

**ATTACHMENT G1
APPENDIX G1-A**

TECHNICAL SPECIFICATIONS

**WIPP PANEL CLOSURE
WASTE ISOLATION PILOT PLANT
CARLSBAD, NEW MEXICO**

**ATTACHMENT G1
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TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

DIVISION 1 – GENERAL REQUIREMENTS5
 Section 01010 – Summary of Work6
 Part 1 – General6
 1.1 Scope6
 1.2 Scope of Work6
 1.3 Definitions and Abbreviations8
 1.4 List of Drawings9
 1.5 Work by Others9
 1.6 Contractor’s Use of Site9
 1.7 Contractor’s Use of Facilities10
 1.8 Work Sequence10
 1.9 Work Plans.....10
 1.10 Health and Safety Plan (HASP)10
 1.11 Contractor Quality Control Plan (CQCP)10
 1.12 Submittals11
 Part 2 – Products.....11
 Part 3 – Execution11
 Section 01090 – Reference Standards12
 Part 1 – General12
 1.1 Scope12
 1.2 Quality Assurance12
 1.3 Schedule of References.....12
 Part 2 – Products.....13
 Part 3 – Execution13
 Section 01400 – Contractor Quality Control14
 Part 1 – General14
 1.1 Scope14
 1.2 Related Sections14
 1.3 Contractor Quality Control Plan (CQCP)14
 1.4 References and Standards14
 1.5 Quality Assurance15
 1.6 Tolerances15
 1.7 Testing Services15
 1.8 Inspection Services15
 1.9 Submittals15
 Part 2 – Products.....16
 Part 3 – Execution16
 3.1 General16
 3.2 Contractor Quality Control Plan16
 3.3 Tests17
 3.4 Testing Laboratory18
 3.5 Inspection Services18

3.6	Completion Inspection	18
3.7	Documentation	19
3.8	Notification of Noncompliance	19
Section 01600 – Material and Equipment		20
Part 1 – General		20
1.1	Scope	20
1.2	Related Sections	20
1.3	Equipment	20
1.4	Products	20
1.5	Transportation and Handling	20
1.6	Storage and Protection	21
1.7	Substitutions	21
Part 2 – Products		21
Part 3 – Execution		21
DIVISION 2 – SITE WORK		22
Section 02010 – Mobilization and Demobilization		23
Part 1 – General		23
1.1	Scope	23
1.2	Related Sections	23
Part 2 – Products		23
Part 3 – Execution		23
3.1	Mobilization of Equipment and Facilities to Site	23
3.2	Use of Site	23
3.3	Use of Existing Facilities	23
3.4	Demobilization of Equipment and Facilities	24
3.5	Site Cleanup	24
Section 02222 – Excavation		25
Part 1 – General		25
1.1	Scope	25
1.2	Related Sections	25
1.3	Reference Documents	25
1.4	Field Measurements and Survey	25
Part 2 – Products		25
Part 3 – Execution		25
3.1	Excavation for Surface Preparation and Leveling of Areas for Steel Bulkhead and ROM Salt Placement	25
3.2	Disposing of Excavated Materials	26
3.3	Field Measurements and Survey	26
DIVISION 3 – WPC Components		27
SECTION 03100 – Run-of-Mine Salt		28
Part 1 – General		28
1.1	Scope	28
1.2	Related Sections	28
1.3	Submittals for Review and Approval	28
1.4	Quality Assurance	28
Part 2 – Products		28
2.1	Salt Material	28
Part 3 – Execution		28

3.1	General	28
3.2	Installation	28
3.3	Field Quality Control	29
SECTION 03200 – Steel Bulkheads		30
Part 1 – General		30
1.1	Scope	30
1.2	Related Sections	30
1.3	Submittals for Review and Approval	30
1.4	Quality Assurance	30
Part 2 – Products		30
2.1	Bulkhead Material	30
Part 3 – Execution		30
3.1	General	30
3.2	Fabrication	30
3.3	Installation	31
3.4	Field Quality Control	31
3.5	Product Acceptance	31

LIST OF TABLES

Table	Title
Table 1	Minimum ROM Salt Lengths

DIVISION 1 – GENERAL REQUIREMENTS

Section 01010 – Summary of Work

Part 1 – General

1.1 Scope

This section includes the following:

- Scope of Work
- Definitions and Abbreviations
- List of Drawings
- Work by Others
- Contractors Use of Site
- Contractors Use of Facilities
- Work Sequence
- Work Plan
- Health and Safety Plan (**HASP**)
- Contractor Quality Control Plan (**CQCP**)
- Submittals

1.2 Scope of Work

The contractor shall furnish all labor, materials, equipment, and tools to construct Waste Isolation Pilot Plant (**WIPP**) Panel Closure (**WPC**), including the WPC-A for Panels 1 through 9, and the WPC-B to the north of Panel 10. Each WPC-A in each of Panels 1-9 consists of a single steel bulkhead while the WPC-B north of Panel 10 will include dual bulkheads with run-of-mine (**ROM**) salt installed between. Run-of-mine salt will also be used as part of the Panel 9 closure. Nuclear Waste Partnership LLC (**NWP**) may elect to perform any portion or all of the work herein. Details are as follows:

- Install WPC-A in the air-intake and the air-exhaust drifts of Panel 1, 2, and 5 with the explosion-isolation walls (block walls), as shown on the drawings and described in these specifications. The WPC-A consists of an out-bye steel bulkhead. Alternatively, install WPC-A in the main entries and cross-drifts in order to close multiple panels simultaneously based on the direction of the geotechnical engineer.
- Install WPC-A in the air-intake and the air-exhaust drifts of Panel 3, 4, 6, 7, and 8 without the explosion-isolation walls (block walls), as shown on the drawings and described in these specifications. The WPC-A consists of an out-bye steel bulkhead. Alternatively, install WPC A in the main entries and cross-drifts in order to close multiple panels simultaneously based on the direction of the geotechnical engineer.
- Install WPC-A in the main entries between Panels 9 and 10, as shown on the drawings and described in these specifications. The WPC-A consists of an out-bye steel bulkhead. Run-of-mine salt will also be used as part of the Panel 9 closure.
- Install WPC-B in the main entries north of Panel 10, as shown on the drawings and described in these specifications. The WPC-B consists of an in-bye and an out-bye steel bulkhead with ROM salt installed between.

Unless otherwise agreed by NWP, the contractor shall use NWP supplied equipment underground. Such use shall be coordinated with NWP and may include the use of NWP qualified operators.

The scope of work shall include but not necessarily be limited to the following units of work:

- Develop work plan, HASP, and CQCP, and submit for approval
- Prepare and submit any other plans requiring approval
- Mobilize to site
- Coordinate construction with WIPP operations
- Perform the following operations for the air-intake drift and the air-exhaust drift that do not contain block walls (Panels 3, 4, 6, 7, and 8):
 - Prepare the surfaces for the out-bye steel bulkhead placement
 - Construct the out-bye steel bulkhead
 - Clean up construction areas in underground and above ground
 - Submit required record documents
 - Demobilize from site
- Perform the following operations for the air-intake drift and the air-exhaust drift with block walls (Panels 1, 2, and 5):
 - Prepare the surfaces for the out-bye steel bulkhead placement
 - Construct the out-bye steel bulkhead
 - Clean up construction areas in underground and above ground
 - Submit required record documents
 - Demobilize from site
- Perform the following operations for the main entries between Panels 9 and 10:
 - Prepare the surfaces for the ROM salt placement
 - Place ROM salt material in multiple layers
 - Prepare the surfaces for the out-bye steel bulkhead placement
 - Construct the out-bye steel bulkhead
 - Clean up construction areas in underground and above ground
 - Submit required record documents
 - Demobilize from site
- Perform the following operations for the main entries north of Panel 10:
 - Prepare the surfaces for the in-bye steel bulkhead placement
 - Construct the in-bye steel bulkhead
 - Prepare the surfaces for the ROM salt placement
 - Place ROM salt material in multiple layers
 - Prepare surfaces for the out-bye steel bulkhead placement
 - Construct the out-bye steel bulkhead

- Clean up construction areas in underground and above ground
- Submit required record documents
- Demobilize from site

1.3 Definitions and Abbreviations

Definitions

Block wall – Existing mortared concrete block wall adjacent to the panel waste disposal area as shown in the drawings; also known as explosion-isolation wall

Creep – Viscoplastic deformation of salt under deviatoric stress

Partial closure – The process of rendering a part of the hazardous waste management unit in the underground repository inactive and closed according to approved facility closure plans

Run-of-mine salt – A salt backfill obtained from mining operations and emplaced in an uncompacted state

Volatile organic compound (VOC) – Any VOC with Hazardous Waste Facility Permit emission limits

Nuclear Waste Partnership LLC (NWP) – the construction management authority

Abbreviations/Acronyms

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CQCP	Contractor Quality Control Plan
DOE	U.S. Department of Energy
DWG	drawing
EPA	U.S. Environmental Protection Agency
HASP	Health and Safety Plan
JHA	Job Hazard Analysis
LHD	load haul dump
LLC	Limited Liability Corporation
MSHA	U.S. Mine Safety and Health Administration
NWP	Nuclear Waste Partnership LLC
ROM	Run-of-mine
USACE	U.S. Army Corps of Engineers
VOC	volatile organic compound
WIPP	Waste Isolation Pilot Plant
WPC	WIPP Panel Closure

1.4 List of Drawings

The following drawings were prepared as a part of the WPC design report (Attachment G1, Appendix G1-B, Drawings):

DWG 262-001	WIPP Panel Closure (WPC) Title Sheet
DWG 262-002	WPC Locations
DWG 262-003	Typical Panel Layout and Mined Entry Cross-Sections
DWG 262-004	WPC Details – Bulkhead and ROM Salt Locations
DWG 262-005	WPC Details – Bulkhead Front-View and Attachment Detail

1.5 Work by Others

Survey

All survey work to locate, control, confirm, and complete the work will be performed by NWP. All survey work for record purposes will be performed by NWP. NWP may elect to perform certain portions or all of the work. The work performed by the NWP will be defined prior to the contract. Unless otherwise agreed by NWP, the contractor shall use underground equipment furnished by NWP for construction of the steel bulkheads and placement of ROM salt. Underground mining personnel who are qualified for the operation of such underground construction equipment may be made available to the contractor. The use of NWP equipment shall be coordinated with NWP.

1.6 Contractor's Use of Site

Site Conditions

The WIPP site is located near Carlsbad in southeastern New Mexico, as shown on the drawings. The underground arrangements and location of the WIPP waste disposal panels are shown on the drawings. The work is to construct steel bulkheads in the air-intake drifts, air-exhaust drifts, and main access drifts between Panels 9 and 10 after cessation of the disposal phase in the specific panel. The work may include installation of steel bulkheads at alternative locations. Alternative locations will be specified by the NWP geotechnical engineer prior to installation activities. Dual bulkheads will be emplaced in the main entries north of Panel 10 after cessation of all disposal activities, and ROM salt placed between these bulkheads at a length to be specified by NWP. Run-of-mine salt will also be used as part of the Panel 9 closure. The waste disposal panels are located approximately 2,150 feet (655 meters) below the ground surface. The contractor shall visit the site, and become familiar with the site and site conditions, prior to preparing a bid proposal.

Contractor's Use of Site

Areas at the ground surface will be designated for the contractor's use in assembling and storing equipment and materials. The contractor shall utilize only those areas so designated.

Limited space within the underground area will be designated for the contractor's use for storage of material and setup of equipment.

1.7 Contractor's Use of Facilities

Existing facilities at the site available for use by the contractor are:

- Waste shaft conveyance
- Salt skip hoist
- 460-volt AC, 3-phase power
- Water (underground, at waste shaft only) (above ground, at a location designated by NWP)

Additional information on mobilization and demobilization to these facilities is presented in Section 02010.

1.8 Work Sequence

Work sequence shall be as shown on the drawings and as directed by NWP. NWP will designate the order in which panels are to be closed.

1.9 Work Plans

The contractor shall prepare work plans fully describing the proposed fabrication, installation, and construction for each WIPP panel closure. The work plan shall define proposed materials, equipment, and construction methods. The work plan shall state supporting processes, procedures, materials safety data sheets, and regulations by reference. The work plans shall address precautions related to the Job Hazards Check List. The work plan shall address limitations such as hold and witness points. The work plans shall address prerequisites for work. NWP shall approve the work plan and no work shall be performed prior to approval of the work plan.

1.10 Health and Safety Plan (HASP)

The contractor shall obtain, review, and agree to applicable portions of the existing WIPP Safety Manual, WP 12-1. The contractor shall prepare a project-specific HASP taking into account applicable sections of the WIPP Safety Manual. Personnel performing work shall be qualified to work underground. Personnel operating heavy construction equipment shall be qualified to operate such equipment. The contractor shall also perform a Job Hazard Analysis (**JHA**) in accordance with WP 12-1. NWP shall approve the HASP and JHA and no work shall be performed prior to approval of the HASP and JHA.

1.11 Contractor Quality Control Plan (CQCP)

The contractor shall prepare a CQCP identifying all personnel and procedures necessary to produce an end product that complies with the contract requirements. The CQCP shall comply with applicable NWP requirements, including operator training and qualification; and Section 01400, Contractor Quality Control, of this specification. NWP shall approve the CQCP and no work shall be performed prior to approval of the CQCP.

1.12 Submittals

Submittals shall be in accordance with NWP submittal procedures and as required by the individual specifications.

Part 2 – Products

Not used.

Part 3 – Execution

Not Used.

END OF SECTION

Section 01090 – Reference Standards

Part 1 – General

1.1 Scope

This section includes the following:

- Provision of Reference Standards at Site
- Acronyms used in Contract Documents for Reference Standards

1.2 Quality Assurance

For products or workmanship specified by association, trade, or Federal Standards, the contractor shall comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

Conform to reference by date of issue current on the date of the owner-contractor agreement.

The contractor shall obtain, at the contractor's own expense, a copy of the standards referenced in the individual specification sections and shall maintain that copy at the job site until completion and acceptance of the work.

Should specified reference standards conflict with the contract documents, the contractor shall request clarification from Nuclear Waste Partnership LLC (**NWP**) before proceeding.

1.3 Schedule of References

Various publications referenced in other sections of the specifications establish requirements for the work. These references are identified by document number and title. The addresses of the organizations responsible for these publications are listed below.

ANSI	American National Standards Institute 25 West 43rd Street New York, New York 10036 Ph: 212-642-4900 Fax: 212-398-0023
ASTM	ASTM International 100 Barr Harbor Drive P.O. Box C700 West Conshohocken, Pennsylvania 19428-2959 Ph: 610-832-9585 Fax: 610-832-9555

CFR	Code of Federal Regulations Government Printing Office 732 North Capital Street, NW Washington, District of Columbia 20401-0001 Ph: 202-512-1800 Fax: 202 512-2104
EPA	Environmental Protection Agency 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202-2733 Ph: 214-665-2200
FTM-STD	Federal Test Method Standards Standardization Documents Order Desk, Building 4D 700 Robbins Avenue Philadelphia, Pennsylvania 19111-5094 Ph: 215-697-2179 Fax: 215-697-2978
NIST	National Institute of Standards and Technology 100 Bureau Drive, Stop 1000 Gaithersburg, Maryland 20899-1000 Ph: 301-975-6478 Fax: 301-975-8295
NTIS	National Technical Information Service U.S. Department of Commerce 5301 Shawnee Road Alexandria, Virginia 22312 Ph: 703-605-6000 Fax: 703-605-6900

Part 2 – Products

Not used.

Part 3 – Execution

Not used.

END OF SECTION

Section 01400 – Contractor Quality Control

Part 1 – General

1.1 Scope

This section includes the following:

- Contractor Quality Control Plan (**CQCP**)
- Reference Standards
- Quality Assurance
- Tolerances
- Testing Services
- Inspection Services
- Submittals

1.2 Related Sections

- 01090 – Reference Standards
- 01600 – Material and Equipment
- 02222 – Excavation
- 03100 – Run-of-Mine Salt

1.3 Contractor Quality Control Plan (**CQCP**)

The contractor shall prepare a CQCP describing the methods to be used to verify the performance of the engineered components of the Waste Isolation Pilot Plant (**WIPP**) Panel Closure (**WPC**). The quality control plan for the run-of-mine (**ROM**) salt shall detail the methods the contractor proposes to meet the minimum requirements, and the standard quality control test methods to be used to verify compliance with minimum requirements. Equipment methods employed shall be traceable to standard quality control tests as approved in the CQCP. No work shall be performed prior to Nuclear Waste Partnership LLC (**NWP**) approval of the CQCP.

1.4 References and Standards

Refer to individual specification sections for standards referenced therein, and to Section 01090, Reference Standards, for general listing. Additional standards will be identified in the CQCP.

Standards referenced in this section are as follows:

ASTM E 329-01b	Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
ASTM E 543-02	Standard Practice for Agencies Performing Nondestructive Testing

1.5 Quality Assurance

The contractor shall:

- Monitor suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality
- Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship
- Perform work with qualified persons to produce required and specified quality

1.6 Tolerances

The contractor shall:

- Monitor excavation, fabrication, and tolerances to produce acceptable work. The contractor shall not permit tolerances to accumulate.

1.7 Testing Services

Unless otherwise agreed by NWP, the contractor shall employ an independent firm qualified to perform the testing services and other services specified in the individual specification sections, and as may otherwise be required by NWP. Testing and source quality control may occur on or off the project site.

The testing laboratory, if used, shall comply with applicable sections of the reference standards and shall be authorized to operate in the State of New Mexico.

Testing equipment shall be calibrated at reasonable intervals traceable either to the standards from the National Institute of Standards and Technology or to accepted values of natural physical constants.

1.8 Inspection Services

The contractor may employ an independent firm to perform inspection services as a supplement to the contractor's quality control as specified in the individual specification sections, and as may be required by NWP. Inspection may occur on or off the project site.

The inspection firm shall comply with applicable sections of the reference standards.

1.9 Submittals

The contractor shall submit a CQCP as described herein.

Prior to start of work, if a testing laboratory is used, the contractor shall submit for approval the testing laboratory name, address, telephone number, and name of responsible officer of the firm, as well as a copy of the testing laboratory compliance with the referenced American Society for Testing and Materials (**ASTM**) standards, and a copy of the report of laboratory

facilities inspection made by Materials Reference Laboratory of National Institute of Standards and Technology with memorandum of remedies of any deficiencies reported by the inspection.

The contractor shall submit the names and qualifications of personnel proposed to perform the required inspections, along with their individual qualifications and certifications. Once approved by NWP, these personnel shall be available as may be required to promptly and efficiently complete the work.

Part 2 – Products

Not used.

Part 3 – Execution

3.1 General

The contractor is responsible for quality control and shall establish and maintain an effective quality control system. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the contract requirements. The quality control system shall cover construction operations, both on site and off site, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job. The project superintendent in this context is the individual with the responsibility for the overall management of the project, including quality and production.

3.2 Contractor Quality Control Plan

3.2.1 General

The contractor shall supply, not later than 30 days after receipt of notice to proceed, the CQCP, which implements the requirements of the Contract. The CQCP shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. Construction shall not begin until the CQCP is approved by NWP.

3.2.2 Content of the CQCP

The CQCP shall cover construction operations, both on site and off site, including work by subcontractors, fabricators, suppliers, and purchasing agents and shall include, as a minimum, the following items:

- A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the Contractor Quality Control (**CQC**) staff shall implement the control system for all aspects of the work specified.
- The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- A description of CQCP responsibilities and a delegation of authority to adequately perform the functions described in the CQCP, including authority to stop work.

- Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with NWP submittal procedures.
- Control, verification, and acceptance testing procedures as may be necessary to ensure that the work is completed to the requirements of the drawings and specifications.
- Procedures for tracking deficiencies from identification, through acceptable corrective action, to verification that identified deficiencies have been corrected.
- Reporting procedures, including proposed reporting formulas.

3.2.3 Acceptance of Plan

Acceptance of the contractor's plan is conditional. NWP reserves the right to require the contractor to make changes in the CQCP and operations, including removal of personnel, if necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQCP, the contractor shall notify NWP in writing of any proposed change. Proposed changes are subject to acceptance by NWP.

3.3 Tests

3.3.1 Testing Procedure

The contractor shall perform specified or required tests to verify that control measures are adequate to complete the work to contract requirements. Upon request, the contractor shall furnish, at the contractor's own expense, duplicate samples of test specimens for testing by NWP. The contractor shall perform, as necessary, the following activities and permanently record the results:

- Verify that testing procedures comply with contract requirements.
- Verify that facilities and testing equipment are available and comply with testing standards.
- Check test instrument calibration data against certified standards.
- Verify that recording forms and test identification control number system, including the test documentation requirements, have been prepared.
- Record the results of tests taken, both passing and failing. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by NWP, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to NWP.

- The contractor may elect to develop an equipment specification with construction parameters based upon test results of a test section of ROM salt. The equipment specification based upon construction parameters shall be traceable to standard test results identified in the CQCP. Specification paragraph reference, location where construction parameters were taken, and the sequential control number identifying the construction parameters will be given. If approved by NWP, actual construction parameter reports may be submitted later with a reference to the recording of construction parameters, location, time, and date taken.

3.4 Testing Laboratory

The testing laboratory, if used, shall provide qualified personnel to perform specified sampling and testing of products in accordance with specified standards, and the requirements of contract documents.

Reports indicating results of tests, and compliance or noncompliance with the contract documents will be submitted in accordance with NWP submittal procedures. Testing by an independent firm does not relieve the contractor of the responsibility to perform the work to the contract requirements.

3.5 Inspection Services

The inspection firm shall provide qualified personnel to perform specified inspection of products in accordance with specified standards.

Reports indicating results of the inspection and compliance or noncompliance with the contract documents will be submitted in accordance with NWP submittal procedures.

Inspection by the independent firm does not relieve the contractor of the responsibility to perform the work to the contract requirements.

3.6 Completion Inspection

3.6.1 Pre-Final Inspection

At appropriate times and at the completion of the work, the contractor shall conduct an inspection of the work and develop a "punch list" of items that do not conform to the drawings and specifications. The contractor shall then notify NWP that the work is ready for inspection. NWP will perform this inspection to verify that the work is satisfactory and appropriately complete. A "final punch list" will be developed as a result of this inspection. The contractor shall ensure that the items on this list are corrected and notify NWP so that a final inspection can be scheduled. Any items noted on the final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time slated for completion of the entire work.

3.6.2 Final Acceptance Inspection

The final acceptance inspection will be formally scheduled by NWP based upon notice from the contractor. This notice will be given to NWP at least 14 days prior to the final acceptance inspection. The contractor shall assure that the specific items previously identified as

unacceptable, along with the remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection.

3.7 Documentation

The contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form approved by NWP.

3.8 Notification of Noncompliance

NWP will notify the contractor of any noncompliance with the foregoing requirements. The contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the contractor fails or refuses to comply promptly, NWP may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the contractor.

END OF SECTION

Section 01600 – Material and Equipment

Part 1 – General

1.1 Scope

This section includes the following:

- Equipment
- Products
- Transportation and Handling
- Storage and Protection
- Substitutions

1.2 Related Sections

- 01010 – Summary of Work
- 01400 – Contractor Quality Control
- 02010 – Mobilization and Demobilization
- 02222 – Excavation
- 03100 – Run-of-Mine Salt

1.3 Equipment

The contractor shall specify proposed equipment in the work plan. Power equipment for use underground shall be either electrical or diesel-engine driven. All diesel-engine equipment shall be certified for use underground at the Waste Isolation Pilot Plant (**WIPP**) site.

1.4 Products

The contractor shall specify in the work plan, or in subsequently required submittals, the proposed products including, but not limited to steel bulkheads and run-of-mine (**ROM**) salt. The proposed products shall be supported by laboratory test results as required by the specifications. Products shall be subject to approval by Nuclear Waste Partnership LLC (**NWP**).

1.5 Transportation and Handling

The contractor shall:

- Transport and handle products in accordance with manufacturer's instructions.
- Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.6 Storage and Protection

The contractor shall:

- Store and protect products in accordance with manufacturers' instructions.
- Store with seals and labels intact and legible.
- Store sensitive products in weather-tight, climate-controlled enclosures in an environment favorable to product.
- Provide ventilation to prevent condensation and degradation of products.
- Store loose granular materials (other than ROM salt) on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.
- Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- Arrange storage of products to permit access for inspection and periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.7 Substitutions

1.7.1 Equipment Substitutions

The contractor may substitute equipment for that proposed in the work plan subject to NWP approval.

1.7.2 Product Substitutions

The contractor may not substitute products after the proposed products have been approved by NWP unless he can demonstrate that the supplier/source of that product no longer exists in which case he shall submit alternate products with lab test results to NWP for approval.

Part 2 – Products

Not used.

Part 3 – Execution

Not used.

END OF SECTION

DIVISION 2 – SITE WORK

Section 02010 – Mobilization and Demobilization

Part 1 – General

1.1 Scope

This section includes the following:

- Mobilization of Equipment and Facilities to Site
- Use of Site
- Use of Existing Facilities
- Demobilization of Equipment and Facilities
- Site Cleanup

1.2 Related Sections

- 01010 – Summary of Work
- 01600 – Material and Equipment

Part 2 – Products

Not used.

Part 3 – Execution

3.1 Mobilization of Equipment and Facilities to Site

Upon authorization to proceed, the contractor shall mobilize the contractor's equipment and facilities to the jobsite. Equipment and facilities shall be as specified and as defined in the contractor's work plan.

Nuclear Waste Partnership LLC (**NWP**) will provide utilities at designated locations. The contractor shall be responsible for hookups and tie-ins required for contractor operations.

The contractor shall be responsible for providing its own office, storage, and sanitary facilities.

Areas will be designated for the contractor's use in the underground area near the Waste Isolation Pilot Plant (**WIPP**) Panel Closure (**WPC**) installation. These areas are limited.

3.2 Use of Site

The contractor shall use only those areas specifically designated for use by NWP. The contractor shall limit on-site travel to the specific routes required for performance of work, and designated by NWP.

3.3 Use of Existing Facilities

Existing facilities available for use by the contractor are as follows:

- Waste shaft conveyance

- Salt skip hoist
- 460-volt AC, 3-phase power
- Water underground at waste shaft only
- Water on surface at location designated by NWP

The contractor shall arrange for use of the facilities with NWP and coordinate contractor actions and requirements with ongoing NWP operations.

Use of water in the underground will be restricted. No washout or cleanup will be permitted in the underground except as designated by NWP. Aboveground washout or cleanup of equipment will be allowed in the areas designated by NWP.

The contractor is cautioned to be aware of the physical dimensions of the waste conveyance and the air lock.

The contractor shall be responsible for any damage incurred by the existing site facilities as a result of contractor operations. Any damage shall be reported immediately to NWP and repaired at the contractor's cost.

3.4 Demobilization of Equipment and Facilities

At completion of work, the contractor shall demobilize contractor equipment and facilities from the job site. Contractor's equipment and materials shall be removed and disturbed areas restored. Utilities shall be removed to their connection points unless otherwise directed by NWP. Any equipment that becomes radiologically contaminated will be managed in accordance with NWP radiological protection policies.

3.5 Site Cleanup

At conclusion of the work, the contractor shall remove trash, waste, debris, excess construction materials, and restore the affected areas to their prior condition, to the satisfaction of NWP. A final inspection will be conducted by NWP and the contractor before final payment is approved. Any trash, waste, debris, excess construction materials that become radiologically contaminated will be managed in accordance with NWP radiological protection policies.

END OF SECTION

Section 02222 – Excavation

Part 1 – General

1.1 Scope

This section includes the following:

- Excavation for Surface Preparation and Leveling of Areas for Steel Bulkhead and ROM Salt Placement
- Disposing of Excavated Materials
- Field Measurements and Survey

1.2 Related Sections

- 01010 – Summary of Work
- 01600 – Material and Equipment

1.3 Reference Documents

Krieg, R.D., 1984. Reference Stratigraphy and Rock Properties for the Waste Isolation Pilot Plant, SAND83-1908, Sandia National Laboratories, Albuquerque, New Mexico.

1.4 Field Measurements and Survey

Survey required for performance of the work will be provided by Nuclear Waste Partnership LLC (**NWP**).

Part 2 – Products

Not used.

Part 3 – Execution

3.1 Excavation for Surface Preparation and Leveling of Areas for Steel Bulkhead and ROM Salt Placement

The contractor shall inspect the areas designated for placement of the Waste Isolation Pilot Plant (**WIPP**) Panel Closure (**WPC**) components (run-of-mine (**ROM**) salt and steel bulkheads) and remove any loose material. If loose material is found, the contractor shall excavate and prepare the surface by removing loose material and cleaning rock surfaces. The surface preparation of the floor shall produce a surface suitable for anchoring the steel bulkhead base components and for placing the first layer of ROM salt (as applicable). Excavation may be performed by either mechanical or manual means. Use of explosives is prohibited.

3.2 Disposing of Excavated Materials

The contractor shall dispose of excavated materials as directed by NWP. No excavated materials from radiologically controlled areas will be disposed of without prior approval of NWP.

3.3 Field Measurements and Survey

Survey required for performance of the work will be provided by NWP. The contractor shall protect survey control points, benchmarks, etc., from damage. NWP will verify that the contractor has excavated to the required lines and grades. No salt shall be emplaced until approved by NWP.

END OF SECTION

DIVISION 3 – WPC COMPONENTS

SECTION 03100 – Run-of-Mine Salt

Part 1 – General

1.1 Scope

This section includes the following:

- Salt Placement

1.2 Related Sections

- 01010 – Summary of Work
- 01400 – Contractor Quality Control
- 01600 – Material and Equipment

1.3 Submittals for Review and Approval

The salt emplacement method, dust control plan and other safety-related material shall be approved by Nuclear Waste Partnership LLC (**NWP**).

1.4 Quality Assurance

The contractor shall perform the work in accordance with the Contractor Quality Control Plan (**CQCP**).

Part 2 – Products

2.1 Salt Material

The salt is run-of-mine (**ROM**) salt and requires no grading or compaction. The salt shall be free of foreign organic material.

Part 3 – Execution

3.1 General

The contractor shall furnish labor, material, equipment, and tools to handle and place the salt.

The contractor shall use underground equipment and underground mine personnel as required in Part 1.5, Work by Others in Section 01010, Summary of Work. NWP will supply ROM salt. The contractor shall make suitable arrangements for transporting and placing the ROM salt.

3.2 Installation

Run-of-mine salt shall be transported to the Waste Isolation Pilot Plant (**WIPP**) Panel Closure (**WPC**)-An installation area north of Panel 9 prior to installation of the outbye bulkhead and to the WPC-B installation area north of Panel 10 after the construction of the in-bye steel bulkhead. Run-of-mine salt from any underground excavation is useable as long as it is free of foreign organic matter. The ROM salt is not required to achieve a specified density.

Salt may be emplaced in layers to facilitate the construction. The ROM salt is emplaced in layers to achieve minimum lengths shown in Table 1. The lengths reported in Table 1 do not include sloped ends of the ROM salt plug. Extents of the ROM salt emplacement are designated in the drawings.

There shall be no gap left between ROM salt and roof or sidewalls. Hand placement or push plates can be used to fill the voids if necessary. The approximate lengths and slope inclines are specified in the drawings. Emplacement of the ROM salt at natural angle of repose is acceptable.

Table 1 Minimum ROM Salt Lengths

Entry Width (feet)	Minimum ROM Salt Length¹ (feet)
14	35
16	40
20	50
25	65

Note:

1. Reported ROM length dimensions do not include end slopes of the ROM salt plug.

3.3 Field Quality Control

The contractor shall provide a Quality Control Inspector to inspect the emplacement of salt.

END OF SECTION

SECTION 03200 – Steel Bulkheads

Part 1 – General

1.1 Scope

This section includes the following:

- Steel Bulkhead Installation

1.2 Related Sections

- 01010 – Summary of Work
- 01400 – Contractor Quality Control
- 01600 – Material and Equipment

1.3 Submittals for Review and Approval

The method of installation, construction equipment, and construction materials shall be approved by Nuclear Waste Partnership LLC (**NWP**).

1.4 Quality Assurance

The contractor shall perform the work in accordance with the Contractor Quality Control Plan (**CQCP**).

Part 2 – Products

2.1 Bulkhead Material

Construction material, including steel profiles, sheet metal, flexible flashing, and connectors/bolts shall be approved by NWP prior to construction.

Part 3 – Execution

3.1 General

The contractor shall furnish all labor, material, equipment, and tools to install steel bulkheads at the locations specified in the drawings. The contractor shall use underground equipment and underground mine personnel as required in Part 1.5, Work by Others, in Section 01010, Summary of Work.

3.2 Fabrication

Bulkheads will be fabricated on the surface or in the underground in a location designated by NWP.

3.3 Installation

In-bye steel and out-bye steel bulkheads shall be installed in the designated WPC areas approved by the NWP as specified in the drawings. The contractor shall not commence installation activities without prior inspection of the ground conditions as documented in the Health and Safety Plan (**HASP**) per Section 01010 of these specifications and without prior approval by NWP.

3.4 Field Quality Control

The contractor shall provide a Quality Control Inspector to inspect the steel bulkhead installation if requested by NWP prior to contract.

3.5 Product Acceptance

The contractor shall arrange for the pre-final inspection and final product inspection as described in Part 3.6, Section 01400, of these specifications. The resolution of noncompliance issues will be conducted as described in Part 3.8, Section 01400, of these specifications.

END OF SECTION