Hungry Horse Power Plant Turbine Runner Cavitation Repair

Hungry Horse Dam
Hungry Horse Project, Montana

Solicitation Number: 140R1026B0003

U.S. Department of the Interior
Bureau of Reclamation
Columbia Pacific Northwest Interior Region 9
Boise, Idaho

SPECIFICATION
May 2026

This solicitation issued by
Contracting Officer
Pacific Northwest Region
Bureau of Reclamation
1150 North Curtis Road, Suite 100
Boise ID 83706-1234

HUNGRY HORSE POWER PLANT
TURBINE RUNNER CAVITATION REPAIR
Hungry Horse Dam
Hungry Horse Project, Montana

FOREWORD

Work is located at Hungry Horse Dam in Flathead County, Montana.

Principal components of work to be performed under these specifications include inspection, weld preparation, welding, and grinding.

SITE VISIT: SEE SECTION L FOR SITE VISIT INFORMATION. BIDDERS ARE STRONGLY URGED TO PARTICIPATE IN THE SITE VISIT. FAILURE BY BIDDERS TO INSPECT THE SITE WILL NOT RELIEVE THEM OF THE RESPONSIBILITY OF PROPERLY ESTIMATING THE DIFFICULTY OR COST OF SUCCESSFULLY PERFORMING THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS AND WITHIN THE ALLOWED TIME. ATTENDEES ARE TO PROVIDE AND WEAR SAFETY GLASSES, BOOTS, HARD HATS, SAFETY VESTS.

FOR BID DELIVERY INFORMATION, SEE "SOLICITATION, BID, AND AWARD," STANDARD FORM 1442.

FOR INFORMATION REGARDING BUREAU OF RECLAMATION'S PUBLICATION "RECLAMATION SAFETY AND HEALTH STANDARDS" INCLUDING REVISIONS AT https://www.usbr.gov/safety/rshs/index.html **WHICH IS APPLICABLE TO WORK UNDER THIS CONTRACT, SEE CLAUSE AT "WBR 1452.223-81 SAFETY AND HEALTH."**

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CONTINUATION OF

SECTION B – SUPPLIES OR SERVICES AND COSTS

HUNGRY HORSE POWER PLANT

TURBINE RUNNER CAVITATION REPAIR

HUNGRY HORSE PROJECT, MONTANA

B.1 PRICE SCHEDULE

(a) Bids will be considered for award on the following Price Schedules, but no bid will be considered for award on only a part of a Price Schedule.

(b) Bids are subject to the terms and conditions of this solicitation.

(c) Quantities in the Price Schedule are estimated quantities for comparison of bids only. Except as provided in the contract clause at Section H. Clause Title Variation in Estimated Quantity, no claim shall be made against the Government for overruns or underruns.

(d) See the contract clause at WBR 1452.232-81 Alt III, Payment for Mobilization and Preparatory Work, for CLIN 1 of applicable Price Schedules.

(e) Definitions:

(1) CLIN – Contract Line Item Number

PRICE SCHEDULE A

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
A-1	WBR 1452.232 -81	G1 Mobilization and Preparatory Work	For the lump sum of		$
A-2	48 13 13	G1 Welding Repair of Turbine Runner	250 pounds	$	$
A-3	48 13 13	G1 Finish Grinding of Hydraulic Profile for Turbine Runner	50 hours	$	$
A-4	48 13 13	G1 Removal of Turbine Runner Blade Extensions	For the lump sum of		$

TOTAL FOR PRICE SCHEDULE A $_____

PRICE SCHEDULE B

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
B-1	WBR 1452.232 -81	G2 Mobilization and Preparatory Work	For the lump sum of		$
B-2	48 13 13	G2 Welding Repair of Turbine Runner	250 pounds	$	$
B-3	48 13 13	G2 Finish Grinding of Hydraulic Profile for Turbine Runner	50 hours	$	$

TOTAL FOR PRICE SCHEDULE B $_____

PRICE SCHEDULE C

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
C-1	WBR 1452.232 -81	G3 Mobilization and Preparatory Work	For the lump sum of		$
C-2	48 13 13	G3 Welding Repair of Turbine Runner	250 pounds	$	$
C-3	48 13 13	G3 Finish Grinding of Hydraulic Profile for Turbine Runner	50 hours	$	$

TOTAL FOR PRICE SCHEDULE C $_____

PRICE SCHEDULE D

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
D-1	WBR 1452.232 -81	G4 Mobilization and Preparatory Work	For the lump sum of		$
D-2	48 13 13	G4 Welding Repair of Turbine Runner	250 pounds	$	$
D-3	48 13 13	G4 Finish Grinding of Hydraulic Profile for Turbine Runner	50 hours	$	$

TOTAL FOR PRICE SCHEDULE D $_____

PRICE SCHEDULE E

CLIN	Section	Supplies or Services	Quantity and Unit	Unit Price	Amount
E-1	01 31 30	G1-G4 Contract Document Management System	For the lump sum of		$

TOTAL FOR PRICE SCHEDULE E $_____

END OF SECTION

Signature Sheet / Certification of Technical Specifications

Project Title: Hungry Horse Power Plant Turbine Runner Cavitation Repair

Region: Columbia Pacific Northwest Interior Region 9

Technical Specifications
Project Title: Hungry Horse Power Plant Turbine Runner Cavitation Repair

Prepared by: STACEY CARLSON Digitally signed by STACEY CARLSON Date: 2026.04.30 09:54:27 -06'00' Date: _____

Technical Approval: DAVID CHRISTENSEN Digitally signed by DAVID CHRISTENSEN Date: 2026.04.30 13:22:45 -06'00' Date: _____

1. The person signing the specifications package as "Prepared by" shall have developed or assembled the written specifications.
2. The person signing the specifications package for "Technical Approval" shall have been in responsible charge of the overall design including developing or assembling the specifications. This person will typically be the design team leader. In cases where the designs described by the specifications meet the criteria for preparation by a registered engineer or architect, this person shall be registered with the applicable professional designation after their signature, such as P.E. for professional engineer or R.A. for registered architect. By this signature, this person is certifying the written specifications convey the design intent as portrayed on the drawings included therein. For specifications package containing designs from multiple disciplines, it is the signing individual's responsibility to ensure (using procedures defined by his/her organization) that the technical information prepared by other professions and disciplines and depicted in the document is compatible with the overall design intent and that the documents used to depict that information (e.g., drawings) include signatures with appropriate professional registration designations.
3. Revisions to designs after drawings and written specifications are originally signed will be reviewed by a design team representative (typically the design team leader). The review of written specifications revisions must be documented on a signature sheet included with the revised written specifications (see below).

AMD/MOD No.	Technical Approval Signature:	Prepared By Signature:	Revised Sections:

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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 Hungry Horse Dam in Flathead County, Montana.

1.02 PRINCIPAL COMPONENTS OF WORK

A. Inspecting turbine runner.

B. Metal removal.

C. Welding.

D. Grinding.

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.

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 fan.
3. Install draft tube platform.
4. Install string of lights around the periphery of the stay ring.

C. Upon completion of the work, Government will:

1. Remove and store vane axial fan.
2. Remove and store draft tube platform.
3. Remove and store string of lights around the periphery of the stay ring.
4. 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

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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	Start Date	End Date	Purpose
4	2/1/2027	4/15/2027	Quadrennial Maintenance
3	8/7/2028	3/1/2029	Quadrennial Maintenance and Exciter Replacement
2	8/13/2029	10/25/2029	Quadrennial Maintenance
1	8/19/2030	10/18/2030	Quadrennial Maintenance
4	2/10/2031	3/20/2031	Quadrennial Maintenance

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

B. Allowable working hours:

1. Monday through Thursday, 6:30AM to 5:00PM.

C. Allowable delivery hours:

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

D. 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 and to floors inaccessible by 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, Progress Review Meeting Agenda:

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

D. RSN 01 31 19-3, 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: Hungry Horse 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. 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 recently completed work forms:
         a) Form B-1: Unit Summary of Runner Damage Records.
         b) Form B-2: Runner Damage Record.
      4) 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. G1-G4 Contract Document Management System:

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

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 contract through 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 approval required before the Contractor proceeds with the applicable portion of the work.
   b. Government will respond as to adequacy of submittal.
   c. 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.

G. For submittals requiring Government approval, Table 01 33 00A provides:

1. Deadline for approval:
   a. Submit within appropriate timeframe to meet deadline for approval.

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	Deadlines	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	Approval required before starting on-site work Submitted 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	Approval required before starting on-site work Submitted within 10 calendar days after task order award	A		CO	1	0
I-7	Security Requirements (WBR 1452.237-80)	Security Program	Approval required before starting on-site work Submitted within 7 days after the task order work starts or another period approved by the Contracting Officer	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	Deadlines	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
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	Approval required 28 days before mobilization Submit within appropriate timeframe to meet deadline for approval	A	Y	COR	CDMS	
01 31 19-2	Project Management and Coordination	Progress Review Meeting Agenda	Submitted at least 2 days before the meeting	I		COR	CDMS	
01 31 19-3	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	Approval required before starting other work Submitted within 7 days after task order NTP	A		COR	0	1
01 31 30-2	Contract Document Management System	Final Data	Approval required before contract closeout Submitted within 14 days of completion of work	A		COR	CDMS	
01 32 10-1	Construction Program	Representative Information	Approval required before mobilization Submitted within 10 days after task order NTP	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	Deadlines	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 32 10-2	Construction Program	Baseline Schedule	Approval required before mobilization Submitted within 10 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		COR	CDMS	
01 32 10-4	Construction Program	Time Impact Analysis	Approval required to request a time extension Submitted 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	Approval required 28 days before mobilization Submitted within 28 days after task order NTP	A	Y	COR	CDMS	
01 35 20-2	Safety and Health	Job Hazard Analysis List	Approval required 28 days before mobilization Submitted within 28 days after task order NTP	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	Deadlines	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 35 20-3	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 20-4	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	Approval required 28 days before mobilization Submit within appropriate timeframe to meet deadline for approval	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 35 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	Approval required 28 days before mobilization Submit within appropriate timeframe to meet deadline for approval	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	Approval required for crane use Submitted at least 4 days before crane is used	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	Deadlines	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
01 54 23-1	Temporary Scaffolding and Platforms	Scaffolding Approval Data	Approval required 28 days before mobilization Submit within appropriate timeframe to meet deadline for approval	A	Y	COR	CDMS	
01 64 40-1	Government-Furnished Equipment	Shortage Report	Approval required before final payment Submitted within 24 hours after joint inspection	A		COR	CDMS	
01 64 40-2	Government-Furnished Equipment	Acceptance of Draft Tube Platform Installation	Submitted within 3 days after inspection	I		COR	CDMS	
01 74 00-1	Cleaning and Waste Management	Waste Production and Disposal Plan	Approval required 28 days before mobilization Submit within appropriate timeframe to meet deadline for approval	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	Approval required 28 days before site assessment Submit within appropriate timeframe to meet deadline for approval	A		COR	CDMS	
01 74 00-4	Cleaning and Waste Management	Final Inspection of Hungry Horse Cavitation Repair	Approval required before contract closeout Submitted within 3 days after 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	Deadlines	Type *	CP **	Respon-sible code	Sets to be sent: ***	
							CO	COR
05 50 00-1	Metal Fabrications	Weld Procedure Specifications	Approval required 7 days before the start of weld repairs Submit within appropriate timeframe to meet deadline for approval	A	Y	COR	CDMS	
05 50 00-2	Metal Fabrications	Weld Material Certifications	Approval required 7 days before the start of weld repairs Submit within appropriate timeframe to meet deadline for approval	A		COR	CDMS	
05 50 00-3	Metal Fabrications	Qualification Records	Approval required 7 days before the start of weld repairs Submit within appropriate timeframe to meet deadline for approval	A	Y	COR	CDMS	
48 13 13-1	Turbine Repair	Secondary Assessment – Runner	Approval required for repair. Submitted within 24 hours after discovery of damage	A		COR	CDMS	
48 13 13-2	Turbine Repair	Verification Inspection Report	Submitted within 7 days after passing inspection	I		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 the prices bid in the Price Schedules for other items of work.

1.02 DEFINITIONS

A. CIH: Certified Industrial Hygienist.

B. 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.

C. 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

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

E. PAH: Polyaromatic Hydrocarbons

F. PFT: Pulmonary Function Tests.

G. PPE: Personal Protective Equipment.

H. SVOC: Semi Volatile Organic Carbons

I. TSP: Total Suspended Particulates.

J. VOC: Volatile Organic Carbons

1.03 REFERENCE STANDARDS

A. American Conference of Governmental Industrial Hygienists (ACGIH)

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

B. Applicable State Safety and Health Regulations for Construction.

C. ASTM International (ASTM)

1.	ASTM D6966-18	Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals
2.	ASTM D7035-16	Determination of Metals and Metalloids in Airborne Particulate Matter by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)

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 1926.1118	Inorganic Arsenic
6.	29 CFR 1926.1127	Cadmium

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, Monthly Accident Summary Report:

1. In accordance with RSHS.

E. RSN 01 35 20-4, 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. Benzene Written Program and Training Records.

2. Cadmium Written Compliance Program and Training Records.

3. Chromium VI Training Records.

4. Confined Space and when deemed necessary by existing and introduced hazards of Permit Required Confined Space through the Written Program and Training Records.

5. Forklifts and Other Industrial Trucks Training Records.

6. Electrical Safety Requirement Training Records.

7. Emergency Action Plans Written Program and Training Records.

8. Fall Protection Written Program and Training Records.

9. Fire Protection and Prevention Written Program and Training Records.

10. Flammable and Combustible Liquids Written Spill Control Plan.

11. General Safety and Health Provisions, Written Safety Program, and Regular Safety Inspection Records.

12. Hazard Communication Written Program and Training Records.
13. Inorganic Arsenic Training Records, if applicable.
14. Ladder Written Compliance Program and Training Records.
15. Lead Written Program and Training Records.
16. Lockout/Tagout: Refer to RSHS Section 15 Hazardous Energy Control Program (HECP) Training Records.
17. Bloodborne Pathogens Exposure Control Plan, Training Records.
18. Methylenedianiline Training Records, if applicable.
19. Occupational Noise Exposure Written Program and Training Audiometric Testing Records.
20. Personal Protective Equipment (PPE) Hazard Assessments and Training Records.
21. Power Operated Hand Tools Training Records.
22. Respiratory Protection Written Program and Training Records.
23. Safety Training and Education Written Program and Training Records.
24. Scaffolds Training Records.
25. Steel Erection Training Records, if applicable.
26. 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, 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. Correct safety and health violations identified by the CO or the COR.

H. 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.

I. 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.

J. 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.

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

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

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

N. 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

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.

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. 29 CFR Part 1926.32 — Definitions

1.04 SUBMITTALS

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

B. RSN 01 35 30-1, Qualifications:

1. Contractor's Onsite Safety Representative.
2. Part-time Onsite Safety and Health Professional.
3. Certified Industrial Hygienist (CIH).
   a. Copy of current ABIH certificate.
4. Competent Person.
5. 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 coatings 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 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.
3. Include noted deficiencies, digital photos, abatement dates and follow-up action.
4. 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. As defined in 29 CFR 1926.32.

2. Authority to take prompt corrective measures to eliminate hazards.

3. 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 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.

   c. 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.

   d. 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.

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

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

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

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

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

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

k. Available for emergencies.

l. MAP Contractor/ Supervisor training.

m. 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.

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 coatings related 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 coatings related activities at no additional cost to the Government.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 01 46 00
QUALITY PROCEDURES

PART 1 GENERAL

1.01 MEASUREMENT AND PAYMENT

A. Cost:

1. Include in prices offered 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 on runner 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 volts and up to 20 amperes.
2. Three phase, 60 hertz, alternating current at approximately 480 volts and up to 60 amperes:
   a. Provide male electrical connector: Thomas & Betts, Cat. No. 7428-78, 60A 250V/600VAC.
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. System pressure up to 75 pounds-per-square-inch-gauge.
2. System flow rate is not rated.
3. Government will designate locations from which water may be obtained:
   a. El. 3067 near entrance to draft tube.
4. 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. System pressure up to 90 pounds-per-square-inch-gauge.
   2. System flow rate is unknown and variable due to facility operational demand.
   3. Government will designate locations from which compressed air may be obtained:
      a. El. 3067 near entrance to draft tube.
   4. No charge will be made for compressed air obtained from this source.

1.07 SANITARY FACILITIES

A. Contractor personnel may have reasonable access to on-site facility restrooms.

B. Provide potable water 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 in prices bid in the Price Schedules for other items of work.

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.

B. Provide ½-inch thick minimum plywood sheeting sufficient to cover the Government-furnished draft tube platform surface.

C. Provide fire resistant fabric as required to protect the Government-furnished draft tube platform.

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.

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.

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 and plywood sheeting, at least weekly.

B. Replace damaged scaffolding components immediately.

C. Replace damaged plywood sheeting immediately.

D. Protect plywood sheeting from fire damage:

1. Service water may be used to periodically wet plywood sheeting as a fire protection measure.

3.04 DISASSEMBLY

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

B. Remove plywood sheeting following the completion of tasks in the area and with approval of COR.

C. Disassemble all components, ensuring safety 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 in the prices bid in the Price Schedules for other items of work.

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.

C. RSN 01 64 40-2, Acceptance of Draft Tube Platform Installation:

1. Written acceptance of draft tube platform as being ready for service.

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. Protect Government-furnished equipment from damage during handling.

C. 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 joint inspection.

C. Inspect the installed draft tube platform and submit written acceptance of the service ready installation.

PART 2 PRODUCTS

2.01 VANE AXIAL FAN

A. Location: near top of penstock.

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

C. Quantity: one (1).

D. Performance data: 3,164 cubic feet per minute at .75-inch static pressure:

1. Nominal penstock diameter is 11 feet 9 inches resulting in airflow velocity of approximately 29.2 feet per minute.
2. Nominal runner work area volume is 458 cubic feet resulting in the fan providing approximately 414 air volume changes per hour.

2.02 DRAFT TUBE PLATFORM

A. Location: inside draft tube liner at an elevation 9.5 inches above the invert of the draft tube access doors located at El. 3070.5.

B. Function: extends across and covers the draft tube opening to provide access immediately below the turbine runner.

C. Quantity: one (1).

D. Performance data: aluminum frame with aluminum grating:

1. Dead load: 7 pounds-per-square-foot:
   a. Includes plywood, weld blankets, tools, and materials.
   b. Do not place welding machine and heavy equipment on the platform.
2. Live load: 250 pounds of concentrated load per grating panel:
   a. Occupancy: three (3) occupants maximum.

2.03 STRING OF LIGHTS

A. Location: around periphery of stay ring.

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. 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, provide replacement components, provide replacement of consumable and wear 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.

END OF SECTION

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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

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.

E. RSN 01 74 00-4, Final Inspection for Hungry Horse Cavitation Repair:

1. Use Government form to document inspection.

1.05 QUALIFICATIONS

A. Environmental consultant: Licensed and certified in the State of Montana 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.

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.

C. Do not allow waste and debris to fall below the draft tube platform into the draft tube waterway.

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, rubbish, unused materials, and other similar materials which are not part of permanent work.

B. Leave work affected areas "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 work generated debris from power house drainage systems.

G. Remove waste and debris that fell into the draft tube waterway below the draft tube platform.

H. Submit Final Inspection for Hungry Horse Cavitation Repair:

1. Use Government form made a part of Section L – Attachments.

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. Dispose by removal from jobsite.
2. Recycle hazardous waste whenever possible.
3. Dispose of hazardous waste materials that are not recycled at appropriately permitted treatment or disposal facilities.
4. 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

DIVISIONS 02 THROUGH 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(R 2021) Structural Welding Code – Stainless Steel

1.05 SUBMITTALS

A. RSN 05 50 00 – 1, Weld Procedure Specifications.

B. RSN 05 50 00 – 2, Weld Material Certifications.

C. RSN 05 50 00 – 3, 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

2.01 WELD FILLER METAL

A. Carbon steel:
1. E71T-9M:
    a. Or equivalent metal for approved WPS in accordance with AWS D1.1.

B. Stainless steel:

1. E309LT1-4.

PART 3 EXECUTION

3.01 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.

3.02 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.

3.03 GRINDING

A. Only in areas authorized for repair.

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

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

3.04 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 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. G1 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule A.

B. G1 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. G1 Removal of Turbine Runner Blade Extensions:

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

D. G2 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule B.

E. G2 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule B.

F. G3 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule C.

G. G3 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule C.

H. G4 Welding Repair of Turbine Runner:

1. Measurement: weight of weld metal used.
2. Payment: price per pound bid in the Price Schedule D.

I. G4 Finish Grinding of Hydraulic Profile for Turbine Runner:

1. Measurement: hours of grinding.
2. Payment: price per hour bid in the Price Schedule D.

1.02 ACRONYMS

A. HH – Hungry Horse dam and power plant.

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

C. PT – Dye penetrate testing.

1.03 DEFINITIONS

A. Base metal – primary carbon steel metal used in construction of the turbine runner.

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. Initial assessment – documentation of areas requiring repair, prepared by Government.

F. 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. Hungry Horse Field Office (HHFO):

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, Verification Inspection Report.

1.06 EXISTING CONDITIONS

A. There are four hydro-electric generating units in the HH Power Plant, called G1 through G4.

B. Turbine Runner:

1. Units G1 through G4 are equipped with 105,000 HP Francis-type turbine runners, designed and manufactured by Allis-Chalmers, Milwaukee, WI. The runner throat diameter is 126 inches.
2. Each runner contains 15 blades, also referred to as “buckets” or “vanes”.
3. The runners have been in service since 1950, and each runner has had cavitation damage repaired on multiple contracts. Each contract has had different work crews and time-limited scope of work resulting in different conditions for each runner.
4. Most of the runner is carbon steel, but a significant amount of stainless steel exists from previous repair areas:
   a. Base metal of the runner assembly is cast steel conforming to Federal Specifications QQ-S-681b, Class 2 Medium, Annealed. Copy of historical specification is made a part of Section L – Attachments.
5. Previously applied protective coatings on runners may contain regulated metals. Other contaminants may be present.
6. On units G1 through G4, runner damage is mostly observed as cavitation-enhanced corrosion in the crown area and on the face of the blades. This corrosion has been characterized as severe surface pitting with a porous appearance reminiscent of some kinds of cheese. The leading edge of most of the blades exhibit corrosion erosion. Although these units are not known for having cracks in the blades, some cracks have been previously found. Several of the units have already been clad with stainless steel in the most troublesome areas.
7. On unit G1 a trailing edge extension was added to each of the 15 blades in a trial attempt to mitigate cavitation damage. See section 51 00 00 – Information Available to Bidders.
8. The work area of the turbine runner is accessible through two large doors in the draft tube:

a. Draft tube doors are accessed from Floor 1 at El. 3070.50.

b. Access opening dimensions:

1) Door opening dimensions are 23.5 inches wide by 29.5 inches high.

2) After installation of the draft tube work platform, the access opening dimensions are 23.5 inches wide by 20 inches high.

9. Main access to the power plant is from ground level Floor 4 at El. 3113.50.

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. 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.

B. 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.

C. 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.

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:

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 deeper than ¼ inch deep:

1) Use carbon steel filler to build-up excavated area within ¼ inch of the final hydraulic contour.

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:

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 meet final hydraulic contour after requirements in Repairs in Base Metal of this Section have been met. This results in areas requiring up to ¼ inch of cladding.

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.

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:

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. Follow metal build-up procedures outlined in this Section for metal type.

G. 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 REMOVAL OF G1 TURBINE RUNNER BLADE EXTENSIONS

A. Remove metal and weld in accordance with Section 05 50 00 – Metal Fabrications.

B. Restore blade to original geometry shown on the Drawing 447-105-4016:

1. Reference 51 00 00 – Information Available for Bidders for information on blade extension location and geometry.
2. Remove metal to eliminate blade extension.
3. When necessary for restoration, follow metal build-up procedures outlined in this Section for metal type.
4. Grind to restore blade to original geometry and to meet fairness and finish tolerances outlined in this Section.

3.11 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.

3.12 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. 125 micro-inches.

3.13 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

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."

1.02 INFORMATION ON G1 BLADE EXTENSIONS

Installation of Trailing Edge Extension –Hungry Horse Unit 1 – March, 2016

Extend the profile of the trailing edge by about 2 inches, by installing a 2" wide x ½" thick by 16" long strip of alloy 304 stainless steel, as shown. Figure 1 shows a half-section view of the turbine runner, oriented such that the bucket's lower opening is pointing away. The approximate radius of curvature is 15-1/2 inches. However, there is a short section what is "straight" where the bucket joins with the band. There is also a straight line of tangency at the upper part of the bucket "cheek." Thus, all dimensions are approximate; each strip will need some amount of customized fitting. Section A-A from Figure 1 is shown in Figure 2, which details the trailing edge of the blade, depicting the weld joint design and filler (in grey). The edge of the added strip is to be curved downward, toward the unit center line. However, there is no specific radius requirement for this feature.

First, tack weld the strips in place. Make sure the flat edge of the strip matches roughly flush/tangent to the outer "cheek" of the bucket. Some "hand-forming" will likely be necessary during installation, to fit the strip in place. Once tack welded in place, start the final fillet and groove welding. Skip welding in stitch fashion is suggested, to avoid warping the strip and/or adding stresses to the blade edge.

After welding is complete, perform minor hand bending/forming of the new trailing edge, to achieve the curvature indicated in Figure 2. Grind the "outer" weld flush with the blade cheek. Grind the inner surface to achieve a faired contour.

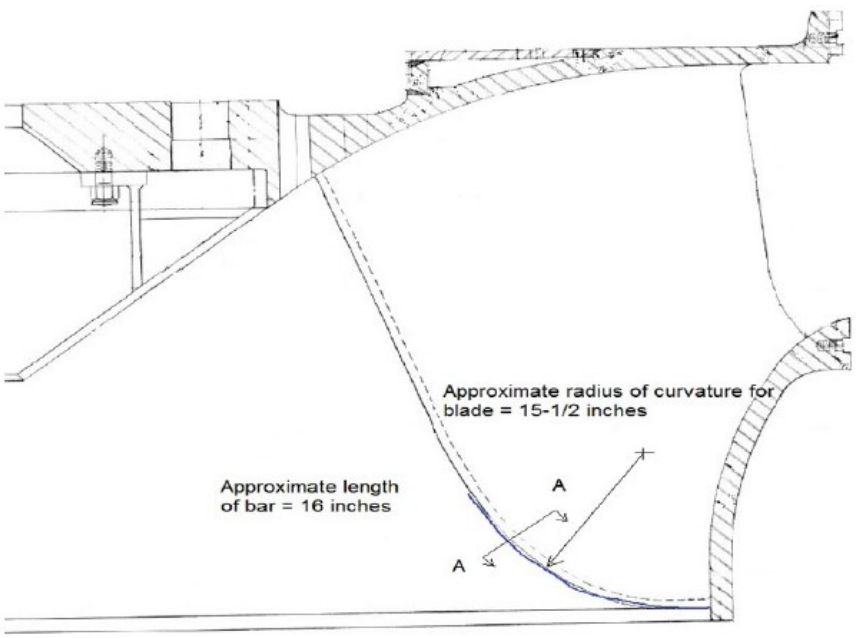

Figure 1: G1 Blade Extension History and Detail

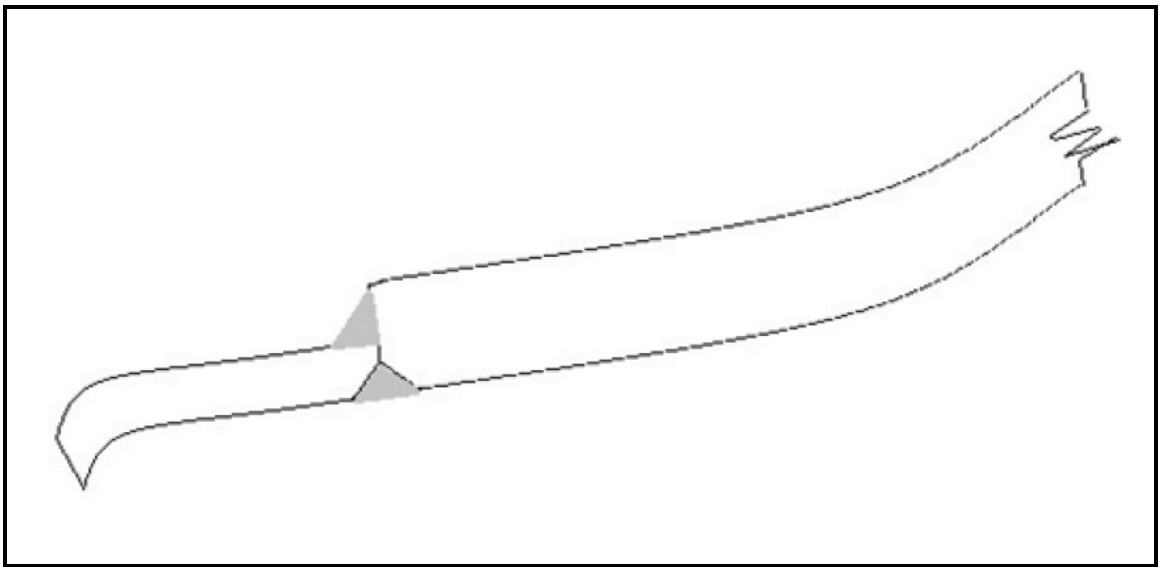

Figure 2: G1 Blade Extension Detail

1.03 INFORMATION ON DRAFT TUBE PLATFORM

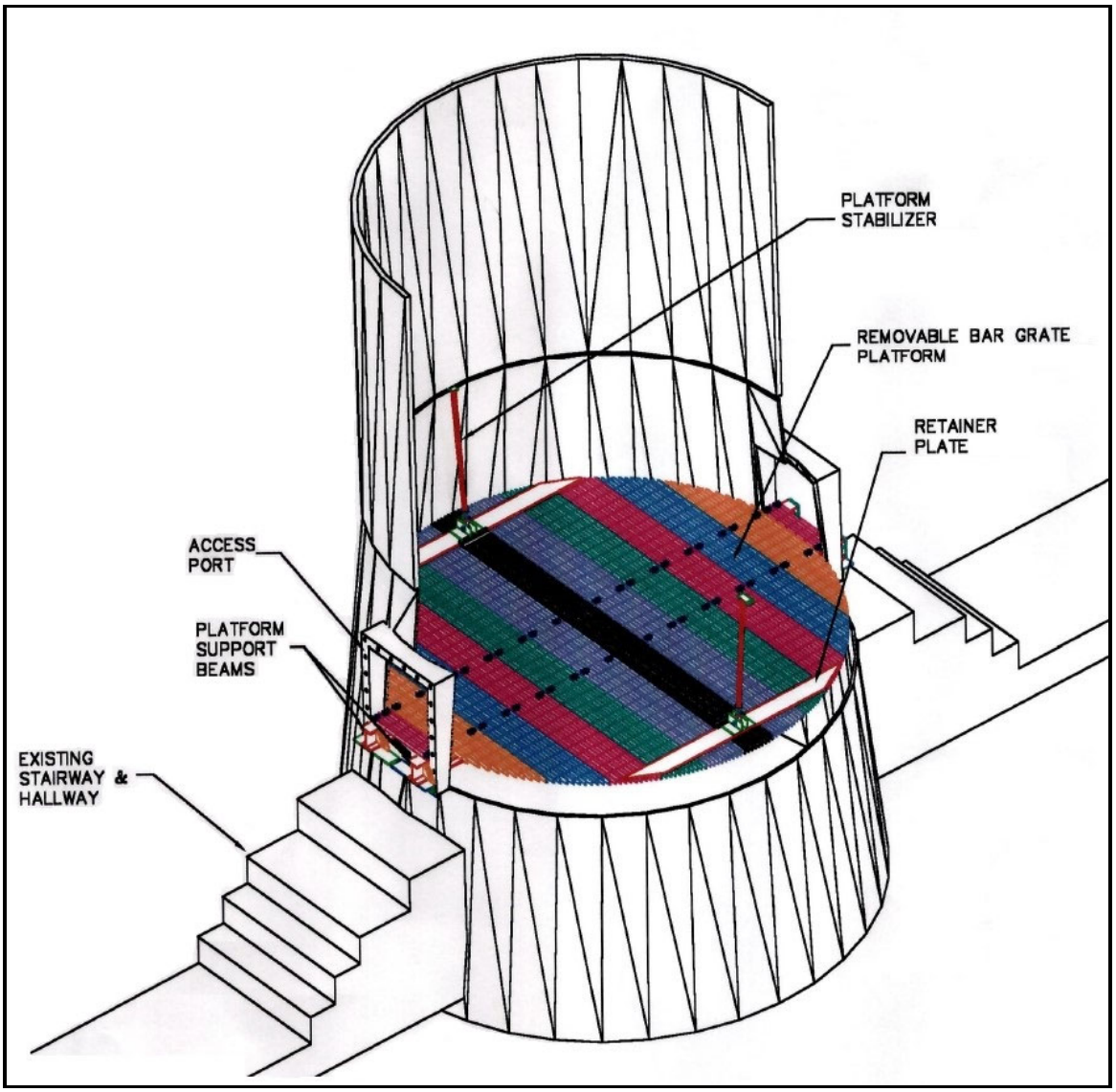

Figure 3: General Arrangement image of draft tube platform

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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: Cavitation damage on runner blade.

Photo 2: Cavitation damage on runner blades.

Photo 3: Coating erosion in the areas of repair.

Photo 4: Corrosion erosion damage on runner.

Photo 5: Draft tube access door.

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	Sketch	Hungry Horse Dam First Floor Elevation 3067.00
2	Sketch	Hungry Horse Dam Second Floor El. 3080.00
Mechanical – Turbine Runner:		
3	447-105-4016	126” Discharge Dia. 613-C R.H. Runner Used on Hydraulic Turbine at Hungry Horse Dam

END OF SECTION