1 and AWS D1.6.

C. All weld metal shall be deposited using Flux-Core Arc Weld (FCAW) wire feed welding machines.

D. Shielded Metal Arc Weld (SMAW, or stick-electrode welding) shall not be used.

E. Keep distortion to a minimum:

1. Verify with measurements.
2. Utilize bracing where needed.

F. Follow procedures outlined in 48 13 13 – Turbine Repair.

3.05 GRINDING

A. Only in areas authorized for repair.

B. Use separate grinding wheels for mild steel and stainless steel to prevent metal contamination.

C. In accordance with tolerances outlined in 48 13 13 – Turbine Repair.

3.06 NON-DESTRUCTIVE EXAMINATION

A. Perform NDE in accordance with applicable standards AWS D1.1 and AWS D1.6.

B. Follow procedures outlined in 48 13 13 – Turbine Repair.

END OF SECTION

DIVISIONS 06 THROUGH 08 – NOT USED

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DIVISION 09 – FINISHES

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SECTION 09 96 20
COATINGS

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:
   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.
   b. Minimum measured area of any single coating area will be 1 square foot.
2. Payment: price per square foot bid in the Price Schedule B.
3. Includes abrasive blasting required for surface preparation for coating.

B. G19 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:
   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.
   b. Minimum measured area of any blasting area will be 1 square foot.
2. Payment: price per square foot bid in the Price Schedule B.

C. G19 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:
   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.
   b. Minimum measured area of any single coating area will be 1 square foot.
2. Payment: price per square foot bid in the Price Schedule B.
3. Includes abrasive blasting required for surface preparation for coating.

D. G20 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:
   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.
   b. Minimum measured area of any single coating area will be 1 square foot.
2. Payment: price per square foot bid in the Price Schedule D.
3. Includes abrasive blasting required for surface preparation for coating.

E. G20 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:

   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.

   b. Minimum measured area of any blasting area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule D.

F. G20 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule D.

3. Includes abrasive blasting required for surface preparation for coating.

G. G21 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule F.

3. Includes abrasive blasting required for surface preparation for coating.

H. G21 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:

   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.

   b. Minimum measured area of any blasting area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule F.

I. G21 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule F.

3. Includes abrasive blasting required for surface preparation for coating.

J. G22 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule H.

3. Includes abrasive blasting required for surface preparation for coating.

K. G22 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:

   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.

   b. Minimum measured area of any blasting area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule H.

L. G22 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule H.

3. Includes abrasive blasting required for surface preparation for coating.

M. G23 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule J.

3. Includes abrasive blasting required for surface preparation for coating.

N. G23 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:

   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.

   b. Minimum measured area of any blasting area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule J.

O. G23 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule J.

3. Includes abrasive blasting required for surface preparation for coating.

P. G24 Coating of Turbine Runner:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule L.

3. Includes abrasive blasting required for surface preparation for coating.

Q. G24 Abrasive Blasting of Turbine Stay Vanes for Examination:

1. Measurement: square footage of blasted surface:

   a. Areas will be measured to the limits of each blasting area marked on the structure by the Government Representative.

   b. Minimum measured area of any blasting area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule L.

R. G24 Coating of Turbine Stay Vanes:

1. Measurement: square footage of finish coated surface:

   a. Areas will be measured to the limits of each coating area marked on the structure by the Government Representative.

   b. Minimum measured area of any single coating area will be 1 square foot.

2. Payment: price per square foot bid in the Price Schedule L.

3. Includes abrasive blasting required for surface preparation for coating.

1.02 REFERENCE STANDARDS

A. International Organization for Standardization (ISO)

1. ISO 8502-3-92 — Assessment of dust on Steel Surface Prepared for Painting (Pressure-Sensitive Tape Method)

B. The Society for Protective Coatings (SSPC)/NACE International (NACE)

1.	SSPC-AB1-19	Mineral and Slag Abrasives
2.	SSPC-AB2-16	Cleanliness of Recycled Ferrous Metallic Abrasives
3.	SSPC-AB3-17	Newly Manufactured or Re-Manufactured Steel Abrasives
4.	SSPC-Guide 15-13	Field Methods for Retrieval and Analysis of Soluble Salts on Substrates and Other Nonporous Substrates
5.	SSPC-PA1-16	Shop, Field, and Maintenance Painting of Steel
6.	SSPC-PA2-22	Measurement of Dry Paint Thickness with Magnetic Gages
7.	SSPC-SP5/NACE 1-07	White Metal Blast Cleaning
8.	SSPC-VIS1-12	Guide and Reference Photographs for Steel Surfaces Prepared by Abrasive Blast Cleaning
9.	NACE SP 0274-11	High Voltage Electrical Inspection of Pipeline Coatings
10.	NACE SP 0287-16	Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape

1.03 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 - Submittals.

B. RSN 09 96 20-1, Approval Data:

1. For each coating material:
   a. Manufacturer's product data, application, and Safety Data Sheets (SDS) sheets.
   b. Supplier's name, address, and phone number.
   c. Identification of "Items to be coated" including sub-letter and sub-number listed in Coating Tabulations.
2. For each substituted coating material "equal" to specified product in Coating Tabulation:
   a. List of not less than 5 similar successful material applications:
      1) Project name, location, type of structure, and application dates.
      2) Owner's name, address, and telephone number.
   b. Certification that material meets or exceeds specified requirements:
      1) Manufacturer's certification including technical representative's signature and date of signature.
      2) Independent laboratory's certified test reports.

C. RSN 09 96 20-2, Final Approval Data:

1. For each coating material and thinner:

   a. Purchase orders including order number, date, manufacturer's designated product name, batch number(s), and quantity purchased.

D. RSN 09 96 20-3, Qualifications:

1. Coating Contractor:

   a. List not less than 5 comparable completed jobs for each coating type including owner's name, address, and telephone numbers completed within the last five years.

2. Coating Applicator:

   a. List of not less than 5 comparable jobs for each coating type including owner's name, address, and telephone number.

   b. List One of the Options Below:

      1) Letter from coating manufacture/supplier that applicator is trained by the coating manufacture/supplier with comparable coating types.

      2) Coating supplier technician trains coating foreman/crew at the job site with comparable coating types.

   c. Personnel shall be qualified to tradesman level as blast-cleaner, painter, applicator, etc. The personnel shall have relevant knowledge of health and safety hazards, use of protection equipment, coating materials, mixing, and thinning of coatings, coatings pot-life, and surface requirements.

   d. Personnel not qualified to tradesman level shall document training and experience to the same level as a formalized tradesman education.

3. Coating Contractor Inspector:

   a. Qualified to inspect specified coating materials by coating experience or certifications. Provide the following:

      1) Current Coating Application Specialist (CAS) or Plural Component Application Certification (PCAC).

      2) Successfully completed training in the application and inspection of coating materials similar too materials and conditions specified. Provide documentation.

      3) Letter from contractor listing the personnel performing QC inspections, certified at a minimum as NACE Coating Inspector Level 1 (CIP) or as a SSPC Protective Coatings Inspector (PCI), as they report directly to a QC Supervisor who shall be a NACE Level 3 Coatings Inspector (CIP) or a SSPC Protective Coatings Inspector (PCI).

4. Contract or Third-Party Inspectors:

a. Current Level 3 certification for NACE Certified Coatings Inspector (CIP) or SSPC Protective Coatings Inspector (PCI).

b. List not less than 5 years of comparable jobs including project description, location, and owner's name, address, and telephone numbers.

c. Provide calibrated inspection equipment and demonstrate the use if required by the COR.

E. RSN 09 96 20-4, Quality Control Plan:

1. Quality Control Manager:

a. Name and title.

2. Quality Control Procedure:

a. Quality control plan:

1) Applicator's field-testing procedures shall be in accordance with these specifications, product manufacturer's written instructions, NACE RP 0288, and ASTM D3276.

b. Procedure for addressing identified non-conformities.

F. RSN 09 96 20-5, Contractor Quality Testing Report:

1. Comprehensive report of daily quality control test reports.

1.04 DELIVERY, STORAGE, HANDLING

A. Deliver materials to jobsite in original, undamaged, unopened containers labeled with manufacturer's name, designated product name, batch number, date of manufacture, and any special instructions.

B. Deliver materials in containers not larger than 5 gallons as packaged by manufacturer unless suitable equipment is provided at jobsite to handle and thoroughly mix materials in larger containers.

C. Store coating materials and thinners in accordance with the manufacturer's recommendations, and as a minimum, store off the ground, under cover, and at 50 to 95 degrees Fahrenheit.

D. Do not use coating material which has exceeded manufacturer's specified storage stability period (shelf life).

1.05 AMBIENT CONDITIONS

A. Maintain environmental conditions to meet coating manufacturer's requirements during surface preparation, coating application, and curing period. Provide heating or cooling, and dehumidification as needed. Complete curing before placing the coating systems into service.

B. Coatings shall be applied when the substrate surface temperature is 5 degrees Fahrenheit or more above the dew point temperature and for at least 8 hours after application.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Surface preparation and spray application equipment:

1. Sized in accordance with coating manufacturer's recommendations.
2. Provide:
   a. Pressure gauges and pressure regulators.
   b. Air supply lines free from oil and moisture.

2.02 ABRASIVES

A. Mineral and slag abrasives: Meets SSPC-AB1, type I (natural minerals) and type II (slags), class A.

B. SSPC-AB2 for recycled cleanliness.

C. SSPC-AB3 Class I (steel) or II (iron) for angular shaped grit. Shot abrasives are not acceptable.

D. Commercially available products or processes to render the hazardous waste stream non-hazardous and not exceeding toxicity threshold limits.

1. Additive stabilizers for leachable toxic metal wastes are allowed, except elemental iron is not permitted.

2.03 COATINGS

A. Specified in Coating Tabulations:

1. Apply only one coating system per option in Coating Tabulations.

B. Volatile Organic Compounds (VOC): Do not exceed maximum permitted by Federal, State, and local air pollution control regulations as supplied in container or by addition of thinner material.

C. Factory color only. Do not color or tint at jobsite.

D. Use manufacturer's recommended thinners for coating materials.

E. Do not use accelerator products unless approved by COR.

2.04 MISCELLANEOUS MATERIALS

A. Deionized Water.

B. Chlor-Rid as manufactured by Chlor-Rid, www.Chlorid.com,

C. HoldTight 102 as manufactured by Holdtight Solutions, www.holdtight.com,

D. Chlor-Gone, as manufactured by Aquron, www.aquron.com

E. Provide one of the above salt removers, or equal with following essential characteristics:

1. Commercially available additive for soluble salt removal.
2. Water soluble.
3. Biodegradable.
4. Zero volatile organic compounds.

PART 3 EXECUTION

3.01 PROTECTION OF ADJACENT SURFACES

A. Remove, mask, or otherwise protect adjacent from contamination and overspray during coating spray operations.

3.02 SURFACE PREPARATION

A. Remove or repair surface irregularities and impart profile as specified:

1. Welds:
   a. Welds: Smooth and continuous.
   b. Weld spatter, protrusions, laminations, slag, buckshot, and slivers. Remove and grind smooth in accordance with NACE SP 0178.
   c. Undercuts and porosity: Fill with weld material and grind smooth.in accordance with NACE-RP 0178.
   d. Projections, sharp edges, high points, fillets, and corners: Grind smooth to a radius of at least 1/16-inch.
2. Substrate defects:
   a. Pitting, gouges, scratches, porosity, and similar:
      1) Grind smooth.
3. Grind full length of edges and corners smooth to a radius of at least 1/16-inch.

B. Surface preparation method:

1. See Coating Tabulations.

2. Compare prepared steel surfaces to following visual reference photographs for allowable visible contaminants and stains:
   a. SSPC-VIS1 for abrasive blast cleaning.
3. Assessment of dust contaminants:
   a. Perform clear tape test method in accordance with ISO 8502-3.
   b. Perform three tests per shift.
   c. Acceptance Criteria: Degree of cleanliness shall meet Class 3.

C. Surface profile:
1. Prepare as specified in Coating Tabulations.
2. Inspect surface profile in accordance with NACE SP 0287:
   a. Use replica tape suitable for surface profile depth range.
   b. Perform at least two tests per 1000 square feet of area.

D. Soluble salts:
1. Measure concentration of chlorides, nitrates and sulfates in accordance with SSPC Guide 15.
2. Perform at least one test for turbine runner.
3. Acceptance criteria: Do not exceed 3-micrograms per square centimeter for chlorides and 5-micrograms per square centimeter for nitrates and sulfates.

E. Re-clean or perform additional surface preparation of contaminated surfaces before coating application.

3.03 COMPRESSED AIR EQUIPMENT

A. Keep air compressor and spray application equipment lines free of oil and moisture during work.

B. Compressed air quality:
1. Perform tests in accordance with ASTM D4285.
2. Perform test at the beginning of every shift.

3.04 COATING APPLICATION

A. Coating shall be done in a workmanlike manner to produce as even of uniform thickness as possible.

B. Apply number of coats and coating thickness specified in Coating Tabulations.
1. Alternate coat colors to differentiate between coats.
2. Apply in accordance with instructions in Tabulations.

3. Apply in accordance with SSPC PA1.

C. Prevent overspray or dry spray. When such conditions occur, clean surfaces prior to application of subsequent coats.

D. Re-clean contaminated surfaces between coats.

E. Dry Film Thickness (DFT):

1. After each coat, inspect hardened coating system for DFT compliance in accordance with SSPC PA2 level 3.

2. Acceptance Criteria: no single spot measurement less than 80 percent minimum or 120 percent maximum specified.

F. Discontinuity (Holiday) Testing:

1. Inspect coatings in accordance with NACE SP 0188.

G. Coating Adhesion:

1. Test in accordance with ASTM D4541.

3.05 FIELD QUALITY TESTING

A. Inspection Equipment:

1. Calibrate inspection devices and equipment in accordance with the manufacturer's instructions.

2. Verify calibration prior to every use.

B. Qualified personnel shall conduct tests and sign reports.

1. Perform tests in presence of the Government Representative.

2. Provide rigging for Government Representative to observe inspections.

C. Make daily reports for review by the COR, including:

1. Date of work.

2. Description of areas and work performed.

3. Environmental conditions.

4. Results from the following quality control tests:

a. Soluble salt.

b. Surface profile.

c. Visual comparison of prepared surfaces.

d. Assessment of dust contaminants.

e. Compressed air quality.

f. Dry film thickness (DFT).

g. Discontinuity (Holiday) testing.

D. Final inspection will take place after repairs, but before placing into service.

3.06 REPAIR AND REMEDIAL WORK

A. Repair defective or damaged areas of coatings in accordance with coating manufacturer's recommendations.

3.07 COATING TABULATIONS

Tabulation No. 1		
Items to be coated: a. Turbine runner. b. Spot repair areas of turbine stay vanes affected by corrosion or weld repair		
Notes: 1. Coat entirety of runner, including mild steel and stainless-steel weld overlay. 2. Protect wicket gates from abrasive blast cleaning and overspray.		
Coating materials Solvent borne epoxy	Number and thickness of coats	Surface preparation method
Base coats: Carboline Carboguard 235 International Paint Bar Rust 235 or Bar Rust 240 PPG Amercoat 235 or Amercoat 240 Sherwin Williams Duraplate 235 Tnemec Epoxoline series N69 Color: Alternate factory coat colors to differentiate between coats Final topcoat for turbine runner: standard white Final topcoat for turbine stay vanes: standard black	1 or more prime coats, apply at 4 to 6 mils DFT, per coat, plus stripe coats. 1 or more intermediate coats, apply at 4 to 6 mils DFT, per coat. 1 or more topcoats, apply at 4 to 6 mils DFT, per coat. Total system, excluding filler material: 12-mil DFT, minimum 18-mil DFT, maximum	SSPC-SP5/ NACE 1 For steel substrates Achieve 3 to 4 mil surface profile Follow manufacturer's surface preparation and application instructions to apply subsequent coats.

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END OF SECTION

DIVISIONS 10 THROUGH 45 – NOT USED

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DIVISION 48 – ELECTRICAL POWER GENERATION

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SECTION 48 13 13
TURBINE REPAIR

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. G19 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule A.

B. G19 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule A.

C. G19 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule B.

D. G19 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule B.

E. G20 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule C.

F. G20 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule C.

G. G20 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule D.

H. G20 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule D.

I. G21 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule E.

J. G21 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule E.

K. G21 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule F.

L. G21 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule F.

M. G22 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule G.

N. G22 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule G.

O. G22 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule H.

P. G22 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule H.

Q. G23 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule I.

R. G23 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule I.

S. G23 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule J.

T. G23 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes J:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule.

U. G24 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule K.

V. G24 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule K.

W. G24 Welding Repair of Turbine Stay Vanes:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule L.

X. G24 Finish Grinding of Hydraulic Profile for Turbine Stay Vanes:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule L.

1.02 ACRONYMS

A. WPP – Grand Coulee Nathaniel 'Nat' Washington Power Plant, Washington Power Plant:

1. Formerly referred to as the Grand Coulee Third Power Plant, Third Power Plant.

B. CJP – Complete Joint Penetration

C. NDE – Non-Destructive Examination, also referred to as NDT – Non-Destructive Testing.

D. PT – Dye penetrate testing.

1.03 DEFINITIONS

A. Base metal – primary carbon steel metal used in construction of the turbine runner, discharge ring, and stay vanes.

B. Cladding metal – a layer of stainless steel metal over the base metal which enhances properties such as corrosion resistance and wear resistance, also referred to as overlay.

C. Hydraulic turbine or turbine – mechanical device that converts the potential energy of flowing water into mechanical energy, includes both stationary and rotating components.

D. Turbine runner or runner – rotating component of the hydraulic turbine that is a welded assembly consisting of a crown, band, blades, and cone.

E. Turbine discharge ring or discharge ring – stationary component of the hydraulic turbine, typically considered the top portion of the draft tube liner, that is located immediately below the runner and transitions the hydraulic flow from the rotating runner to the stationary draft tube.

F. Turbine stay vanes or stay vanes – stationary components of the hydraulic turbine, consisting of column-type, hydraulically-shaped structural members, that start the transition of the hydraulic flow from the stationary spiral case into the rotating runner inlet.

G. Initial assessment – documentation of areas requiring repair, prepared by Government.

H. Secondary assessment – documentation of areas requiring repair, prepared by Contractor.

1.04 REFERENCE STANDARDS

A. United States Bureau of Reclamation (USBR, Reclamation):

1.	RSHS	Reclamation Safety and Health Standards http://www.usbr.gov/safety/rshs/index.html
2.	FIST Vol. 1-1	Facilities Instructions, Standards, and Techniques: Volume 1-1 Hazardous Energy Control Program http://www.usbr.gov/power//data/fist/fist1_1/FIST_1-1.pdf
3.	FIST Vol. 2-5	Facilities Instructions, Standards, and Techniques: Volume 2-5 Turbine Repair http://www.usbr.gov/power/data/fist/fist2_5/vol2-5.pdf

B. Grand Coulee Power Office (GCPO):

1.	F-HECP	Facility Hazardous Energy Control Program (Onsite copy provided by Government)

1.05 SUBMITTALS

A. RSN 48 13 13 – 1, Secondary Assessment – Runner:

1. Submitted according to an on-going basis when damage is discovered.
2. Use Form B-1 to summarize all runner damage.

3. Use Form B-2 to document runner damage.

B. RSN 48 13 13 – 2, Secondary Assessment – Discharge Ring:

1. Submitted according to an on-going basis when damage is discovered.
2. Use Form B-3 to summarize all discharge ring damage.
3. Use Form B-4 to document discharge ring damage.

C. RSN 48 13 13 – 3, Secondary Assessment – Stay Vanes:

1. Submitted according to an on-going basis when damage is discovered.
2. Use Form B-5 to summarize all stay vane damage.
3. Use Form B-6 to document stay vane damage.

D. RSN 48 13 13 – 4, Verification Inspection Report.

1.06 EXISTING CONDITIONS

A. There are six hydro-electric generating units in the WPP, called G19 through G24.

B. Turbine Runner:

1. Units G19 through G21 are equipped with 820,000 HP Francis-type turbine runners, designed by Dominion Engineering Works, Ltd., and manufactured by Willamette Iron and Steel Co. The runner throat diameter is 34 feet. The base metal of the runner assembly is cast steel, per ASTM A 216, Grade WCB. The original stainless steel overlay was done using alloy 308L.
2. Units G22 through G24 are equipped with 960,000 HP Francis-type turbine runners, designed and manufactured by Allis-Chalmers. The runner throat diameter is 32 feet. The base metal of the runner crown and blades is cast steel, per ASTM A 216, Grade WCC. The base metal of the runner band is steel, per ASTM A 516, Grade 70.
3. Each runner contains 13 blades, also referred to as "buckets" or "vanes".
4. The runners have been in service since the mid-1970's and have each gone through several major overhauls. Each overhaul has had different work crews and time-limited scope of work resulting in different conditions of each runner.
5. Most of the runner is carbon steel, but a significant amount of stainless steel exists from both initial construction and previous repair areas.
6. Runner materials will be tested in accordance with 05 50 00 – Metal Fabrications for each unit to verify material type prior to developing weld procedure specifications.
7. Previously applied protective coatings on runners consisted of primer and various kinds of epoxy paints. Several runners were coated with a zinc-rich primer.

8. On units G19 through G21, runner cavitation damage is mostly observed as large, eroded cavities measuring approximately 6 inches wide by 12 inches long on the lower pressure side of the blade where the blade meets with the runner band. These cavities are within a few feet of the leading edge and can be several inches in depth. Some areas exhibit cavitation-enhanced corrosion. This type of corrosion consists of severe surface pitting with a porous appearance like some kinds of cheese. Although these units are not known for having cracks in the blades, some have been found in the past.

9. On units G22 through G24, runner damage is mostly observed as cavitation-enhanced corrosion in the crown area. Several of the units have already been clad with stainless steel in the most troublesome areas. The low-pressure side wall of many of the blades has severe surface pitting that covers a large area. The leading edge of most of the blades exhibit corrosion erosion. These units have historically had cracks along the lower leading edge of the blade as well as the upper and lower trailing edges.

10. The work area of the turbine runner is accessible through two large doors in the draft tube:

    a. For G19 through G21, the door opening is 36 inches by 48 inches.

    b. For G22 through G24, the door opening is 32 inches by 44 inches.

C. Turbine Discharge Ring:

1. The portion of the discharge ring accessible from the draft tube platform is included with the runner for turbine repair activities.

2. Discharge ring material will be tested in accordance with 05 50 00 – Metal Fabrications for each unit to verify material type prior to developing weld procedure specifications.

D. Turbine Stay Vanes:

1. Units G19 through G21 are constructed with 31 stay vanes and 1 baffle vane for a total of 32 effective stay vanes.

2. Units G22 through G24 are constructed with 24 stay vanes.

3. Stay vanes are included as part of the larger cast-in-place weldment of the spiral case and stay rings.

4. Recent discovery and repair of cracks in the stay vane connection welds have necessitated the inspection of all stay vane welds to find and repair cracks.

5. Stay vane material will be tested in accordance with 05 50 00 – Metal Fabrications for each unit to verify material type prior to developing weld procedure specifications.

6. Previously applied protective coatings on stay vanes consisted of coal-tar enamel.

1.07 AMBIENT CONDITIONS

A. Each of the subject units consisting of the generator and turbine is entirely indoors, where the ambient temperature ranges from 60 degrees Fahrenheit to 80 degrees Fahrenheit.

1.08 COORDINATION

A. Coordinate with COR to finalize scope of repairs based on Government's initial assessment and Contractor's secondary assessments.

1.09 SEQUENCING

A. Work will follow the following sequence:

1. Government physically marks areas to receive repairs, and issues initial assessment form designating areas requiring repair, including:
   a. High and Low priority designations.
   b. Defect Group Number:
      1) Defect Group numbered 1 shall be repaired first, followed sequentially by other defect groups.
2. Contractor reviews markings and initial assessment report.
3. Contractor holds a pre-work coordination meeting with the COR, to facilitate understanding between Contractor and Government of overall condition of runner. Contractor describes the anticipated effort associated with repairing high- and low-priority areas, and potential problems.
4. COR authorizes work on specific areas.
5. If, during surface preparation and repair activities, additional damage is identified, prepare a secondary assessment form documenting the damage.
6. Prior to performing repair work on newly identified areas, hold an additional pre-work coordination meeting with the COR to describe the new damage and anticipated effort to repair.
7. Depending on the nature of damage and current activities, the Government may authorize additional work after designating high and low priority, and assigning a Defect Group Number.
8. Contractor performs repairs on authorized additional work.

1.10 PRE-WORK COORDINATION MEETINGS

A. Prior to performing turbine repair, meet with Government Representative.

B. Coordinate time and place of meeting with Government Representative at least 2 days before meeting.

C. Contractor attendees shall be at least the following:

1. Contractor onsite supervisor.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 EXAMINATION

A. Surface preparation:

1. Runner and discharge ring:

   a. Most areas of damage have already had the coating removed by erosion and cavitation.

   b. Abrasive blast to remove coating in areas authorized by COR for repair:

      1) Remove accumulated blast media from draft tube platform on a routine basis to avoid exceeding the load capacity of the draft tube platform.

   c. Abrasive blast in accordance with Section 09 96 20 – Coatings.

2. Stay Vanes:

   a. Abrasive blast to remove coating from 6 to 10 inches on each side from the center of all-around-weld at both top and bottom of each stay vane for initial examination.

   b. Abrasive blast to remove coating in other areas authorized by COR for examination.

   c. Abrasive blast in accordance with Section 09 96 20 – Coatings.

B. Review the damaged areas which the Government physically outlined with paint-stick, marker, chalk or other means. Cease work and notify COR if outlines or markings are unclear.

C. Review the Government's initial assessment form. Cease work and notify COR if information provided in the Government's initial assessment form is unclear or does not match visible conditions.

D. Continuously inspect surfaces for additional damage which may become visible during all stages of repair work. Damage includes defects such as:

1. Indications.

2. Cracks.

3. Porosity.

4. Lamination.
5. Centerline shrinkage.
6. Other apparent discontinuities.

3.02 SECONDARY ASSESSMENTS

A. When additional damage is observed, prepare a secondary assessment form which documents the observed damage:

1. For "other" describe defect type in the field provided on the form.

B. Use Government forms:

1. Forms listed below are made a part of Section L - Attachments:
   a. B-1, Unit Summary of Runner Damage Records.
   b. B-2, Runner Damage Record.
   c. B-3, Unit Summary of Discharge Ring Damage Records.
   d. B-4, Discharge Ring Damage Record.
   e. B-5, Unit Summary of Stay Vane Damage Records.
   f. B-6, Stay Vane Damage Record.

3.03 TURBINE REPAIR

A. Restore all areas, which have been authorized for repair, to like new condition.

3.04 GEOMETRY OF REPAIRED AREAS

A. When original component dimensional data is available, match original dimensions.

B. When original component profile templates are available, match original profiles.

C. Make repairs smooth and continuous through the repaired area, so that repaired areas match existing hydraulic profile and contour.

1. Confirm that repairs do not violate hydraulic contour from its initial condition by utilizing a flexible spline as described in FIST 2-5 and as depicted in Figure 4-12 of FIST 2-5.
2. Confirm that repairs do not create sharp features and leading edges that do not match the original design.

D. Do not alter a blade shape to make it substantively different from the other blades in the runner.

3.05 REPAIRS IN BASE METAL

A. Only in areas authorized for repair.

B. Remove metal and weld in accordance with Section 05 50 00 – Metal Fabrications.

C. Runner and discharge ring:

1. Metal removal procedure:

a. Remove metal to a consistent depth for each Defect Group Number.

b. Remove metal to a depth of 1/16 inch beyond the deepest damage for each Damage Area Number.

c. Remove metal to create a definite 90-degree edge recess at the boundary line. This feature will prevent grinding newly deposited stainless steel to a "feather" edge at a boundary line.

d. Remove metal with a minimum radius of 1/16 inch at the bottom of the recess. This feature will reduce potential stress concentrations in the corner of the recess.

e. Check the bottom of excavations for the presence of stainless steel metal:

1) Use copper sulfate to check.

2) Remove stainless steel metal.

2. Metal build-up procedure:

a. Depositing carbon steel filler metal over stainless steel is not permitted. Recheck the bottom of excavations as needed for the presence of stainless steel metal.

b. For excavated areas ¾ inch deep and deeper:

1) Use carbon steel filler metal to build-up excavated area within ½ inch of the desired final contour.

c. For excavated areas less than ¾ inch deep:

1) Use carbon steel filler to build-up excavated area within ¼ inch of the desired final contour.

D. Stay Vanes:

1. Follow procedure for crack repair outlined in this Section.

2. Grind to remove excessive metal build-up and to meet fairness and finish tolerances outlined in this Section.

3.06 REPAIRS IN CLADDING METAL

A. Only in areas authorized for repair.

B. Remove metal and weld in accordance with Section 05 50 00 – Metal Fabrications.

C. Runner and discharge ring:

1. Metal removal procedure:

a. Remove metal to a consistent depth for each Defect Group Number.

b. Remove metal to a depth of 1/16 inch beyond the deepest damage for each Damage Area Number.

c. Remove metal to create a definite 90-degree edge recess at the boundary line. This feature will prevent grinding newly deposited stainless steel to a "feather" edge at a boundary line.

d. Remove metal with a minimum radius of 1/16 inch at the bottom of the recess. This feature will reduce potential stress concentrations in the corner of the recess.

e. Check the bottom of excavations for the presence of stainless steel metal:

1) Use copper sulfate to check.

2) When only stainless steel is present proceed with metal build-up using stainless steel filler metal.

3) When carbon steel is present, refer to Repairs in Base Metal of this Section.

2. Metal build-up procedure:

a. Deposit stainless steel filler to desired final contour after requirements in Repairs in Base Metal of this Section have been met. This results in areas requiring up to ½ inch or up to ¼ inch of cladding depending on the Defect Group Number.

b. Deposit stainless steel filler in excess of final hydraulic contour at the minimum required to meet final hydraulic contour after finish grinding.

3. Grind to remove excessive metal build-up and to meet fairness and finish tolerances outlined in this Section.

D. Stay vanes:

1. No overlay of stainless steel filler is permitted.

3.07 CRACK, LAMINATION, AND CENTERLINE SHRINKAGE REPAIR

A. Remove metal and weld in accordance with Section 05 50 00 – Metal Fabrications.

B. Verify presence and length of suspected defect with NDE:

1. NDE may be completed by contractor's inspector.

2. Grind surface smooth as minimally required for accurate NDE.

3. Before NDE, heat the area to remove moisture on the surface and sidewalls of the defect. Leaching moisture from an indication may invalidate NDE results.

4. Use dye penetrant (PT) testing.

C. Expose entire length of defect with metal removal:

1. Remove metal until defect is removed or maximum depth is reached.
2. Remove metal an additional ¼ inch beyond each end of the defect and an additional ¼ inch deeper than the depth of the defect.
3. Resulting bottom of cavity shall have a U-groove shape with a minimum bottom width of 3/8 inch.
4. Resulting sidewalls of cavity shall have a V-groove shape with each sidewall measuring approximately 30 degrees from the plane normal to the repaired surface.

D. Verify removal of defect with NDE:

1. NDE may be completed by contractor's inspector.
2. Before NDE heat the area to remove moisture on the surface and sidewalls of the defect. Leaching moisture from an indication may invalidate NDE results.
3. Use dye penetrant (PT) testing:
   a. Test all surfaces of the excavation.
4. Repeat metal removal and NDE until defect is removed or maximum depth is reached.

E. Runner and discharge ring:

1. Remove metal in area of exposed defect to a depth of 1 inch or to a maximum depth of 3/4 of the thickness of the underlying material, whichever is less. This type of defect shall be "capped-off" by welding.

F. Stay vane:

1. Remove metal to completely remove exposed defect or to a maximum depth of ½ stay vane thickness plus ¼ inch, whichever is less. At ½ stay vane thickness plus ¼ inch depth this type of defect shall be "capped-off" by welding. Complete welding to restore all removed weld metal on excavated side to full stay vane thickness before removing metal from the opposite side to expose and completely remove the defect and weld root. Complete repair with CJP weld.

G. Follow metal build-up procedures outlined in this Section for metal type.

H. Grind to remove excessive metal build-up and to meet fairness and finish tolerances outlined in this Section.

3.08 GOUGE REPAIR

A. Gouges inadvertently created while establishing the correct weld geometry shall be repaired in conjunction with the adjacent authorized repair area.

3.09 REPAIRS IN EXISTING WELDS

A. Remove metal and weld in accordance with Section 05 50 00 – Metal Fabrications.

B. Remove metal to eliminate defect.

C. Follow metal build-up procedures outlined in this Section for metal type.

D. Grind to remove excessive metal build-up and to meet fairness and finish tolerances outlined in this Section.

3.10 FINISH GRINDING OF HYDRAULIC PROFILE

A. Only in areas where cladding welding is completed.

B. Grind to remove excessive metal build-up and restore repaired area to a smooth and continuous surface with adjacent surfaces.

C. Meet fairness and finish tolerances outlined in this Section.

3.11 TOLERANCES

A. Fairness:

1. Confirm with a flexible spline as described in FIST 2-5 and as depicted in Figure 4-12 of FIST 2-5.
2. Repair surfaces in any direction: D/L ratio of 0.015 or less.
3. Repaired areas to adjacent non-repaired areas: D/L ratio of 0.015 or less.

B. Surface finish:

1. For NDE of repaired cracks prior to final welding and hydraulic profile grinding:
   a. 125 micro-inches or as required for NDE.
2. For hydraulic profile grinding:
   a. As appropriate in preparation to meet abrasive blasting surface finish requirements under Section 09 96 20 – Coatings.

3.12 VERIFICATION INSPECTION

A. Only in areas where hydraulic profile grinding is completed.

B. Completed by 3rd party Verification Inspector.

C. Inspect repaired surfaces.

D. Use dye penetrant (PT) testing.

E. Submit report after all repaired surfaces pass inspection.

END OF SECTION

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DIVISION 51 – INFORMATION AVAILABLE TO OFFERORS

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SECTION 51 00 00
INFORMATION AVAILABLE TO BIDDERS

PART 1 GENERAL

1.01 ORDER OF PRECEDENCE

A. In case of differences between sections in Division 51 - Information Available to Bidders and sections in other divisions of the specifications, the requirements in the other divisions will govern.

B. The Government assumes no responsibility for deductions, interpretations, or conclusions made by the Contractor based on information made available by the Government, in accordance with the clause at FAR 52.236-3 "Site Investigations and Conditions Affecting the Work."

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 51 00 10
PHOTOGRAPHS

PART 1 GENERAL

1.01 DISCLAIMERS

A. Photographs are solely for information of the Contractor.

B. The Government assumes no responsibility for deductions, interpretations, or conclusions made by the Contractor based on information made available by the Government, in accordance with the clause at FAR 52.236-3 "Site Investigations and Conditions Affecting the Work."

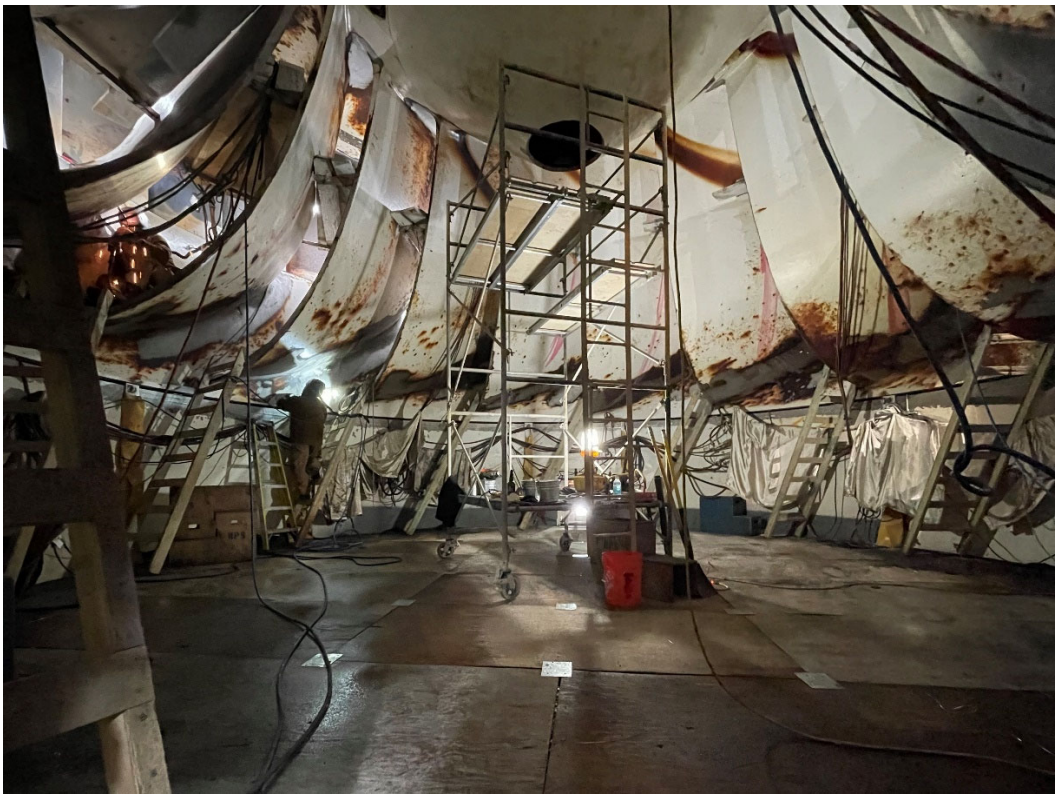

Photo 1: Example of draft tube platform, rung ladders, hook-and-wire rope ladders, and other scaffolding installed and turbine runner repair in progress.

Photo 2: Example of crown brackets and individual work platforms installed to access runner crown and upper sections of runner blades.

Photo 3: Example of installation of hook-and-wire rope ladder on runner blade leading edge and example of crown bracket welded to blade for individual work platform.

Photo 4: Example of installation of rung ladder attachment point providing access to hook-and-wire rope ladder.

Photo 5: Draft tube access door.

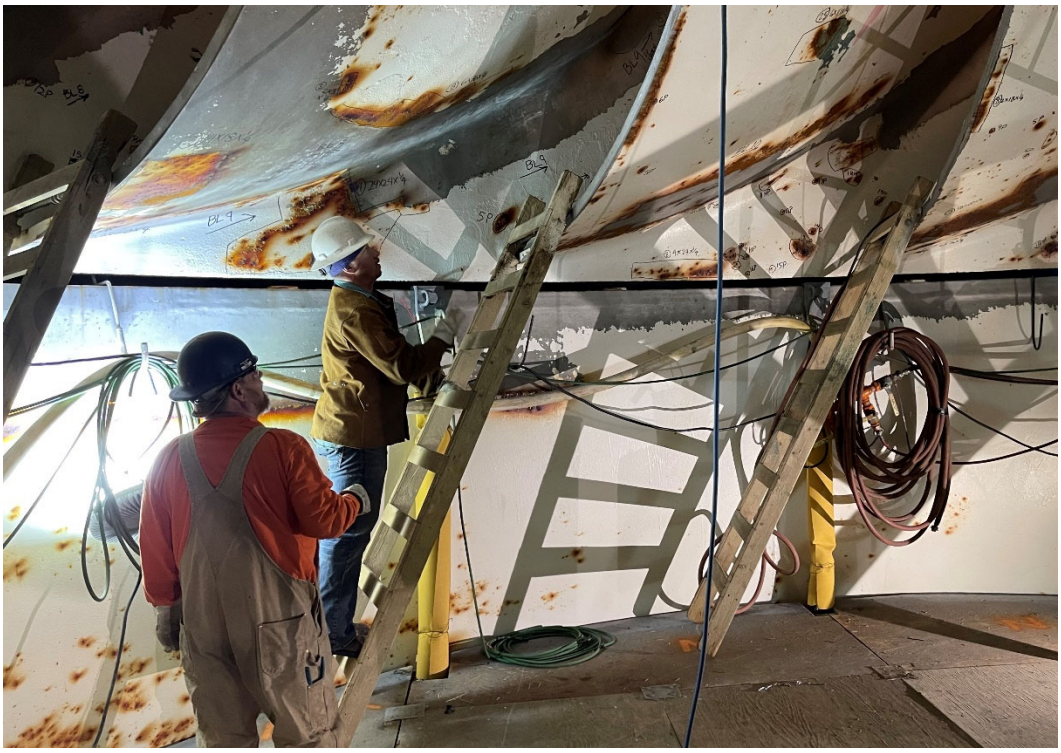

Photo 6: Example of wWorkers using rung ladder to access runner blades for work.

Photo 7: Example of workers using hook-and-wire rope ladders to access runner blades for work.

Photo 8: Example of workers using scaffolding to access runner for work.

Photo 9: Example of cavitation damage.

Photo 10: Example of scaffolding installed in unit spiral case and turbine stay vanes repair in progress.

Photo 11: Example of scaffolding installed in unit spiral case and turbine stay vanes repair in progress.

Photo 12: Example of scaffolding installed in unit spiral case for access from spiral case access door.

Photo 13: Example of draft tube platform load test with water as test weight.

END OF SECTION

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DIVISION 52 - DRAWINGS

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SECTION 52 00 00
DRAWINGS

PART 1 GENERAL

1.01 PROJECT CONDITIONS

A. Where there are differences as determined by the CO between details and dimensions shown on drawings and details and dimensions of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.02 INFORMATION DRAWINGS

A. Drawings marked "For Information Only" in the drawing list are included to show existing features about which knowledge is required to perform work under this contract. These drawings do not show work to be performed under this contract.

B. If there are differences as determined by the CO between details and dimensions shown on these drawings and those of existing features at jobsite, use details and dimensions of existing features at jobsite.

1.03 LIST OF INFORMATION DRAWINGS

A. Drawings listed in Table 52 00 00A - List of Information Drawings, are made a part of Section C - Description/Specifications.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

Table 52 00 00A - List of Information Drawings

Sheet No.	Drawing No.	Title
Civil – Power Plant:		
1	222-D-27346	Third Power Plant Overhaul Powerhouse Yard Space Distribution
2	1222-D-316	Third Power Plant and Forebay Dam Plan
3	1222-D-323	General Arrangement Longitudinal Section Thru CL Units
Mechanical – Units G19 thru G24:		
4	2-17-2015 Sketch	Draft Tube Platform Third Power Plant (Load Test Stand)
Mechanical – Units G19 thru G21:		
5	222-117-28501	Francis Turbine 820,000 HP Sectional Elevation General Arrangement
6	1222-D-344	General Arrangement Transverse Sections
7	1222-M-D-9-2	Stay Ring – Welding and Preliminary Machining
8	1222-M-D-9-53	Additional Drilling in Stayring for Inspection Platform
9	1222-M-D-9-63	820,000 HP Francis Turbine Sectional Elevation
10	1222-M-D-9-69	Combined Discharge and Stay Ring Segments
11	1222-M-D-9-70	Combined Discharge and Stay Ring Sections
12	1222-M-D-9-71	Combined Discharge and Stay Ring Plan
13	1222-M-D-9-72	Combined Discharge and Stay Ring Welding Details
14	1222-M-D-9-73	Spiral Case
15	1222-M-D-9-74	Spiral Case
16	1222-M-D-9-76	Spiral Case Mandoor
17	1222-M-D-9-84	Draft Tube Liner
18	1222-M-D-9-85	Manhole Door and Hinges for Draft Tube Liner
19	1222-M-D-9-104	Runner Cone
20	1222-M-D-9-109	Runner Assembly Finish Machining
21	1222-M-D-9-128	Auxiliary Platform

Table 52 00 00A - List of Information Drawings

Sheet No.	Drawing No.	Title
22	1222-M-D-9-129	Main Beams Inspection Platform
23	1222-M-D-9-130	Structural Details Inspection Platform
24	1222-M-D-9-131	Structural Details Inspection Platform
25	1222-M-D-9-132	Assembly and Planking of Inspection Platform
26	1222-M-D-9-133	Installation of Inspection Platform
27	1222-M-D-9-155	Stay Ring Baffle Vane Segment
28	1222-M-D-9-178	Runner Blade
Mechanical – Units G22 thru G24:		
29	1222-100-131	Main Beams Maintenance Platform
30	1222-100-132	Maintenance Platform Structural Details
31	1222-100-133	Maintenance Platform Structural Details
32	1222-100-134	Maintenance Platform Assembly and Planking
33	1222-D-0348	General Arrangement Transverse Sections
34	1222-M-D-38-7	Draft Tube Liner
35	1222-M-D-38-9	Stay Ring Plan
36	1222-M-D-38-10	Stay Ring Elevations
37	1222-M-D-38-11	Stay Ring Elevations
38	1222-M-D-38-12	Stay Vanes
39	1222-M-D-38-14	30 x 42 Draft Tube Mandoor Assembly
40	1222-M-D-38-17	Discharge Ring Plan
41	1222-M-D-38-18	Discharge Ring Elevations
42	1222-M-D-38-26	Spiral Case Plan
43	1222-M-D-38-30	Spiral Case Mandoor Assembly
44	1222-M-D-38-35	Draft Tube Mandoor Frame
45	1222-M-D-38-36	Draft Tube Mandoor
46	1222-M-D-38-46	Francis Runner Final Machine Detail Elevation
47	1222-M-D-38-138	Distributor Section

END OF SECTION