DIVISION 1 GENERAL REQUIREMENTS INDEX

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SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Work is located at the Y-12 National Security Complex, a government-owned facility, managed by BWXT Y-12 L.L.C. , for the Department of Energy (DOE), in Oak Ridge, Tennessee. The contracting agency for this procurement is the National Nuclear Security Administration's Y-12 Area Office (NNSA-Y12-YSO), which is a semi-independent sub-agency of DOE. This work will be performed under a DOE contract with the Contracting Officer residing in the NNSA-Y12-YSO office. The U. S. Army Corps of Engineers (USACE) Nashville District is providing project management, design, and construction management services in support of NNSA-YSO's Small Business Initiative (SBI). A USACE, Nashville District construction management engineer will be issued Contracting Officer Representative (COR) authority. A USACE, Nashville District construction representative will be at the construction site whenever construction is being performed.

B. Work under this contract consists of furnishing labor, supervision, materials, tools, equipment, and services (except that specified to be furnished or performed by others) to perform construction services and design-build services involving building renovations and upgrades, construction of new structures, miscellaneous site work, and demolition work.

C. Work may involve hazardous materials (e.g. asbestos, lead, PCBs), and may be performed in hazardous environments (e.g. confined space, hazardous energy (i.e. high voltage)).

D. Contractor shall be capable of performing worked covered by the Davis-Bacon Act.

E. Contractor's vehicles and equipment will be subject to security inspections and radiological contamination monitoring when entering and exiting the Y-12 Complex.

F. Work shall be completed in accordance with the contract documents including contract clauses, specifications, and drawings.

1.2 RELATED SECTIONS

A. Section 01012, Site Security.

B. Section 01015, Acronyms and Definitions.

C. Section 01110, Environmental, Safety and Health.

D. Section 01120, Welding, Cutting (Burning), Grinding, and Incidental Welding Safety.

E. Section 01180, Respiratory Protection.

F. Section 01290, Payment Procedures.

G.Section 01300, Submittals.

G. Section 01320, Forms.

H. Section 01400, Quality control.
I. Section 01500, Construction Facilities and Temporary Controls.

J. Section 01550, Waste Management.

1.3 SUBMITTALS

A. Contractor will submit the following to the Contracting Officer's Representative, for information:

1. Contractor's and subcontractor's experience, qualifications, and manpower to provide construction services at the Y-12 National Security Complex.

B. Contractor will submit the following to the Contracting Officer's Representative, for approval:

1. Substance Abuse Program.
2. Corporate Health and Safety Program plus Activity Hazard Analysis for each definable feature of work.
3. Respiratory Protection Program.
4. Quality Control Program.

C. Provide submittal information in accordance with Section 01300.

D. Submit to Contracting Officer's Representative, as applicable, for approval:

1. Lift/haul plan(s), calculations, and drawings for all heavy hauls and all medium, heavy, and critical lifts.

a. Medium Lift – Any lift where the payload is 10 tons but less than 50 tons. A written detailed rigging plan is required for each medium lift.
b. Heavy Lift or Heavy Haul – Any lift or haul where the payload is 50 tons or greater. A written detailed rigging plan and supporting calculations is required for these operations.
c. Critical Lift – Any of the following conditions will cause a lift to be designated as critical:

1) Lift exceeds 90 percent of crane's chart capacity
2) Any multiple-crane lift
3) Lift presents a potential unacceptable risk of personnel injury or property damage
4) Lift could result in significant release of radioactivity, hazardous material, or other undesirable conditions
5) Lift could cause undetectable damage resulting in future operational or safety problems
6) Any lift involving a complex rigging arrangement or that requires specialty rigging
7) Any lift that requires close tolerance maneuvering

E. In addition to the above, Contractor shall submit to the Contracting Officer's Representative, for information, a signed inspection report verifying that all equipment furnished by the Contractor has been inspected for counterfeit bolts.

1.4 WORK SCHEDULE

A. Normal construction working hours at the Y-12 Complex are 7:00 a.m. – 3:30 p.m., Monday through Friday. Normal working hours do not include observed holidays. Contractor shall furnish sufficient forces and work such hours, including night shifts and overtime hours, as are necessary to ensure completion of the work within the time required.

B. Contractor must obtain approval from the Contracting Officer's Representative at least two (2) working days in advance to perform work at the job site outside the normal working hours. Contractor shall use the *Overtime Request* form included in Section 01320.

C. Requests for training, badges, and vehicle access, and processing submittals will generally be performed during normal working hours.

1.5 GENERAL OPERATIONAL REQUIREMENTS

A. A pre-mobilization meeting will be held near the job site prior to the start of field work. The Contractor and their subcontractors' supervisory personnel shall attend. The Contractor and Contracting Officer's Representative will mutually agree upon the date, time, and location.

B. Contractor will provide a designated representative with full authority to take actions and observe the work being performed on the site. Designate the representative at the pre-mobilization meeting and submit any change in representation to the Contracting Officer's Representative in writing.

C. All work under this contract shall be performed in a skillful, safe, and workmanlike manner. The Contracting Officer's Representative may require, in writing, that the Contractor remove from the Y-12 Complex any Contractor or subcontractor employee the Contracting Officer's Representative deems incompetent, careless, or otherwise objectionable.

D. Progress and Coordination meetings will be held weekly. These meetings will be chaired by the Contracting Officer's Representative and will generally be held at the site of the work. Arrange to have representation and appropriate subcontractors represented at these meetings. Items include the following:

1. Current and proposed work schedules and progress.
2. Resolution of problems.
3. Requests for information.
4. Administrative matters and procedures relevant to the contract.
5. Material delivery and vendor data status.

E. Contractor will have full responsibility to act for and commit for subcontractors whether the subcontractor is present or not. Develop information required in the course of or subsequent to such meetings. The Contractor is not relieved of responsibility to fulfill the terms of this contract as a result of inferences drawn or suggestions made at these meetings.

F. Facilities in the area may be in operation during the Contractor's work. The Contracting Officer's Representative will perform coordination of operating facilities activities and the Contractor's work. Contractor will request permission from the Contracting Officer's Representative two (2) working days in advance of need to work in an operating area and receive authorization from the Contracting Officer's Representative before starting such work.

1.6 WORKPLACE SUBSTANCE ABUSE PROGRAM

A. Contractor shall comply with 10 CFR 707, Workplace Substance Abuse Programs at DOE Sites, 2002.

1. A substance abuse program is required per 707.2 (a) ii and iii. Work is considered high risk.
2. Random drug testing is required per 707.7 (b) 3, and applies to truck drivers, equipment operators, safety and health representatives, and personnel making critical decisions.

B. Submit Substance Abuse Program to the Contracting Officer's Representative, for approval, with the General Order Agreement.

1. The Contractor's Substance Abuse Program must be approved before any work can be performed on site.

1.7 SPECIFICATIONS AND DRAWINGS

A. The Contracting Officer's Representative will furnish three (3) copies of specifications and drawings to the Contractor.

B. The specifications are written in a streamlined form, and are directed to the Contractor, unless specifically noted otherwise.

C. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

D. Specification section Division 1 governs over other Divisions of the specifications.

1.8 EMPLOYEE TRAINING

A. The contractor will be provided, General Employee Training and other specific compliance-related training. There will be no cost to the contractor for this particular training other than the contractor's employee's labor cost, transportation, and other incidental costs. Any other training will be the obligation of the Contractor.

B. The attached Training Table identifies Y-12 training which may be required for the Contractor's employees. The Contractor is responsible to determine if additional training is required based on Federal and State of Tennessee laws, and method of accomplishment of the work scope.

C. Contractor shall complete and submit the *Request for Y-12 National Security Complex Training* form (Section 01320) to the COR to request training.

1.9 WORKING AND STORAGE AREAS

A. Contractor will limit activities and storage to the immediate contract work area and storage areas designated by the Contracting Officer's Representative.

B. Contractor will store only work-related material and equipment in stockpile areas, storage trailers, and designated storage sites located at the Y-12 Complex.

C. Parking along roads is prohibited.

D. Contractor will perform cleanup, trash disposal, and neatly arrange material and equipment on a daily basis.

1.10 WORK COORDINATION

A. The work area may be co-occupied by other DOE contractors during performance of the work. Contractor will protect their equipment, tools, materials, and facilities from damage, and all personnel from injury during execution of work. Contracting Officer's Representative will coordinate work with existing activities.

B. A Contractor's representative will attend daily "plan of the day" meetings conducted by the Contracting Officer's Representative or BWXT Y-12 representative as may be required. In such cases, Contractor will submit a work plan that briefly identifies work activities for the following day.

C. Contractor will submit requests for outages a minimum of five (5) working days in advance of need. The Contracting Officer's Representative will coordinate with BWXT Y-12 and provide an approved outage schedule. Hold outages to a minimum in number and duration.

D. The Contracting Officer's Representative will provide Excavation/Penetration Permits generally at the pre-mobilization meeting. Contractor will request specific permits (such as hotwork, confined space) two (2) working days in advance of need. These permits will be issued by BWXT Y-12.

E. Contractor will fully cooperate with employees of BWXT Y-12 and BWXT Y-12 subcontractors. Do not commit or permit any act that will interfere with the performance of work by employees of BWXT Y-12 or BWXT Y-12 subcontractors.

1.11 PROCUREMENT, DELIVERY, STORAGE, AND HANDLING

A. After the Notice to Proceed is received, or earlier if formally notified by the Contracting Officer's Representative, promptly place orders for equipment, materials, and services required to complete the scope of work.

B. Notify the Contracting Officer's Representative of changes in deliveries or circumstances that would affect timely delivery of equipment, materials, and services required to complete the scope of work.

C. Requests from the Contractor for an extension of time for completion because of late delivery of equipment, material, or services shall be submitted to the Contracting

Officer's Representative in writing and shall be accompanied by documentation showing the Contractor's efforts to obtain timely delivery.

D. Contractor will comply with instructions, recommendations, and requirements stated by the manufacturer for handling and storing of material and equipment. Protect materials and equipment from moisture, dust, and damage including indoor storage when necessary.

E. Identify items delivered to the site with a weather-resistant tag or label with Contractor's name, contract number, and contents.

F. Train operators in use of special handling or lifting equipment. Transport to the site all equipment and materials used in performance of the contract.

G. Requests by the Contracting Officer's Representative to enclose or specially protect specific property shall be complied with.

H. Locate equipment and materials only in areas designated by the Contracting Officer's Representative. Keep storage area clean, accessible, arrange to drain properly, and protected from the weather.

I. Only materials and equipment to be used in the performance of the contract work may be located on Y12 property. The Contractor shall be responsible for all loss, destruction, or damage to property on the Y-12 Complex (including work in progress).

J. The Contractor may, subject to other provisions of this contract, employ personnel sufficient to protect its property.

K. Deliver materials to the job site in a new condition and unload, handle, and protect during storage and installation so as to maintain the new condition until final acceptance by the Contracting Officer's Representative.

L. Report damage incurred in transit or on site to the Contracting Officer's Representative. Damaged materials shall be replaced or repaired.

1.12 EXCESS MATERIALS AND EQUIPMENT

A. Dispose of excess material or equipment, due to design or scope changes, only with permission of the Contracting Officer's Representative.

1.13 EXECUTION

A. Work Plan:

1. Prepare a work plan that includes:

a. Technical approach techniques.
b. Inspection and tests.
c. Assignment of responsibilities.
d. Equipment.
e. Characterization.
f. Sampling and Analysis.

g. Safety and Health oversight.
h. Waste Management.
i. Submittal dates for specified submittals.
j. Schedule/work sequence.

1.14 DAILY ACTIVITIES AND MANPOWER REPORT

Submit a daily report to the Contracting Officer's Representative showing the following:

1. Contract Number.
2. Project Name.
3. Number of employees of Contractor and its subcontractors.
4. Equipment on site and the condition of the equipment.
5. Names of visitors.
6. Description of work, tests, or inspections performed.
7. Safety observations/incident.
8. General comments (e.g. delays or disruptions).
9. Contractor's Superintendent's Signature.

1.15 TESTING

A. The Contractor may be required to perform the following minimal tests if specifically required by the contract plans and specifications:

1. Compaction tests for soils, aggregate, and asphalt.
2. Slump, air, and compression (strength) tests for concrete.
3. Leak testing of HEPA-filtered equipment.
4. Sample analysis.
5. Construction Acceptance Tests (e.g. hydrostatic tests, megger tests, continuity checks, and motor rotations).
6. On-site welding/tests inspections.

B. Contractor will provide labor and technical support, annually calibrated (unless more frequent calibration is specified) and properly maintained equipment, and material required to perform testing. Equipment calibration records shall be submitted to the Contracting Officer's Representative upon request.

C. Notify the Contracting Officer's Representative one (1) day (two (2) days for fire or sprinkler systems) before performing tests and inspections. Perform tests and inspections in a manner that allows observation by the Contracting Officer's Representative.

D. Submit a copy of tests performed to the Contracting Officer's Representative along with daily reports.

E. Contractor shall not be required to perform characterization, sampling, and analysis for radioactive material contamination. This service shall be provided by others, i.e., the onsite consultant, BWXT.

1.16 DELIVERABLES

A. Contractor Deliverables – Manage, report, and resolve any personnel issues and/or concerns. Perform the tasks as required by the contract in a safe and timely fashion, and in accordance with all contract requirements.

END OF SECTION

TRAINING MATRIX

Module Title	Duration	Frequency	Provided by
GENERAL EMPLOYEE TRAINING (GET)			
Basic General Employee Training	4 hours	Every 2 years	BWXT Y-12 for NNSA-YSO
ORR Employee Emergency Plan	1 hour	Once	BWXT Y-12 for NNSA-YSO
Prevention of Work Place Violence	1 hour	Once	BWXT Y-12 for NNSA-YSO
Fire Extinguisher Required Read	½ hour	Every Year	BWXT Y-12 for NNSA-YSO
INDUSTRIAL HYGIENE AND HEALTH			
Lead Worker Protection (if applicable)	4 hours	Every Year	Contractor
RADIOLOGICAL CONTROL			
Source User, Required Reading	0.5 hours	Once	BWXT Y-12 for NNSA-YSO
Radiographer Certification (use of Radiation Generating Devices)	* requires written exam documentation	Current	Contractor
Radiation Safety Training for use of Density Gauge	* requires written exam documentation	Current	Contractor

TRAINING MATRIX

Module Title	Duration	Frequency	Provided by
PERSONAL PROTECTIVE EQUIPMENT			
PPE Awareness for all Employees	1 hour	New employees and whenever operations change	Contractor
HOT WORK			
Approved Training that Meets Module 11655		Issuing Authorities / Service Supervisors	
Approved Training that Meets Module 10389		Welder / Fire Watcher(s)	
SECURITY			
Comprehensive Security Briefing	1 hour	Once	BWXT Y-12 for NNSA-YSO
Annual Security Refresher Briefing	0.5 hour	Every year	BWXT Y-12 for NNSA-YSO

TRAINING MATRIX

Module Title	Duration	Frequency	Provided by
CONTRACTOR-SPECIFIC TRAINING			
Environmental, Safety and Health (ES&H) Program		As Required	Contractor
Contract-Specific ES&H Plan		As Required	Contractor

SECTION 01012
SITE SECURITY

PART 1 GENERAL

1.1 SUMMARY

A. This section includes security requirements for personnel and vehicle access, and performing work at the Y-12 National Security Complex.

B. All personnel with access to contract drawings and specifications, including all workers on site, shall be U.S. citizens.

C. Department of Energy (DOE) clearance requirements:

1. Uncleared personnel. (most or all contractor personnel will require "uncleared" picture badges).
2. L-cleared personnel (possibly one or more contractor personnel, but not likely).
3. Q-cleared personnel (no contractor personnel will require this clearance level).

D. DOE Foreign Ownership, Control or Influence (FOCI) approval of Contractor is required.

1.2 SITE ACCESS

A. Construction delivery access to the job site is per the following instructions: A K-9 security checkpoint is located in the east parking lot just north of Portal 13. All deliveries are required to enter the K-9 inspection area. Arrange delivery loading so that K-9s and Security personnel can access the loads for inspection. Expect a 15-30 minute time frame for inspection. After inspection, delivery vehicles will enter the Y-12 Complex through Portal 13 and travel 1st street to the work sites. The Contractor shall provide a vehicle and driver to escort all deliveries from Portal 13 to the work sites. Once delivery is complete, the vehicle and driver shall escort the empty delivery vehicle back to Portal 13.

B. For access to the Y-12 Complex to attend pre-bid and pre-construction meetings, or to obtain badges, personnel and vehicle information is required at least three (3) working days in advance. The Contractor shall complete and submit a *Request for Y-12 National Security Complex Access and Badge* for badges and/or passes.

C. Contractor employee parking will be allowed only at locations designated by the COR. Contractor to furnish on-site transportation of personnel within the General Plant and Protected Areas.

D. Personnel access to the work site requires a valid badge. Vehicles require a vehicle pass.

1. Contractor personnel scheduled to be on-site for ten (10) days or more per year or perform any work on site are required to have a DOE photo badge.

   NOTE: General Employee Training and a Security Briefing will be performed by BWXT Y-12 on behalf of NNSA-YSO to all Contractor personnel requesting a photo badge. Contact the Contracting Officer's Representative for scheduling of required training.

2. Contractor's visitors scheduled to be on-site for less than ten (10) days per year are required to have a DOE temporary visitor badge. No specific training is required for a temporary badge.

E. The Contractor shall complete and submit *a Request for Y-12 National Security Complex Vehicle Pass* for vehicle access to the Complex.

F. The Protective Forces Oversight organization will provide badges and passes.

G. Insurance certificate for vehicles must be available to the Contracting Officer's Representative upon request.

H. Other Requirements

1. Contractor's vehicles shall prominently display two Contractor identification signs (one on each front door).
2. Contractor's vehicles and equipment are subject to a security search when entering and exiting the Complex. Containers, boxes, and compartments shall be fully accessible. Delays of 10-20 minutes may be encountered.
3. Contractor's personnel shall present their badge to Security when entering and exiting the Complex.
4. DOE badges shall be prominently displayed by Contractor personnel above the waist on outer clothing at all times while in the Complex.
5. Cameras, recording devices, personal data assistants, firearms, explosives/explosive devices, and alcohol/drugs are prohibited in the Complex.
6. Contractor communication devices require Contracting Officer's Representative approval.
7. Contractor staging and laydown area will require a 7-foot high chain link security fence with swing gates to allow access.
8. The Contractor must agree to request clearances for its personnel. Contact the Contracting Officer's Representative for specific application forms, training, and documentation requirements.

I. Immediately notify the Contracting Officer's Representative in writing whenever an employee authorized to enter the Y-12 Complex either terminates employment or no longer needs access to the Y-12 Complex, and return the badge. An administrative fee of $500.00 per badge will be assessed against the Contractor for all photo badges/dosimeters issued to the Contractor and subcontractors that are not returned in compliance with the provisions of this subcontract. These fees may be withheld from the final payment or billed to the Contractor. Unless authorized in writing, this provision must be flowed down to all subcontractors.

1.3 PROTECTION OF EXISTING SECURITY FENCES

A. Maintain a 20-foot wide clear zone along existing security fences except as noted. If work is to be performed within the 20-foot clear zone, provide two (2) working days advance notice and receive approval from the Contracting Officer's Representative.

END OF SECTION

SECTION 01015
ACRONYMS AND ABBREVIATIONS

1.0 GENERAL.

1.1 SECTION INCLUDES: Acronyms and abbreviations used throughout the contract documents.

1.2 DEFINITIONS

A. Listing

1. AAMA, American Architectural Manufacturers Association

2. AASHTO, American Association of State Highways and Transportation Officials

3. ABS, Acrylouitrile - Butadiene – Styrene

4. ACGIH, American Conference of Governmental Industrial Hygienists

5. ACI, American Concrete Institute

6. ACM, Asbestos Containing Materials

7. ADA, American with Disabilities Act

8. A-E, Architect-Engineer

9. AHA, Activities Hazard Analysis

10. AEIC, Association of Edison Illuminating Companies

11. AIA, American Institute of Architects

12. AISC, American Institute of Steel Construction

13. AISI, American Iron and Steel Institute

14. AJHA, Automated Job Hazards Analysis

15. ANSI, American National Standards Institute

16. APA, American Plywood Association

17. API, American Petroleum Institute

18. APR, Air Purifying Respirator

19. ARMA, Asphalt Roofing Manufacturers Association

20. ASC, Adhesive and Sealant Council, Inc.

21. ASCE, American Society of Civil Engineers

22. ASLA, American Softwood Lumber Association

23. ASME, American Society of Mechanical Engineers
24. ASNT, American Society for Nondestructive Testing
25. ASPA, American Sod Producers Association
26. ASTM, American Society for Testing and Materials
27. AWG, American Wire Gage
28. AWI, Architectural Woodwork Institute
29. AWPB, American Wood Preservers Bureau
30. AWS, American Welding Society
31. AWWA, American Water Works Association
32. BEI, Biological Exposure Indices
33. BIA, Brick Institute of America
34. CAR, Corrective Action Report
35. CFC, Certified for Construction
36. CFR, Code of Federal Regulations
37. CGA, Compressed Gas Association
38. CLA, Construction Labor Agreement
39. CN, Change Notice
40. COR, Contracting Officer’s Representative
41. CPR, Cardiopulmonary Resuscitation
42. CPRS, Construction Project Requirements Summary
43. CPVC, Chlorinated - Polyvinyl Chloride
44. CY, Cubic Yard
45. DEAR, Department of Energy Acquisition Regulations
46. DHI, Door Hardware Institute
47. DOE, Department of Energy
48. DOT, Department of Transportation

49. EPA, Environmental Protection Agency

50. EPDM, Ethylene - Propylene Diene Monomer

51. ES, Engineering Standard

52. ES&H, Environmental, Safety and Health

53. FOCI, Foreign Ownership Controlling Interest

54. FGMA, Float Glass Manufacturers Association

55. FM, Factory Mutual

56. FR, Flame Resistant

57. FS, Federal Specification

58. GET, General Employee Training

59. GFCI, Ground Fault Circuit Interrupter

60. HASP, Health and Safety Plan

61. HEPA, High-Efficiency Particulate Air

62. IDLH, Immediately Dangerous to Life or Health

63. IEEE, Institute of Electrical and Electronic Engineers

64. IES, Illuminating Engineering Society

65. ISEA, Industrial Safety Equipment Association

66. ISM, Integrated Safety Management

67. LF, Linear Foot

68. MBMA, Metal Building Manufacturers Association

69. ML/SFA, Metal Lath/Steel Frame Association

70. MSA, Mine Safety Appliance

71. MSDS, Material Safety Data Sheet

72. MSS, Manufacturer's Standardization Society

73. MSHA, Mine Safety and Health Administration

74. M&TE, Measurement and Test Equipment

75. NAAMMS, National Association of Architectural Metal Manufacturers Standard

76. NACE, National Association of Corrosion Engineers
77. NCR, Nonconformance Report
78. NEC, National Electrical Code
79. NEMA, National Electrical Manufacturers Association
80. NESC, National Electrical Safety Code
81. NFPA, National Fire Protection Association
82. NIOSH, National Institute of Occupational Safety and Health
83. NNSA, National Nuclear Security Administration
84. NRCA, National Roofing Contractors Association
85. NWWDA, National Wood Window and Door Association
86. OSHA, Occupational Safety and Health Administration
87. PCB, Polychlorinated Biphenyl
88. PPE, Personal Protective Equipment
89. PTFE, Polytetrafluoroethylene (Teflon)
90. PVC, Polyvinyl Chloride
91. PVDF, Polyvinylidene Fluoride
92. QCP, Quality Control Plan
93. RADCON, Radiation Control
94. RCRA, Resource Conservation and Recovery Act
95. RFCI, Resilient Floor Covering Institute
96. RFI, Request for Information
97. RWP, Radiological Work Permit
98. SAE, Society of Automotive Engineers
99. SBA, Systems Builder Association
100. SBC, Standard Building Code
101. SDI, Steel Deck Institute

102. S&H, Safety and Health

103. SJI, Steel Joist Institute

104. SMACNA, Sheet Metal and Air Conditioning Contractors' National Association

105. SPC, Standard Plumbing Code of the Southern Building Code Congress International, Inc.

106. SPRI, Single Ply Roofing Institute

107. SSHO, Site Safety and Health Officer

108. SSPC, Steel Structures Painting Council

109. STC, Sound Transmission Classification

110. STR, Subcontract Technical Representative

111. SWI, Steel Window Institute

112. SY, Square Yard

113. TDEC, Tennessee Department of Environmental Compliance

114. TDOT, Tennessee Department of Transportation

115. TLD, Thermoluminescent Dosimeter

116. TLV, Threshold Limit Value

117. TSCA, Toxic Substance Control Act

118. TSD, Treatment, Storage, and Disposal

119. TWA, Time Weighted Average

120. UCNI, Unclassified Controlled Nuclear Information

121. UL, Underwriters' Laboratories, Inc.

122. YSO, Y-12 Site Office (of NNSA)

END OF SECTION

SECTION 01020
BRAND NAME OR EQUAL

1. GENERAL

1.1 The use of proprietary references to brand name manufacturers, products, and processes is intended to be descriptive not restrictive. The brand name indicates the level of quality required by the plans and specifications. Equal substitutions may be submitted for all listed brand names on the basis of the established salient characteristics and level of quality for that particular manufacturer, product, or process.

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SECTION 01090
SOURCES FOR REFERENCE PUBLICATIONS

PART 1 - GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

ACI INTERNATIONAL (ACI)
P.O. Box 9094
Farmington Hills, MI 48333-9094
Ph: 248-848-3700
Fax: 248-848-3701
Internet: http://www.aci-int.org

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
4301 North Fairfax Dr., Suite 425
ATTN: Pubs Dept.
Arlington, VA 22203
Ph: 703-524-8800
Fax: 703-528-3816
E-mail: ari@ari.org
Internet: http://www.ari.org

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA)
2800 Shirlington Road, Suite 300
Arlington, VA 22206
Ph: 703-575-4477
FAX: 703-575-4449
Internet: http://www.acca.org

AIR DIFFUSION COUNCIL (ADC)
1000 East Woodfield Road, Suite 102
Shaumburg, IL 60173-5921
Ph: 847-706-6750
Fax: 847-706-6751
Internet: http://www.flexibleduct.org

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
30 W. University Dr.
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088
Internet: http://www.amca.org

ALUMINUM ASSOCIATION (AA)
900 19th Street N.W.
Washington, DC 20006
Ph: 202-862-5100
Fax: 202-862-5164
Internet: http://www.aluminum.org

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Ofc. Sq.
Suite 104
Schaumburg, IL 60173-4268
Ph: 847-303-5664
Fax: 847-303-5774
Internet: http://www.aamanet.org

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SECTION 01110
ENVIRONMENTAL, SAFETY AND HEALTH

PART 1 GENERAL

1.1 SUMMARY

A. This section includes Environmental, Safety and Health (ES&H) requirements.

B. The Contractor shall take all reasonable precautions in the performance of the work under this contract to: protect the safety and health of its employees and Y-12 Complex personnel; minimize danger from hazards to life and property; and comply with the specified safety, health, and environmental regulations and requirements including EM385-1-1, the USACE Safety and Health Requirements Manual.

1.2 INTEGRATED SAFETY MANAGEMENT

A. Integrated Safety Management (ISM) shall be used to meet the requirements of this section. ISM is required by DEAR 970.5204-2 to establish and maintain a systematic approach to incorporate ES&H requirements into all work performed. Protection of the public, the worker, and the environment shall be integrated into the project. ES&H management activities shall include five core functions:

1. Define the Scope of Work.
2. Analyze the Hazards.
3. Develop and implement hazard controls.
4. Perform work within the controls.
5. Provide feedback and continuous improvement.

B. Incorporate these five core ISM functions into the Contractor's ES&H Program, the Activity Hazards Analysis (AHA), how they are to be applied as a continuous cycle with the degree of rigor appropriate to address the type of work activity, and the hazards involved. The order of precedence of hazard controls is (1) substituting less hazardous processes, materials, or equipment; (2) engineering controls; (3) administrative controls; and (4) personal protective equipment (PPE). Tailor controls to the complexity of the work and associated hazards.

1.3 ENVIRONMENTAL, SAFETY AND HEALTH

A. Before starting on-site work, provide an orientation of the ES&H Program and the Contract-specific ES&H Plan contents and ensure required training has been performed for on-site personnel.

1.4 SERVICES PROVIDED BY BWXT Y-12 THROUGH NNSA YSO (NO COST TO CONTRACTOR)

A. Radiological Control (RADCON) Technician when required.

B. Emergency ambulance and fire fighting service.

C. Issuance of Excavation/Penetration Permits.

D. A Source Custodian for any radioactive source that is brought on site, as required.

E. Environmental and waste management subject matter experts to support execution of the work. The Contractor shall provide the necessary resources to satisfy environmental requirements and waste disposal requirements.

1.5 REGULATORY REQUIREMENTS

A. The following regulatory requirements and material ARE incorporated by reference and apply to this contract:

1. 10 CFR 850, *Chronic Beryllium Disease Prevention Program, Final Rule*.
2. 18.10 CFR 835, Occupational Radiation Protection
3. 29 CFR 1926, *Safety and Health Regulations for Construction*, including referenced codes and standards.
4. 29 CFR 1910, *Occupational Safety and Health Standards*, including referenced codes and standards.
5. 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illnesses*.
6. 49 CFR 325-399, *Federal Motor Carrier Safety Regulations*.
7. 49 CFR 106-180, *Hazardous Materials Regulations*.
8. DEAR 970.5204-2, *Integrated Safety Management.*
9. 29 CFR 1910.146, *Permit-Required Confined Spaces*.
10. 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*.
11. 29 CFR 1910.1200, *Hazard Communication*.
12. 29 CFR 1926.23, *First Aid and Medical Attention*.
13. 29 CFR 1926.55, *Gases, Vapors, Fumes, Dusts, and Mists*.
14. 29 CFR 1926.62, *Lead*.
15. 29 CFR 1926.101, *Hearing Protection*.
16. 49 CFR 177.834, *Transportation–Carriage by Public Highway*, 2002.
17. TN 1200-4, *Rules of the Tennessee Department of Health and Tennessee Department of Environment and Conservation, Division of Water Pollution Control*.
18. TN 1200-4-10, *Rules of the Tennessee Department of Health and Tennessee Department of Environment and Conservation, National Pollutant Discharge Elimination System (NPDES) General Permits*.

1.6 RELATED SECTIONS

A. Section 01120, Welding, Cutting (Burning), Grinding, and Incidental Welding Safety.

B. Section 01180, Respiratory Protection.

1.7 REFERENCES

A. American Conference of Government Industrial Hygienists (ACGIH) 0022, Threshold Limit Values (TLV) for Chemical Substances and Physical Agents, and Biological Exposure Indices, latest edition.

B. ASME B30 Series, Hoisting and Rigging.

C. ASME B56 Series, Industrial Trucks

D. ANSI Z41 – 1999, Personal Protection – Protective Footwear.

E. ANSI Z87.1 – 1998, Practice for Occupational and Educational Eye and Face Protection.

F. ANSI Z88.2 – 1992, Respiratory Protection.
G. ISEA Z89.1, Industrial Head Protection, 1997.

H. NFPA 70, National Electrical Code, 2002 Edition, 2002; NFPA 70E NEC *Electrical Safety Requirements*

1.8 ATTACHMENTS

A. Section 01320, *Individual Accident/Incident Report (DOE F 5484.X).*

B. Section 01320, *Individual Accident/Incident Report (DOE F 5484.3).*

C. Hazardous Material Inventory Form.

NOTE: Attachments above are available. Paper copies will be provided by the Contracting Officer's Representative upon request.

1.9 SUBMITTALS

A. Submit the following to the Contracting Officer's Representative, for approval:

1. Corporate ES&H Program.

B. Submit the following to the Contracting Officer's Representative, as applicable, for approval:

1. ES&H Plan.
2. Activity Hazards Analysis.
3. Hoisting and Rigging Plan.
4. Radioactive Source (i.e moisture/density gage) Request.
5. Crane Operator Qualifications (refer to Section 01525, Safety and Occupational Health Requirements, paragraph 1.6.1.6).
6. ES&H Representative's Qualifications.
7. Material Safety Data Sheets (MSDS).

NOTE: Contractor shall provide to the Contracting Officer's Representative the maximum planned quantities of each chemical to be brought into the Y-12 Complex, as some facilities have maximum allowable quantities of stored chemicals.

C. Submit the following to the Contracting Officer's Representative, for information, as applicable:

1. Hazardous Materials Inventory Form.
2. Shoring Calculations, if required. (refer to Section 01525, Safety and Occupational Health Requirements, paragraph 3.7.4).
3. Confined Space Permit, if required.

D. Submit the following to the Contracting Officer's Representative, as a minimum, as requested:

1. List of persons performing specialized work.

2. OSHA 300 Log.
3. Inspection and Maintenance Documentation for Radiological Sources.
4. Manufacturer Data for Radiological Source.
5. Contractor Employee Training Records.

E. By the 3rd working day of each month, submit the following to the Contracting Officer's Representative, for the prior month, (regardless of any accidents or incidents):

1. *Individual Accident/Incident Report, DOE F 5484.X* (Section 01320).

1.10 ENVIRONMENTAL, SAFETY AND HEALTH PROGRAM

A. ES&H Program shall include:

1. Contractor's Corporate ES&H requirements.
2. Activity Hazard Identification and Analysis process.

B. Contract ES&H Plan:

1. Within 2 weeks following contract award, submit specific ES&H Plan for approval by the Contracting Officer's Representative.
2. The Contracting Officer's Representative will provide written comments to the Contractor within ten (10) working days after receipt of the Contract ES&H Plan.
3. The Contractor shall provide the Contracting Officer's Representative with written comment resolution and a copy of the section of the revised document within five (5) working days. Contracting Officer's Representative acceptance of the comment resolutions shall be recorded (via initials and date of applicable reviewer) on the Contractor's copy of the comment resolution.
4. If the Contract ES&H Plan is not approved by the Contracting Officer's Representative within five (5) working days of receipt of written comments from the Contractor, the Contractor shall hold a comment resolution meeting to resolve comments. The Contracting Officer's Representative shall have in attendance at the meeting persons with the authority to resolve comments.
5. The Contractor's ES&H Plan shall address how the Contractor's ES&H Program will be implemented, and as a minimum, contain the following:

a. Description of how ES&H requirements are incorporated into management and work practices for the Contract.
b. Clear definition of Contractor roles and responsibilities for compliance with ES&H requirements, including means for ensuring supervisors, ES&H representative, and workers analyze the work to define hazards, and how responsibility will be assigned to subcontractors.
c. Descriptions of methods for ensuring personnel have the requisite knowledge, training, required certification, experience, and skills to successfully discharge ES&H responsibilities.
d. Description of methods to maintain employee awareness and involvement regarding ES&H requirements, including employee's rights and obligation to report unsafe work conditions and express ES&H-related concerns without concern of reprisal and Stop Work Authority.
e. Description of methods to ensure employees understand hazards, how to eliminate or reduce associated risks, and how worker feedback and involvement will be used to enhance ES&H.

f. Description of how required training would be accomplished.
g. Description of Contractor programs, requirements, and procedures for safely performing confined space work, fall protection, respiratory protection, personal protective equipment, hazard communication, electrical, noise, lifts, machine guarding, lockout-tagout, hoisting and rigging, excavation/penetration work, trench work, cutting and grinding, welding, burning, and other work activities.
h. Descriptions of processes to inspect, certify, maintain, and repair equipment and tools, including emergency equipment, to meet applicable requirements.
i. Description of employee disciplinary program for violations of ES&H requirements.
j. Description of Contractor ES&H self-assessment and site inspection processes, including sampling and monitoring.
k. Site emergency procedures.
l. Method of conducting and documenting safety inspections.
m. Investigation procedures for accidents, injuries, illness, non-compliances, releases, spills, and near misses. A near miss is a narrowly avoided condition that has the potential for adversely affecting personal safety, the environment, or equipment.
n. Description of Contractor's corrective action program for ES&H deficiencies.
o. ES&H document and record management program.
p. Methods for meeting ES&H reporting requirements.
q. Means for identifying and implementing needed changes to the ES&H Plan, including change authority.
r. Means for ensuring adequate housekeeping in the work area.
s. First aid medical treatment.
t. Worker protection.
u. Environmental protection.

6. The Contracting Officer’s Representative must approve the Contract ES&H Plan prior to the start of on-site work.
7. The Contracting Officer’s Representative must approve changes to the Contract ES&H Plan prior to commencing work covered by the changes.

C. Activity Hazards Analysis (AHA)

1. Submit the initial AHA at least 15 days prior to start of each phase. for approval by the Contracting Officer’s Representative. AHAs for specific definable features of work shall be submitted prior to the preparatory meeting for that feature of work.
2. The Contracting Officer’s Representative will provide written comments to the Contractor within ten (10) working days after receipt of the AHA.
3. The Contractor shall provide the Contracting Officer’s Representative with written comment resolutions and a copy of the section of the revised document within five (5) working days. Contracting Officer’s Representative acceptance of the comment resolutions shall be recorded (via initials and date of applicable reviewer) on the Contractor's copy of the comment resolution.
4. If the AHA is not accepted by the Contracting Officer’s Representative within five (5) working days of receipt of written comments from the Contractor, the Contractor shall hold a comment resolution meeting to resolve comments. The Contracting Officer’s Representative shall have in attendance at the meeting persons with the authority to resolve comments.
5. The AHA prepared by the Contractor shall define the work activities to be executed, identify the associated hazards that could adversely affect health, safety, or the

environment, and define specific actions to eliminate or minimize the risks involved. The AHA shall address permit requirements, training requirements, engineering and administrative controls, and personal protective equipment (PPE) requirements. Revise the AHA, and re-submit to the Contracting Officer's Representative for approval, when the work activities, work practices, or site conditions change to the extent that different or additional hazards may be present. The AHA and any revisions must be signed by an authorized representative of the Contractor prior to performing the work activity, certifying that the AHA has been reviewed, and AHA requirements will be met.

6. Additional requirements for preparation of the AHA are outlined in Section 01525, Safety and Occupational Health Requirements, paragraph 1.9.

1.11 ENVIRONMENTAL, SAFETY AND HEALTH ENFORCEMENT

Contractor shall designate an ES&H representative and alternate to be responsible for enforcement and implementation of the ES&H requirements and implementation of the ES&H Plan. The ES&H representative shall be on site at all times when work is being performed. The ES&H representative must be capable of executing job responsibilities effectively at the work site. The site superintendent may also be the ES&H representative, if qualified, under the condition that the superintendant's responsibilities do not interfere with the responsibilities also required of the ES&H representative. However, the contractor quality control person cannot be the ES&H representative, even though the QC has safety inspection responsibilities as part of the QC duties.

A. The ES&H representative shall possess a combination of education, training, and experience sufficient to effectively plan and implement a program that incorporates ES&H requirements into execution of the work. The qualifications are:

1. Thirty-two (32) hour Occupational Safety and Health Standards in the Construction Industry training course (OTI 510) or equivalent within the last 5 years.
2. A minimum of 5 years safety work on similar projects.
3. An average of at least 24 hours of formal safety training each year for the past 5 years.

B. Submit a copy of the designated ES&H representative's training certificate(s) and resume to the COR for BWXT Y-12 approval:

1. The Contracting Officer's Representative will provide written approval or comments to the Contractor within four (4) working days after receipt of the training certificates and resume.

C. The ES&H representative shall have the following responsibilities:

1. Meet with Contracting Officer's Representative prior to start of on-site work to establish interface for evacuation, site access control, fire protection, spill response and control, emergency management, medical, and reporting.
2. Perform daily ES&H inspections and correct deficiencies immediately. If deficiencies cannot be corrected immediately, stop related work until correction is completedMaintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.

3. Conduct daily ES&H briefings and a weekly ES&H meeting with workers prior to start of work to discuss the day's tasks, hazards, unidentified hazardous and relevant ES&H topics for the work being performed.
4. Maintain documentation of inspections, meetings, and other Contract ES&H-related activities.
5. Ensure personnel review and sign off as having received a copy of the current Job Hazards Identification (prepared by the Contractor), and the Contractor's subsequent analysis and required controls for work to be performed before entering the construction site.
6. Serve as the Contractor’s point of contact for ES&H concerns.
7. Administer the Contract ES&H Plan including any changes.
8. Review and analyze injury and illness reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors. Participate in ES&H-related investigations and approve corrective actions taken by the Contractor. Conduct mishap investigations and complete required reports.
9. Ensure housekeeping is maintained during performance of the work to avoid clutter and confusion. Ensure work area is kept clean, free of tripping hazards, and that pathways remain open.
10. Review training records and ensure individuals' training and certifications are current to meet job requirements.
11. Stop Work Authority: The Contractor shall ensure that all workers at the site are informed that they should stop/suspend work, without reprisal by management or co-workers, when they are convinced a situation exists which will place them, their co-worker(s), or the environment in imminent danger. The Contractor is responsible for costs incurred when either the Contractor or the Contracting Officer’s Representative stops work.

    a. "Stop Work" is defined as stopping the specific task or activity that poses imminent danger to human health and/or the environment.
    b. "Suspend Work" is defined as temporarily interrupting a specific task or activity that could pose an unsafe situation to human health and/or the environment.
    c. "Imminent danger" is defined as any condition or practice in any place of employment which is such that a danger exists which could reasonably be expected to immediately cause environmental insult, death, or serious physical harm (permanent or prolonged impairment of the body or temporary disablement requiring hospitalization).

12. Ensure waste and trash is placed in appropriate containers.
13. Ensure suspended cords and hoses are at least seven (7) feet overhead with non-conductive material.
14. Maintain applicable safety reference material on the job site.
15. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
16. Implement and enforce accepted APPS and AHAs.
17. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

D. Contractor shall make timely corrective actions to deficiencies identified by self-assessments, inspections, investigations, or Contracting Officer's Representative oversight. If immediate corrective action for a known hazard is not possible, the Contractor shall immediately:

1. Notify the Contracting Officer's Representative of the location and describe the hazard concerns.
2. Inform all affected employees of the hazard and its location.
3. Post warning signs and barriers at the location of the hazard describing the nature of the hazard.
4. Take further interim control measures to protect employees.
5. Secure approval from the Contracting Officer's Representative of measures taken.
6. All ES&H-related permits specific to the work shall be posted in a designated area at the work site and permit requirements shall be integrated into the work and hazard controls.
7. Contracting Officer's Representative provided permits and approvals must be in accordance with Section 01300.

1.12 WORKER TRAINING AND QUALIFICATION

A. The Contractor shall use trained and qualified workers per Training Table (Section 01010), as required for the work scope.

B. For work requiring a "competent person" (e.g., scaffolding, excavation, asbestos) the names of such designated persons shall be posted in the same area as required ES&H permits.

C. For work requiring specialized training or certification, the Contractor shall certify by name that the persons performing such work are duly qualified and maintain training records and certifications. Contractor shall provide copies of records and certifications to the Contracting Officer's Representative upon request.

D. The Contractor shall train employees on the Contractor's Contract-specific ES&H Plan, and the applicable Contractor's Activity Hazards Identification and Analysis, employing work site walk downs and briefings for all new work.

E. Contractor's supervisor shall receive the same training as the workers being supervised.

1.13 ENVIRONMENTAL, SAFETY AND HEALTH REPORTING

A. Notify the Contracting Officer's Representative of employees that are "Declared Pregnant Workers" per 10 CFR 835.

B. Verbally notify the Contracting Officer's Representative immediately (within 15 minutes) after an event occurs involving OSHA recordable injuries and illnesses, releases or spills to the environment, potentially serious hazards to personnel, or other abnormal events. The Contractor and the Contracting Officer's Representative may jointly investigate each injury, illness, incident, or occurrence.

C. Submit the DOE F 5484.3 "Individual Accident/Incident Report" within two working days of a recordable or lost time accident or injury. The block entitled "Organization Name" shall list Contractor's name; the block entitled "Department, Division or ID Code"

shall list the contract number. Provide supporting documentation to the Contracting Officer's Representative as soon as available.

D. Provide a copy of OSHA 300 Log to the Contracting Officer's Representative upon request.

E. Promptly report suspected employee exposure to contaminants exceeding ES&H requirements and sampling or monitoring results exceeding ES&H requirements, and "near misses" to the Contracting Officer's Representative.

1.14 PERSONAL PROTECTIVE EQUIPMENT

A. Provide personal protective and life saving equipment in accordance with 29 CFR 1926, Subpart E and the following:

1. All persons accessing a construction area shall wear hard hats in accordance with ISEA Z89.1 and safety glasses with rigid side shields in accordance with ANSI Z87.1.
2. Safety-toe work boots in accordance with ANSI Z41.1 are required for persons involved in work activities.
3. Class C full-body harness and twin shock-absorbing lanyards with double locking hook connections are required whenever the potential fall distance is 6 feet or greater.
4. Additional PPE shall be used as required for specific tasks and associated hazards as determined by Activity Hazard Analysis, considering MSDSs, drawings, specifications, weather conditions, radiological conditions and other similar information.
5. Workers shall be trained in the proper use of PPE prior to use.

1.15 OCCUPATIONAL HEALTH PROTECTION THRESHOLD EXPOSURE LIMITS

A. Limit exposure to chemical substances, physical agents, and biological hazards to the permissible exposure limits of 29 CFR 1926, *Safety and Health Regulations for Construction*.

B. American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices" (most recent edition, as specified in the contract), when ACGIH Threshold Limit Values (TLVs) are lower (more protective) than Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits. [When ACGIH TLVs are used as exposure limits, DOE operations shall nonetheless comply with the other provisions of any applicable OSHA-expanded health standard.] The TLVs for exposures to laser emissions in the ACGIH Indices are excluded from this requirement.

1.16 HAZARD MATERIAL COMMUNICATION

A. Pursuant to OSHA's Hazard Communication Standard, 29 CFR 1910.1200, access to MSDSs for hazardous substances present on the site is made available by the Contractor.

B. Inform and train employees about hazardous materials that may be introduced, produced, or encountered as required by 29 CFR 1910.1200.

C. MSDSs contain generic hazard information and are not a substitute for the Integrated Safety Management Hazard Identification and Analysis process. If Contractor has concerns about conflicting hazard information or whether an updated MSDS is available, contact product manufacturer or other technical literature in developing controls for personnel protection as a part of the development of the AHA.

D. Submit a copy of MSDS to the Contracting Officer's Representative prior to delivery of material to the site, maintain a copy of the MSDS at the site that is available to all employees, and complete a Hazardous Material Inventory form, as required.

NOTE: Contractor shall recognize that the Contracting Officer's Representative may restrict the amount of chemical product(s) that may be stored at the Y-12 Complex prior to use.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Radioactive Sources:

1. The contractor will submit a written request and source certificate(s) to the Contracting Officer's Representative, for approval, a minimum of five (5) working days before any exempt, non-exempt or licensed radioactive source is brought on-site. This includes sources used in radiography equipment, moisture density gauges, or other equipment or sources that are licensed or non-exempt. The request shall contain, at a minimum, the following:

    a. Description of source including radionuclide(s), activity, and contact dose rate.
    b. Manufacturer of source as well as unique identification number.
    c. Current leak test report.
    d. A copy of license(s), permits, operating procedures, and emergency procedures.
    e. List of authorized users, proof of their training, and emergency telephone number.
    f. Storage location.
    g. Date the source will be arriving and the date it is to leave the site.
    h. Contractor's Source Custodian and emergency telephone number.
    i. Contract and subcontract for source to be used.
    j. A description of the work and how the source will be used.

2. BWXT Y-12 will provide a Source Custodian to act as a liaison between Contractor and Contracting Officer's Representative, and to ensure DOE-Y12 procedures are followed regarding radioactive source control. Specific procedures will be provided to the Contractor.
3. While the source is on site, it shall have inspection and maintenance performed as described in any license, procedure, or manufacturer's document, and the records shall be made available to the Contracting Officer's Representative upon request.
4. Notify the Contracting Officer's Representative, both verbally and written, when the source is brought on-site and removed from site.

2.2 MATERIALS

A. Hazardous Materials:

1. Chemical or other hazardous substances banned by a Federal or Tennessee State regulatory agency shall not be brought onto the Y-12 Complex. Specifically, asbestos, polychlorinated biphenyls (PCBs), and banned chlorofluorocarbons are prohibited.
2. Aerosol cans are not allowed on site unless written permission is provided by the Contracting Officer's Representative.

PART 3 EXECUTION

3.1 PREPARATION

A. Complete or perform the following prior to the start of on-site work:

1. ES&H Plan approved by the Contracting Officer's Representative.
2. Job Hazards Identification (prepared by BWXT Y-12) for Y-12 facility/area specific hazards.
3. Job Hazards Analysis and Controls (prepared by Contractor) for hazards related to the Contractor's method of accomplishment and facility/area specific hazards.
4. ES&H representative training certification and qualification.
5. MSDSs submittals.
6. Contact Contracting Officer's Representative to obtain work authorization prior to start of work.

B. Inform workers of identified hazards, control measures, and proper work practices pursuant to the Job Hazards Identification, Analysis, and Controls and Contract-specific training. Contractor will maintain documentation of this briefing.

C. Obtain Excavation/Penetration Permits from BWXT Y-12 through the COR prior to start of any excavation/penetration activity. BWXT Y-12 RADCON support is required for ALL activities that distub the asphalt, soil (excavation, penetration, removing power poles, etc.) or existing concrete pads.

D. Inform workers of their rights and responsibilities by appropriate means, including posting the DOE Worker Protection Poster (DOE Form 5483.1, "Occupational Safety and Health Protection"). In order to facilitate prompt identification, reporting, and resolution of employee concerns regarding DOE facilities or operations, posters shall be placed in sufficient numbers at various visible and prominent locations to inform employees of the reporting process.

E. Obtain instructions from the COR for access/interface with BWXT Y-12 fire protection, ambulance, and emergency management; and BWXT Y-12-provided radiation surveys of excavation equipment at the pre-mobilization meeting.

3.2 HAZARDOUS WORK

A. Perform excavations in accordance with 29 CFR 1926 Subpart P.

1. A competent person shall be on-site during excavation work inside trenches greater than 4 feet deep.
2. Submit shoring calculations when calculations are required per 29 CFR 1926, Subpart P.

B. Confined Space

1. A confined space is not meant for constant human occupancy, has a restricted entry/exit, and contains a hazardous environment or unknown environment.
2. Perform work in accordance with 29 CFR 1910.146.
3. For each specific task, the Contractor shall identify confined space areas.
4. Confined space entrants shall wear a rescue harness with lifeline, except when use increases the risk or does not contribute to the rescue. This determination is to be made during the pre-entry evaluation.
5. Excavations greater than 4 feet deep and welding in a confined space will be evaluated by the Contractor for risk classification.
6. A BWXT Y-12-issued permit is required for existing BWXT Y-12 confined spaces. The Contractor shall implement a confined space permit system for confined spaces created during their work performance. Submit requests for BWXT Y-12 permits two (2) working days in advance of need.
7. Refer to Section 01525, Safety and Occupational Health Requirements, paragraph 3.9 for additional requirements regarding confined space entry.

C. Lockout/Tagout

1. A lockout/tagout permit is required before performing work on energized equipment, near overhead lines, or excavating near underground utilities.
2. Hazardous energy sources are present at the Y-12 Complex and may need to be de-energized and locked out before the Contractor can begin certain work. Contractor shall provide a procedure that its employees will follow to perform work involving existing hazardous energy sources, and hazardous energy sources brought on the Y-12 Complex or created during the performance of the Contractor's work.
3. Perform lockout/tagout in accordance with 29 CFR 1910.269, "*Electric Power Generation, Transmission, and Distribution*," and 29 CFR 1910.333, *Working On Or Near Exposed Deenergized Parts*," and/or 29 CFR 1910.147, "*The Control of Hazardous Energy (Lockout/Tagout)*."
4. BWXT Y-12 will perform the initial lockout/tagout of existing Y-12 Complex systems and equipment, or issue the permit for electrical distribution systems or equipment and will remove the final lock or tag, respectively. A five (5) working day advance notice is required for BWXT Y-12 to perform the initial lockout/tagout. The Contractor shall implement its lockout/tagout procedure and install a secondary lock on equipment or lock box after BWXT Y-12 installs the initial lock/tag. Contractor shall complete their procedure and remove all locks prior to BWXT Y-12 removing the final lock/tag.

D. Hoisting and Rigging

1. Perform hoisting and rigging activities in accordance with 29 CFR 1926 Subparts H and N, and ANSI B 30 Series.
2. Submit the Hoisting and Rigging Plan to the COR within 2 weeks after award of the Contract involving hoisting and rigging activities.

3. The Contracting Officer's Representative will provide written comments to the Contractor within ten (10) working days after receipt of the Hoisting and Rigging Plan.
4. The Contractor will provide the Contracting Officer's Representative with written comment resolutions and a copy of the section of the revised document within five (5) working days. Contracting Officer's Representative approval of the comment resolutions will be recorded (via initials and date of applicable reviewer) on the Contractor's copy of the comment resolution.
5. If the Hoisting and Rigging Plan is not approved by the Contracting Officer's Representative within five (5) working days of receipt of written comments from the Contractor, the Contractor shall hold a comment resolution meeting to resolve comments. The Contracting Officer's Representative shall have in attendance at the meeting persons with the authority to resolve comments.
6. SAE Grade 5, 8, or 8.2 fasteners or ASTM Grade A325 fasteners identified on the "DOE Suspect Bolt Headmark List" are prohibited on site.
7. Hoisting or rigging activities using power industrial truck lifts, backhoes, and trackhoes are not permitted unless the manufacturer's documentation specifies the equipment is designed for that purpose and lifting limits are properly identified.
8. All equipment to be used must be within its current maintenance and inspection period. Pre-use inspections must be performed and documented.

E. Critical Lift Plan

1. Submit a Critical Lift Plan to the COR within 2 weeks of planned lifts for approval by the Contracting Officer's Representative.
2. The Contracting Officer's Representative will provide written comments to the Contractor within ten (10) working days after receipt of the Critical Lift Plan.
3. The Contractor will provide the Contracting Officer's Representative with written comment resolutions and a copy of the section of the revised document within five (5) working days. Contracting Officer's Representative approval of the comment resolutions shall be recorded (via initials and date of applicable reviewer) on the Contractor's copy of the comment resolution.
4. If the Hoisting and Rigging Plan is not approved by the Contracting Officer's Representative within five (5) working days of receipt of written comments from the Contractor, the Contractor shall hold a comment resolution meeting to resolve comments. The Contracting Officer's Representative shall have in attendance at the meeting persons with the authority to resolve comments.
5. Refer to Section 01525, Safety and Occupational Health Requirements, paragraph 1.8.1.e for additional requirements regarding the critical lift plan.

F. Lead

1. If lead is present (known prior to start of work, or encountered during performance of the work), perform work in accordance with 29 CFR 1926.62.
2. Before starting work involving lead materials, submit to the Contracting Officer's Representative, for approval, a Lead Compliance Plan based on anticipated work activities.
3. The Contracting Officer's Representative will provide written comments to the Contractor within ten (10) working days after receipt of the Lead Compliance Plan.
4. The Contractor will provide the Contracting Officer's Representative with written comment resolutions and a copy of the section of the revised document within five (5) working days. Contracting Officer's Representative approval of the comment

resolutions shall be recorded (via initials and date of applicable reviewer) on the Contractor's copy of the comment resolution.

5. If the Lead Compliance Plan is not approved by the Contracting Officer's Representative within five (5) working days of receipt of written comments from the Contractor, the Contractor shall hold a comment resolution meeting to resolve comments. The Contracting Officer's Representative shall have in attendance at the meeting persons with the authority to resolve comments.
6. Engineering controls are mandatory regardless of PPE used.
7. Due to the age of the Y-12 Complex, all painted surfaces are suspect for lead containing paint.

G. Mercury and PCBs

1. Low levels of mercury and PCBs are detectable in the soil and buildings materials/components in some areas of the Y-12 Complex. The Contractor's ES&H Plan shall describe how worker exposure monitoring for these constituents will be addressed, when required.

H. Electrical

1. Conduct electrical installation and maintenance operations in accordance with requirements in 29 CFR 1910, 29 CFR 1926, and the National Electrical Code (NFPA 70).
2. Provide ground fault circuit interrupter protection for cord sets, receptacles, and electrical tools including connections to generators and equipment connected by cord and plug for use by workers.

I. Spark/Flame Producing Work

1. Implement a permit system for spark or flame producing work to control fire and explosion hazards. See Section 01120.
2. Contractor shall use fire retardant, plastic/fabric tarpaulins, tested in accordance with NFPA 701, "Methods of Flame Propagation of Textiles and Films to Protect Personnel and Property During Spark or Flame Producing Work". Framing material used to support such coverings shall be non-combustible.
3. Contractor shall provide a dedicated, trained fire watch during, and for a minimum of 30 minutes after, all spark/flame producing work. Fire watches must maintain a proximity necessary to observe the safety of the person performing the hot work and be able to respond in case of an emergency.
4. Contractor personnel shall determine the location of the nearest operating fire alarm pull station.
5. If direct contact with sparks or flame cannot be avoided, leather protective clothing must protect that part of the body.
6. Contractor shall submit a Hotwork Operations Plan for review by Y-12 ES&H or follow Y-12 Hotwork Procedure Y79-002 including required training and hotwork permit.
7. Contractor personnel shall determine the location of the nearest operating fire alarm pull station and / or phone. Call 911 if calling from a Y-12 phone or 865-574-7172 if using a cell phone.

J. Radiological Contamination

SECTION 01110
ENVIRONMENTAL, SAFETY AND HEALTH

1. General Information

   a. Work will be performed within the Y-12 Controlled Area as defined in 10 CFR 835, "Occupational Radiation Protection." Access is managed by the Contracting Officer's Representative to protect individuals from exposure to radiation and/or radioactive material.
   b. Soil contamination, underground radioactive material, and fixed contamination on paved surfaces may exist within the Y-12 Controlled Area.

2. Excavation

   a. A site characterization will be performed by BWXT Y-12 as required.
   b. BWXT Y-12 RADCON support is required for ALL activities that distub the asphalt, soil (excavation, penetration, removing power poles, etc.) or existing concrete pads.

3. Material and Equipment Surveys

   a. Upon arrival and prior to leaving the site, the Contractor's tools, equipment, and material will be surveyed to ensure the equipment meets the standards for radioactivity before it is brought into the work area or released from the Y-12 Complex. Equipment must be clean prior to arrival at Y-12 NSC. Equipment shall not have a heavy layer of grease, dirt, debris that may hinder the radiological surveys.
   b. Prior to leaving the site, the Contractor's tools, equipment, and material will be surveyed to ensure it has not become contaminated while on site.
   c. At least three (3) working days advance notice to the Contracting Officer's Representative will be required prior to equipment arrival or departure.
   d. Contractors are reminded that poor weather conditions (rain, snow, and excessive cold) affects the ability to perform radiological surveys. The Contractor should consider this when planning the work.
   e. Surveys shall be performed by BWXT Radcon.
4. Devices, Sampling, Testing, and Characterization

   1. Contractor employees who are required to work with sources (for example density gauges) or Radiation Generating Devices will be issued dosimetry badges by BWXT Y-12 before the start of on-site work. Wear dosimetry badges in plain view above the waist at all times while working in a radiological controlled area. Collect and return all issued Thermoluminescent Dosimeters (TLDs) at the end of the last working day of each calendar quarter, at which time new TLDs will be issued, and at the end of the Task Release when all TLDs will be collected and returned. Ensure Personal Nuclear Accident Dosimeters (PNADs) are returned at the end of each work shift. If any employee, upon completion of work, fails to return their TLD the Contractor's Application for Payment(s) could be held until the TLD is returned or the requirement is resolved in writing by BWXT/NNSA/CoE - you pick one or delete this sentence - your decision. Unless authorized in writing, this provision must be flowed down to all lower tier subcontractors.

   2. Work with sources or Radiation Generating devices (for example density gauges, x-Ray equipment, radiography sources) requires a

Radiological Work Permit. Radiological Work Permits shall be requested through (whomever they will be requested through) a minimum of five (5) working days prior to anticipated use.

3. Radiation Generating Devices (sources or x-Ray equipment capable of generating radiation fields in excess of 100 millirem/hour at 30 centimeters deep dose) require authorization, review and approval of the BWXT Y-12 Radiation Generating Device (RGD) Coordinator and Radiation Safety Features Committee PRIOR to being brought on site. Contact (whomever they will contact) a minimum of ten (10) days prior to anticipated use. Additional requirements for RGD authorization and use can be found in BWXT Y-12 procedure Y75-121, Radiation Generating Devices.

4. The contractor should plan (additional cost) to send samples (for example, geotechnical) to a Nuclear Regulatory Commission (NRC) Licensed Laboratory. The contractor is responsible for obtaining a copy of the laboratory's NRC license and providing it to (whomever they will provide it to). Following license review by BWXT Y-12 (anticipate a minimum of five (5) working days), the contractor is responsible for obtaining written authorization from the laboratory to ship the samples - provide the written authorization to (whomever they will provide it to).

5. Contractor work sites will be characterized PRIOR to contract award and are NOT expected to be contaminated with radioactive material requiring PPE, Radiological Work Permits, dosimetry, bioassay, etc.. Work site characterization normally involves the top 12 inches of the surface. Items (e.g., piping, storm sewers) and materials that have not been characterized may be encountered during excavation/penetration activities. Characterization by BWXT Y-12 RADCON will be performed at the time such items or material is encountered (contractor is expected to STOP work and notify whomever they will notify). If the items or materials are contaminated, THEN work at that location will STOP until the area is remediated.

5. Intermittent Radiological Evaluations

   a. During excavation or similar activities, the Contractor’s work area, tools, equipment, and materials will be periodically surveyed to evaluate radiological conditions and assess the appropriateness of controls and work practices.

6. Waste Management

   a. Prior to removing waste material from the site, the Contractor’s waste material will be evaluated by the government, and appropriate documentation will be produced in accordance with BWXT Y-12 Waste Management requirements.
   b. The Contractor shall stage scrap generated from new materials brought on site for the performance of the work in a non-contaminated area and in accordance with Section 01550. The Contracting Officer’s Representative will evaluate this material for administrative release.

c. Inform Contracting Officer's Representative of the contents and planned disposition of the waste prior to radiological survey.
d. The Contracting Officer's Representative will evaluate and provide appropriate documentation for waste using sample results and BWXT Y-12's radiological surveys.
e. Soil is NOT normally released from the Y-12 Site and requires the same reviews as waste materials. Efforts shall be made by the Contractor to reuse all excavated soil at the construction site.

K. Asbestos

1. If asbestos or asbestos-containing materials (ACM) are present (known before start of work or encountered during performance of the work), perform work in accordance with 29 CFR 1926.1101, *Asbestos*.
2. For work involving asbestos or asbestos-containing material (ACM), the Contractor shall request the issuance of an Asbestos Work Permit at least four (4) working days before the scheduled work activity. The Contractor's Work Plan and AHA and Controls shall address the requirement for the contractor to request and obtain an Asbestos Work Permit before starting asbestos abatement.
3. The Asbestos Work Permit will identify specific work requirements including specific work instructions, PPE, and training. Personnel entering the work area shall sign the permit. Signing on the Asbestos Work Permit signifies that the person has read the permit, understands its requirements, and agrees to follow the requirements.
4. Engineering controls are mandatory, regardless of PPE used.
5. Due to the age of the Y-12 Complex, many floor, wall and ceiling surfaces, and insulation material, are suspect for containing asbestos.
6. Material of unknown composition that is suspected of containing asbestos shall be analyzed for asbestos content or treated as ACM by the Contractor.
7. Contractor personnel working with ACM shall be asbestos approved for respiratory protection and medical surveillance, and shall have received the appropriate level of asbestos training.

3.3 HEARING PROTECTION

A. Develop and implement a continuous effective Hearing Conservation Program in accordance with 29 CFR 1926.101.

B. Determine the boundaries where continuous or intermittent noise is expected to exceed 85 dBA and enforce the use of hearing protection within those boundaries.

3.4 RESPIRATORY PROTECTION

A. Perform work in accordance with 29 CFR 1926.03 and ANSI Z88.2. Contractor shall ensure that PPE and respirator requirements are not in conflict. See Section 01180 for additional respiratory protection requirements.

3.5 THERMAL STRESS

A. Develop and implement a thermal stress program that meets the guidelines specified in the most recent ACGIH TLV publication, as applicable.

3.6 EXPLOSIVES

A. Use of explosives is prohibited at the Y-12 Complex.

3.7 EMERGENCY SERVICES AND EQUIPMENT

A. NNSA through BWXT Y-12 will provide emergency ambulance, fire fighting services, and spill response/control services.

B. Maintain a minimum of one person certified to administer first aid on-site when work is being performed.

C. Provide first aid supplies and fire extinguishing equipment in accordance with 29 CFR 1926.

3.8 MOVEMENT AND OPERATION OF CRANES AND HIGH PROFILE MECHANICAL EQUIPMENT

A. In addition to the requirements identified in 29 CFR 1926, the following is required:

1. Grounding is required when equipment is within the confines of a work location where the possibility exists for accidental contact with energized electrical conductors or equipment (either above or below ground level). Ground the equipment using insulated 4/0 welding cable (up to 400 feet long). If suitable ground is not available, obtain an Excavation/Penetration Permit from BWXT Y-12, and drive a ¾-inch diameter by 10-foot long copperweld type ground rod a minimum of 9 feet deep into the ground to provide the required ground connection. Attach ground conductor to ground rod by means of a compression ground rod connector. Connect the equipment by means of a bolted mechanical lug attached to a clean, brightened structural metal surface. An Excavation/Penetration Permit is required from BWXT Y-12 prior to driving ground rods.
2. When moving equipment, the booms or masts shall be in a retracted traveling position. Assign a flagman to direct movement of the crane and prevent contact with objects on the ground or overhead. Personnel shall not be in contact with the equipment operator without consent of the flagman.
3. Contractor supervision shall be present when equipment is moved from one location to another, and when equipment is in an area having energized electrical conductors or equipment.
4. Contractor shall verify roadway clearances before work start, equipment movement, and after significant weather events.

3.9 TRANSPORT VEHICLES FOR FLAMMABLES

A. Flammable liquid tank trucks, refueling vehicles, and other vehicles transporting flammable liquids or gases shall comply with 49 CFR 382.399, and may be inspected and require escort while on the Complex property.

3.10 VEHICLE AND EQUIPMENT INSPECTIONS

A. Vehicles and equipment are subject to security inspections and contamination monitoring when entering and/or exiting the Complex. Inspections will be made at access portals or at locations designated by the Contracting Officer’s Representative.

3.11 ON-SITE SAFETY INSPECTION

A. The ES&H personnel of the Government will inspect facilities and operations to ensure compliance with hazardous communications, safety, health, and environmental protection requirements. The COR will coordinate regulatory and oversight visits with the Contractor.

3.12 EVACUATION OF THE WORK AREA

A. Observe and participate in notices to evacuate the work area. The evacuation notices may be a drill or an actual event. Provisions shall be made for evacuation of work-site personnel, as needed, to a predesignated assembly area. All personnel on-site at the time of the evacuation must be accounted for. No personnel re-entry will be allowed until the emergency conditions have been corrected or controlled, the hazards reassessed, and needed actions implemented.

B. Perform evacuation in accordance with public address announcements and/or Contracting Officer's Representative instructions.

C. Before evacuating the work area, shut down or make safe equipment or processes, which could become a safety or fire hazard if left unattended, unless doing so endangers personnel.

D. The Contractor will be provided evacuation routes/locations, assembly points, and any other evacuation protocols.

3.13 EQUIPMENT AND TOOLS

A. Tools and equipment brought onto the site shall be used only for the purpose for which they are designed. Tools and equipment shall be inspected and determined (or certified, such as lifting slings) to be adequate for the use intended and compliant with ES&H requirements. Conduct routine inspections to ensure needed repairs and maintenance are completed to keep tools ready and compliant. Defective or otherwise unsafe equipment shall be tagged "Do Not Use" and immediately removed from the work area to a secure place to prevent inadvertent use or destroyed. Re-inspect repaired items before reuse.

B. Modifications, replacement parts, or repairs of equipment shall maintain at least the same factor of safety as the original equipment. The manufacturer shall authorize modifications in writing.

3.14 SCAFFOLDS

A. Contractor must use metal planking in the construction of all scaffolding. Pressure treated impregnated fire retardant lumber or lumber painted with a clear intumescent paint may be used where metal scaffolding is inappropriate and only when specifically approved by the Contracting Officer's Representative. Refer to Section 01525, Safety and Occupational Health Requirements, paragraph 3.5, for additional scaffolding requirements.

3.15 CONCRETE

A. Activities that generate concrete silica dust require appropriate engineering controls (wet methods) or PPE to prevent employee exposure to silica above that identified in 29 CFR 1926 Subpart Z or the ACGIH TLVs, whichever is lower. Wet methods are recommended to reduce the amount of dust generated. Refer to Section 01525, Safety and Occupational Health Requirements, paragraph 3.10, for additional requirements regarding concrete silica dust.

A.

END OF SECTION

SECTION 01120
WELDING, CUTTING (BURNING),
GRINDING, AND INCIDENTAL WELDING SAFETY

PART 1 GENERAL

1.1 SUMMARY

A. This section includes on-site safety requirements for incidental welding, cutting, burning, grinding, and hotwork. **Such activities are discouraged on-site, and should be avoided unless absolutely necessary**, but if required shall be accomplished as described herein, and will be subject to approval of the COR.

1.2 DEFINITIONS

A. Hotwork and Welding Permit: A permit issued, before start of hotwork or welding activities, used to ensure the work area is inspected and safety requirements are met.

B. Incidental Welding: Welding required to perform work without technical requirements. Examples are welds on gang boxes, tool fixtures, weather caps for nonwelding ductwork systems, and electrical system racks that are not identified as seismically qualified. Tack welds, temporary attachments to systems, structures, and components are not incidental welds.

1. On-Site Welding: Welding activities within the Y-12 National Security Complex.

2. Off-Site Welding: Welding activities that occur outside boundaries of the Complex.

1.3 RELATED SECTIONS

N/A

1.4 REFERENCES

A. NFPA Standard 51B-1998, Standard for Fire Prevention During Cutting, Welding, and Other Hot Work, 1999.

B. OSHA 29 CFR 1926, Subpart J, Welding and Cutting, Parts 350-354, 2002.

C. American Welding Society (AWS) Z49.1, 1999, Safety in Welding, Cutting and Allied Processes.

D. ASTM D 3659-80 (1993) Standard Method for Flammability of Apparel Fabrics by Semi-Resistant Method.

E. ASTM F 1506-98, Standard Performance Specification for Textile Materials for Wearing Apparel for Use by Electrical Workers Exposed to Momentary Electric Arc and Related Thermal Hazards.

F. ACGIH 0022, TLVs, and Biological Exposure Indices, Latest Revision.

G. 29 CFR, Subpart Z, *Toxic and Hazardous Substances*, 2002.

PART 2 PRODUCTS

2.1 MATERIAL

A. Flame-resistant (FR) clothing shall conform to ASTM D 3659 and ASTM F 1506.

PART 3 EXECUTION

3.1 CUTTING, GRINDING, AND WELDING

A. Contractor shall implement a permit system for hotwork/welding activities. Contractor shall follow Y79-002 for hotwork permits, unless a hotwork plan is reviewed and approved by Y-12 ES&H.

B. Perform welding, burning, and hotwork in accordance with 29 CFR 1926, Subpart J, and ANSI Z 49.1.

C. Use dust-reducing methods, such as vacuuming, wetting, or building an enclosure during cutting or grinding operations. If concentrations are above the threshold limits, use appropriate PPE.

D. Follow the requirements of 29 CFR 1926.62 when drilling, cutting, grinding, or welding existing painted surfaces.

E. Follow the requirements of 29 CFR 1926.350-354 when welding, cutting, grinding, or heating of galvanized or stainless steel.

F. Provide point source exhaust ventilation when welding stainless steel material and alloys in the field and fabrication areas.

3.2 ON-SITE INCIDENTAL WELDING

A. Visual inspection of incidental welds is sufficient.

3.3 ON-SITE WELDING

A. NNSA Site
Welding Guidelines.

3.4 PROTECTION

A. Perform an Activity Hazard Analysis for welding, cutting, grinding, and incidental welding for tasks using the clothing ignition risk factors noted.

B. In determining the need for PPE for protection from flame and thermal hazards and flame resistant clothing for protection from ignition hazards, the following risk factors apply:

1. Amount and duration of open flame, sparks, molten by-products (examples of tasks with risk factors include, but are not limited to, torch cutting, and plasma arc cutting).

2. Potential for accidental contact with direct flame or hot surfaces.
3. Position/proximity of worker relative to flames, sparks, or molten by-products (e.g. worker directly beneath a work piece and shower of sparks, slag, heat shrink, confined space).
4. Risk factors created by PPE worn, such as heat stress, physical and psychological stress, impaired vision, mobility, and communications (e.g. use of a respirator, helmet, and heavy gloves while cutting).

C. These risk factors shall be identified and controlled or eliminated through engineering and administrative controls (e.g. substitution of a less hazardous method [mechanical rather than torch cutting], shielding/guarding, or primary barriers such as welding blankets). Where the risk factors cannot be eliminated or controlled to acceptable levels using engineering and administrative controls, PPE is required. If clothing ignition hazards still exist, FR protective clothing must be used.

D. Personnel performing welding, cutting, grinding, and incidental welding tasks (including fire watch personnel and proximate workers) shall wear PPE as described below, for primary protection from flame and thermal hazards based on potential exposures as determined by the Activity Hazard Analyses.

1. Gloves made of leather, or other suitable materials as identified in the Activity Hazard Analyses, with insulating linings that are in good repair, dry, and capable of providing protection from high radiant energy.
2. Aprons made of leather or suitable materials that protect the front of the body, when additional protection against sparks and radiant energy is needed.
3. Leggings made of leather or suitable materials or other equivalent means to give added protection to the legs when performing hot work.
4. Cape sleeves or shoulder covers with bibs made of leather or other suitable materials, as necessary, when performing overhead welding, cutting, or other operations.

E. Personnel performing welding, cutting, grinding, and incidental welding tasks (including fire watch personnel and proximate workers) in a radiologically controlled area shall wear flame resistant (FR) PPE as described below, for primary protection from flame and thermal hazards based on potential exposures as determined by the Activity Hazards Analyses.

PURPOSE

1. Outer FR-treated anti-contamination clothing (i.e. Anti-C coveralls, hoods).

F. Provide continuous fire watch during on-site cutting, welding, burning, and hotwork operations. Maintain fire watch during work breaks, lunch breaks, and 30 minutes after completion or work or after quitting time. Fire watch personnel shall not perform other tasks during the fire watch period.

G. Train fire watch personnel in accordance with NFPA Standard 51B. Fire watch and welders shall be trained to by Y-12 Module 10389 per Y79-002 unless Y-12 ES&H approves otherwise.

SECTION 01120
WELDING, CUTTING (BURNING),
GRINDING, AND INCIDENTAL WELDING SAFETY

NNSA Site Welding Guidelines

This guideline outlines the National Nuclear Security Administration (NNSA) Y-12 Site Office requirements for subcontractors and their sub-tiers to perform welding activities at the Y-12 Site under NNSA YSO contracts. The welds to be performed under these contracts are not expected to be associated with process or utility piping, but are expected to be associated with handrails and light-duty structural joints for convenience and costs rather than using bolted connections.

This guideline includes but is not limited to the control of welding rod, used of pre-qualified joints and acceptance of completed welds.

The majority of welding that is to be performed is light-duty structural and the NNSA incorporates by reference American Welding Society (AWS) D1.1 (Latest Edition) as the standard specification for light-duty structural welding at the Y-12 Site under the NNSA contracts.

A) This includes the pre-qualified joints referenced in AWS D1.1. If the per-qualified joint is not specified the subcontractor's subject matter expert will select the proper pre-qualified joint for use and submit it for approval.
B) Procedures not covered by AWS D1.1 will be qualified at the subcontractor's expense per the requirements of AWS D1.1.

WELDER QUALIFICATION

Welders employed by the subcontractor shall provide proof to NNSA that they are qualified to perform the specified welding per AWS D1.1.

WELD FILLER METAL CONTROL

A supervisor for the subcontractor shall be responsible for filler metal control and issue. As a minimum the following applies to control of filler metal:

SCOPE

- A new container shall be used for each day's welding operations.
- The container shall be marked showing the day it was opened.
- The containers will be Issued only to qualified welders.
- The responsible supervisor will keep track of the amount of rod issued to each welder and account for all stubs and rod upon retun at the copletion of the shift or welding assignment.
- The welder shall keep the rods in the appropriate caddy and place all stubs in a stub bucket.
- The welder shall return all stubs and unused rod to the issuing supervisor and be able to account for all welding material.
- At the end of the shift, the subcontractor will remove the excess rod and stubs from site. The remaining rod shall not be reused on site. The stubs will be disposed of off site.
- The subcontractor shall be able to substantiate this by keeping a log of weld filler material issued for a given day and to whom it was issued. The amount returned including stubs and that the excess rod and stubs were removed from site.

The acceptance criteria will be graded to the level of the work performed. For simple tasks such welding handrail sections together a person possessing “General Welding” knowledge may inspect the welds for items such as lack of fusion, undercut and general transition and smoothness. A letter will be written and provided to the NNSA stating that the welds were inspected for the previously mentioned items.

For light-duty structural welds where the safety of the site population and public and performance of the structure would be affected an AWS Certified Welding Inspector (CWI) shall be used. Full penetration welds shall have a mandatory hold point for fit-up including back gouging when a backing bar is not used. Other welds shall be inspected on a 20% basis for fit-up and bevel preparation, and 100% of finished welds shall be inspected. The CWI shall provide documentation of inspections that includes his/her certification stamp and signature.

The subcontractor shall submit these items to the NNSA upon completion of the work.

END OF SECTION

SECTION 01180
RESPIRATORY PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. This section includes respiratory protection requirements.

B. When respiratory protection is used, perform work in accordance with ANSI Z88.2-1992, "Practices for Respiratory Protection," and OSHA Regulations for Construction, Standard 29 CFR 1926.103, "Respiratory Protection."

C. Limit exposure to toxic and hazardous substances to the permissible exposure limits of 29 CFR 1926, Subpart Z.

D. Where feasible, administrative and engineering controls are required to be used before the option of respiratory protection is required.

E. As a minimum, respiratory protection is required during the following work activities:

1. Abrasive blasting.
2. Work on surfaces with the potential to generate airborne asbestos, lead and/or lead particulates, mercury vapors, or entry into posted asbestos, lead, or mercury areas.
3. Work with substances or on surfaces with the potential to generate respirable man-made fibers.
4. Work on radiologically contaminated or activated surfaces with the potential to generate airborne radioactivity or entry into posted airborne radioactivity areas.
5. Work that creates silica dust and man-made fibers that are known or suspected to be a health hazard.

1.2 DEFINITIONS

A. Single-use of respirator: The use starting at entry into the hazardous work area until the respirator face-to-face piece seal is broken. Essentially one donning and doffing cycle.

B. Certified Industrial Hygienist or professional industrial hygienist: Individual recognized in the state of Tennessee in accordance with Tennessee Code Annotated, Title 4, Chap. 3, Part 14, Title 62.

C. Disposable Respirator: A respirator for which maintenance is not intended; has a filter element which is not an inseparable part of the respirator; and that is designed to be discarded after excessive resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-face and full-face respirator or a disposable escape-only self-contained breathing apparatus.

D. Engineering Controls: Mechanism for controlling dispersal of airborne contamination at point of origin such as wetting, vacuuming, enclosures, filters, and exhaust ventilation.

E. Administrative Controls: Methods of controlling employee exposures to contaminants by job rotation, work assignment, or time periods away from the contaminant.

1.3 REFERENCES

A. ANSI Z88.2, 1992, *Respiratory Protection*.

B. 29 CFR 1926.103, *Respiratory Protection*.

C. Compressed Gas Association (CGA)/GAS G7.1, *Commodity Specification for Air, 1997*.

D. Tennessee Code Annotated, Title 62, Professions, Businesses and Trades, Chapter 40.

E. ACGIH 0022, *Threshold Limit Values and Biological Exposure Indices*, Current Edition.

F. American Industrial Hygiene Association Z88.10, *Respirator Fit Testing Methods*, 2001.

G. 29 CFR 1926, Subpart Z, *Toxic and Hazardous Substances*, 2002.

H. 29 CFR 1926.1101, *Asbestos*, 2002.

1.4 QUALITY CONTROL

A. Required Records

1. Maintain records in accordance with ANSI Z88.2 and 29 CFR 1910.134.
2. Records include, but are not limited to, the following:
   a. Respirator Inspection – inspection dates, findings, and remedial actions for respirators maintained for emergency or rescue use.
   b. Training – type of training received, type of respirator equipment, manufacturer of respirator, names of persons trained, and date training occurred.
   c. Respirator Fit Testing – type of respirator used; specific make, model, and size of respirator tested; NIOSH approval number; name of person tested; name of test operator and qualifications; date of test; and results of respirator fit test (protection factor and fit factor).
   d. Medical Approval – documented opinion by a physician that a person is physiologically and psychologically able to wear respiratory protective devices while performing the work.
   e. Program Appraisal – the findings, outcomes, and actions resulting from the annual Respiratory Protection Program evaluation.
   f. Program Surveillance – the findings, outcomes, and actions resulting from spot checks of operations where respirators are in use.

1.5 SUBMITTALS

A. Contractor shall submit the following to the Contracting Officer's Representative for information, if requested:

1. Copy of fit-test results/cards.
2. Compressed breathing air data.

B. Contractor shall submit the following to the Contracting Officer's Representative, for approval, as necessary:

1. Waiver not to use respirators.

PART 2 PRODUCTS

2.1 CONTRACTOR-FURNISHED MATERIALS

A. Provide NIOSH/MSHA approved respirators and cartridges, such as MSA or Survivair-type. Provide additional respiratory protection equipment, including breathing air, when using atmosphere supplying respiratory protection.

B. Provide compressed breathing air when required to provide adequate protection factor. Submit data to the Contracting Officer's Representative demonstrating the compressed breathing air quality supplied to the air respiratory protection systems meets the CGA/GAS G7.1 requirements for Grade D breathing air.

C. Provide optical corrections for appropriate respirators.

D. Disposable respirators are permitted if manufacturer's literature states a positive and negative pressure check can be performed. The Contracting Officer's Representative will perform random testing to ensure respirator compliance.

E. Air purifying respirators (APR) are prohibited in oxygen deficient or immediately dangerous to life or health (IDLH) environments.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect respirator before use to ensure that it is working properly.

B. Inspect respirators stored for emergency or rescue use monthly.

3.2 PREPARATION

A. Medical Evaluation

1. Before an employee is issued a respirator, a physician's approval is required to verify the employee will be able to function normally wearing a respirator and the employee's safety and health will not be impaired. The medical evaluation and physician's approval shall be in accordance with ANSI Z88.2 and shall be updated annually.

B. Training

1. Before an employee is issued a respirator, the employee shall complete training that conforms to ANSI Z88.2, 29 CFR 1910.134, and requirements listed in attached Training Guidelines. Update training annually, except where a particular substance requires more frequent training.

   NOTE: Contracting Officer’s Representative will provide a short briefing to the Contractor about the distribution, controls, handling, storage, and return of Contracting Officer’s Representative-furnished respirators.

C. Fit Test

1. Before an employee is issued a respirator and within 60 days of the training and medical examination, the Contractor's employee shall receive a quantitative fit test in accordance with ANSI Z88.2. Respirator assigned protection factors are attached. Contractor shall perform fit testing for initial fitting and annually afterwards except where a particular substance requires more frequent fit testing.

3.3 APPLICATION

A. Respirator Information

1. Single-use of respirators is required in the following situation:

   a. In non-radiological areas where surface contamination of the respirator may occur and no feasible method of checking for the presence of such contamination exists.

2. The Contractor may approve the reuse of respirators in non-radiological areas, except as noted, provided good work practices are followed that ensure the unit remains both serviceable and uncontaminated. Upon removal, the Contractor respirator wearer shall place the respirator in a clean plastic bag and store it in a secure location accessible only to the wearer. Appropriate materials for cleaning and disinfecting the respirator shall be provided to the wearer when the respirator is first issued.
3. Quarter-mask respirators and disposable dust masks are prohibited for any operations where respiratory protection is required.

B. General Requirements

1. Modifications to the respirator or its parts are prohibited.

2. The Contractor's authorized representative shall monitor use of respirators to ensure they are properly worn.

3.4 FIELD QUALITY CONTROL

A. The Contracting Officer’s Representative may perform periodic surveillance of the Contractor's respiratory protection program to ensure compliance with this specification section.

END OF SECTION

TRAINING GUIDELINES

Specific Training (Provided for each Contract)

1. Explain why respirators are needed to provide protection and the reason for selecting a particular type respirator and filter cartridge.

2. The agent for which the respirator was selected.

3. Engineering controls provided and when they are being used.

4. Previous sampling results.

5. What to do in an emergency situation.

6. Opportunity to handle, inspect, don, wear, and doff the respirator.

7. Check with a positive and negative pressure check and wear in a safe atmosphere prior to entering the work area.

8. Maintenance, storage, recycle, and disposal instructions.

9. Regulatory requirements concerning respirator use.

RESPIRATOR ASSIGNED PROTECTION FACTORS

RESPIRATOR TYPE	ASSIGNED PROTECTION FACTOR
Tight-fitting, half-face, air-purifying	10
Tight-fitting, full-face, air purifying	50
PAPR* with loose-fitting face piece	25
PAPR with half-face mask (6 CFM to 15 CFM)	50
PAPR with tight-fitting full-face mask (6 CFM to 15 CFM)	50
Air line, tight-fitting half-face mask, continuous flow	50
Air line, tight-fitting half-face mask, pressure demand	50
Air line, tight-fitting full-face mask, continuous flow	50
Air line, tight-fitting full-face mask, pressure demand	1,000
Air line, tight-fitting full-face mask, pressure demand with egress bottle	IDLH** & >1,000
Air line with loose-fitting hood continuous flow	25
Self-contained breathing apparatus, pressure demand	IDLH & >1,000

NOTE: This attachment is a guide and may not reflect the current NIOSH-assigned protection factors and other OSHA substance-specific standards. Whenever there is not agreement, the most stringent assigned protection factor shall be used.

*PAPR – Powered air-purifying respirator.

**IDLH – Immediately dangerous to life or health

SECTION 01290
PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. This section includes requirements to prepare and process payments.

1.2 DEFINITIONS

A. Schedule of Values – Statement furnished by the Contractor, and approved by the Contracting Officer's Representative, allocating portions of the Contract price to various portions of the work identified as items or line items, and used as the basis for reviewing application for payment.

1.3 SUBMITTALS

A. Schedule of Values.

B. Application for Payment.

1.4 SCHEDULE OF VALUES

A. Contractor will prepare a Schedule of Values with the Contract schedule.

B. Contractor will correlate items in the Schedule of Values with other submittals and schedules, including the following:

1. Application for Payment.
2. Schedule for the Work.
3. Weekly Certified Payrolls (for work governed by the Davis-Bacon Act).
4. Submittal Register

C. Submittal of Schedule of Values

1. Submit the Schedule of Values to the Contracting Officer's Representative within ten (10) calendar days after Notice to Proceed.
2. Submit updated Schedule of Values with each progress payment application.
3. The breakdown on the Schedule of Values shall correspond to the items indicated in the progress schedule.
4. Include preparatory work, overhead, and profit in the items to which they apply. Do not state as separate items. The cost of bonds, however, should be stated in a separate line item.
5. The Contracting Officer's Representative has the right to reject the Schedule of Values submitted, if, in its opinion, the items indicated do

not conform to true value. Revise and resubmit the Schedule of Values, if applicable.

6. Revise the breakdown at the same time revisions become necessary in the progress schedule.

D. Format and Content

1. Provide a breakdown of the Contract Summary Cost in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide separate line items for subcontract amounts, where appropriate.
2. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Furnish satisfactory evidence that the Contractor has acquired title to such material and that the material will be used to perform the specific Contract.
    b. Differentiate between items stored on site and items stored off site. Include evidence of insurance or bonded warehousing for off-site storage.
    c. Payment for such material and equipment is subject to approval by the Contracting Officer's Representative and will only be allowed for major items.

3. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the work.
4. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense.

1.5 APPLICATIONS FOR PAYMENT

A. Basis for Payment

1. Compute progress payments on a basis of completed work for each item in the approved Schedule of Values.
2. Payment(s) will not be made until a Schedule of Values and progress schedule reflecting the work has been submitted to and approved by the Contracting Officer's Representative.

3. Payment will not be made for any item of completed work until documentation and records verifying completion in accordance with the contract documents is submitted to and accepted by the Contracting Officer's Representative.
4. The date for formal submittal of each progress payment is the 15th calendar day of each month. The period covered by each Application for Payment is for the previous month.
5. The Contractor shall submit to the Contracting Officer an updated submittal register along with the payment request.

B. Submittal of Application for Payment

1. Application for Payment shall be executed by a person authorized to sign legal documents on behalf of the Contractor.
2. Entries shall match data on the Schedule of Values and Contractor's Progress Schedule. Use updated schedules when revisions are made.
3. Submit Application for Payment with a transmittal listing attachments such as documentation and records required to verify acceptable completion of items of work.
4. Contractor shall submit each Application for Payment to the Contracting Officer's Representative.

C. Submittal of Application for Final Payment

1. Upon completion of the work, submit an Application for Payment marked as "final."
2. Provide a signed "*Release and Certificate of Final Payment*" (Section 01320) with the application for final payment.

D. Approval of Application for Payment

1. The Contracting Officer's Representative will review the quantity complete for each of the line items on the progress payment estimate, and will recommend payment only after verifying entries are accurate and correct.

1.6 CERTIFIED PAYROLLS

A. For all work, which is governed by the Davis-Bacon Act, the Contractor shall submit weekly certified payrolls to the Contracting Officer's Representative, for information.

END OF SECTION

SECTION 01300
SUBMITTALS

1.0 SUBMITTAL CLASSIFICATION.

1.1 Submittals are classified as follows:

1.1.1 Government Approval

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer's Representative. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.1.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.2 GOVERNMENT APPROVED SUBMITTALS

The Contracting Officer's Representative approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer's Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.3 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer's Representative and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer's Representative.

2.0 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

3.0 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer's Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System

Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. The Contractor shall submit one (1) original and four (4) copies of each submittal. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations. The Contractor shall initiate the submittal register for design – build task orders.

3.1 SUBMITTAL REGISTER

The Contractor shall maintain a submittal register for the project. The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included. The Contractor shall track all submittals.

3.2 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (minimum of 15 calendar days) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

4.0 TRANSMITTAL FORM (ENG FORM 4025)

Transmittal form (ENG Form 4025) shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

4.1 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

5.0 CONTROL OF SUBMITTAL

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

6.0 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer's Representative and one copy of the submittal will be returned to the Contractor.

7.0 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer's Representative is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer's Representative from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

8.0 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)
_____ Approved
_____ Approved with corrections as noted on submittal data and/or attached sheets(s).
SIGNATURE: _____
TITLE: _____
DATE: _____

-- End of Section --

SECTION 01320
FORMS

PART 1 GENERAL

1.1 This section includes requirements applicable to forms that are needed for the administration/execution of the contract. Covered herein are the forms related to the Division 1 Specification.

1.2 DEFINITIONS

A. *Request for Information* – A Contractor-initiated technical question. A request for information is usually initiated for one of the following reasons:

1. The Contractor is unable to understand the technical documents (e.g. scope, specifications, drawings, or data).
2. The Contractor discovers or perceives a conflict, ambiguity, error, or omission in (or among) the technical documents.
3. The Contractor has an alternate/substitute material or method to propose that will not adversely affect the project cost or schedule.

Requests for information are not change documents and cannot be used to direct a change in the Contract requirements. When a technical response represents a compensable change, the change will be accomplished by the issue and approval of a Contract Modification.

B. *Request for Inspection of Completed Work* – The Contractor's notification that work is complete and ready for the Contracting Officer's Representative's final inspection. The request may be for work completed in part or as a whole. The Contractor uses the form to notify the Contracting Officer's Representative that the work is ready for inspection.

1.3 ATTACHMENTS

A. *Request for Information*.

B. *Request for Inspection of Completed Work*.

C. *Request for Y-12 National Security Complex Training*.

D. *Suspect/Counterfeit Fastener Certification.*

E. *Safety and Health (11-00).*

F. *DOE's Suspect Bolt Headmark List.*

G. *Individual Accident/Incident Report, DOE F 5484.X*.

H. *Individual Accident/Incident Report, DOE F 5484.3.*

I. *Request for Y-12 National Security Complex Access and Badge.*

J. *Request for Y-12 National Security Complex Vehicle Pass.*

K. *Release and Certificate of Final Payment.*

L. *Request To Work At The Site Outside Normal Work Hours*

SECTION 01320
FORMS

1.4 SUBMITTALS

A. Forms included are samples and are available in hard copy and electronic format from the Contracting Officer's Representative.

B. Forms included are to be submitted in accordance with instructions provided.

C. Unless otherwise noted, forms noted in this section are to be submitted to the Contracting Officer's Representative.

PART 2 NOT USED

PART 3 EXECUTION

3.1 Process forms noted for the administration/execution of the contract as follows:

A. When there is a question, conflict, ambiguity, error, or omission related to technical documents, complete the top portion of a *Request for Information* form, sign and date the form, and submit it to the COR for a response.

NOTE: *Requests for Information* are not to be used as change documents. Anytime a response to a *Request for Information* is interpreted by the Contractor as a price change, the Contractor must notify the COR of the interpretation prior to proceeding with work.

B. Complete work in accordance with contract requirements and notify the COR when work (in part or as a whole) is ready for inspection. Use the *Request for Inspection of Completed Work* for this purpose. Indicate a requested inspection date that is at least three (3) working days from the date the request is submitted to the COR. Sign and date the form and submit it to the COR for scheduling of the inspection.

END OF SECTION

SECTION 01320
FORMS

REQUEST FOR INFORMATION (RFI)

CONTRACT NO: _____
RFI NO: _____
PAGE ____ of _____

This document is for information purposes only and does not authorize any change in time or change in price.

TO	
OF	
REFERENCE DRAWING	SPECIFICATION
LOCATION	
INFORMATION REQUESTED	
REASON REQUESTED	
REQUESTED BY	
REPLY REQUIRED BY	
_____ CONTRACTOR _____ DATE _____ SIGNATURE	

Information to Contractor

TO:	FROM:
OF:	OF:
REQUESTED INFORMATION	
_____ _____ DATE CONTRACTING OFFICER'S REPRESENTATIVE	

SECTION 01320
FORMS

REQUEST FOR INSPECTION OF COMPLETED WORK

CONTRACT NO.	REQUEST NO.	DATE

This is to advise you that the following described work is complete in accordance with requirements of the drawings and specifications. As provided in the contract, we request an inspection be made

on _____ at _____.

Description of Completed Work:

CONTRACTOR AUTHORIZED REPRESENTATIVE	**COMPANY NAME**	**SIGNED**	**TITLE**
Schedule of Inspection Accepted	**Re-Schedule Inspection for:**	**DATE/TIME**	
CONTRACTING OFFICER'S REPRESENTATIVE		**DATE**	

REQUEST FOR Y-12 NATIONAL SECURITY COMPLEX TRAINING

Date: _____

Contractor: _____ **Contact Name:**_____ **Telephone:** _____

Contract No. _____

Cancel Scheduled Training, Sign and Date: _____

CONTRACTOR			BWXT Y-12	
Name	**Badge #**	**Class**	**Processed Date/Initials**	**Training Dates, Time and Location**

Requested By: _____ **Date:** _____
Contractor Representative

Concurrence: _____ **Date:** _____
BWXT Y-12 Subcontract Administrator/Technical Representative

Received by: _____ **Date:** _____
BWXT Y-12 Construction Training

SECTION 01320
FORMS

SUSPECT/COUNTERFEIT FASTENER CERTIFICATION

The Department of Energy (DOE) has identified certain bolts or fasteners that are considered to be suspect or defective. These fasteners, when used in a critical application on vehicles and equipment, are not allowed on a DOE site. The Suspect/Counterfeit Bolts, which shows the head markings of SAE Grade 5, Grade 8, Grade 8.2, and ASTM A 325 fasteners are considered by DOE to be suspect or counterfeit.

Accordingly, the undersigned hereby certifies that equipment provided to DOE has been inspected and does not contain suspect/counterfeit fasteners, which are in a critical application. A critical application is defined as one in which failure of the fastener could potentially result in injury to personnel or damage to the property, equipment, or environment.

If suspect/counterfeit fasteners are discovered in equipment prior to its being put into service, the fasteners will be marked and/or tagged by the Contracting Officer's Representative. The Contracting Officer's Representative will evaluate the application of each suspect/counterfeit fastener to determine if the fastener is in a critical application. If it is determined that a suspect/counterfeit fastener is in a critical application, the Contractor will be notified and use of the equipment will <u>not</u> be allowed until the suspect/counterfeit fastener has been replaced with an acceptable fastener. Replacement of the suspect/counterfeit fastener will be at the expense of the Contractor.

If suspect/counterfeit fasteners are discovered while the equipment is in use, the fasteners will be marked and/or tagged by the Contracting Officer's Representative. Continued use of the equipment will <u>not</u> be allowed until the Contracting Officer's Representative evaluates the application of each suspect/counterfeit fastener to determine if it is in a critical application. If it is determined that the suspect/counterfeit fastener is in a critical application, the Contractor will be notified and <u>use of the equipment will be terminated</u>. The Contractor will be notified and asked to repair or replace the offending item(s). Any adverse impact on Contract cost, schedule or work methods resulting from the discovery of the suspect/counterfeit fasteners, either prior to or during use of the equipment, will be documented and all such costs will be charged to the Contractor.

The undersigned acknowledges and accepts the above responsibilities and remedies.

Typed Name: _____
Contractor Authorized Representative

Signature: _____

Date: _____

SECTION 01320
FORMS

SAFETY AND HEALTH (11-00)

(1) (a) The Contractor shall take all reasonable precautions in the performance of the work under this Contract to protect the health and safety of employees and of members of the public and to minimize danger from all hazards to life and property and shall comply with all health and safety regulations and requirements of DOE including, without limitation, such other provisions as may be contained in this contract relating to safety and health. If the Contractor fails to comply with said regulations or requirements, the Contracting Officer's Representative may:

(i) Notify the Contractor in writing of any noncompliance with the provisions of this clause and the corrective action to be taken. After receipt of such notice, the Contractor shall immediately take corrective actions.

(ii) Require, in writing, that the Contractor remove from the work any employee the Contracting Officer's Representative deems unsafe, incompetent, careless, or otherwise objectionable.

(iii) Without prejudice to any other legal or contractual rights of DOE, issue an order stopping all or any part of the work; thereafter, a start order for resumption of work may be issued at the discretion of the Contracting Officer's Representative. The Contractor shall make no claim for an extension of time or for compensation or damages by reason of or in connection with such work stoppage.

(2) In addition to or in lieu of any of the actions in (a)(1)(i) through (iii) above, the Contracting Officer may terminate this subcontract for default.

(b) Monthly Report. To enable the Contracting Officer's Representative to comply with DOE recordkeeping requirements, the Contractor shall submit to the Contracting Officer's Representative a monthly report on the form entitled "U.S. Department of Energy Contracts, Transmittal of DOE F-5484.X." Reports shall be submitted within three (3) working days after the end of each month. Data entered in the "Individual Accident/Incident Report" section of the form shall be taken from the Contractor's log and summary, OSHA Form 200, required by 29 CFR 1904.

(c) Hoisting and Rigging Equipment. (1) The Contractor may not bring to or use at the site any hoisting and rigging equipment that contains any SAE Grades 5, 8, or 8.2 fasteners or ASTM Grade A325 fasteners identified on the "DOE Suspect Bolt Headmark List".

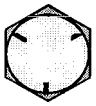
NOTE: For the purposes of this paragraph (e), "hoisting and rigging equipment" means: (i) overhead and gantry cranes as defined in 29 CFR 1910.179; (ii) crawler, locomotive, and truck cranes as defined in 29 CFR 1910.180; derricks, as defined in 29 CFR 1910.181; and associated lifting devices such as slings, lifting fixtures, and lifting attachments.

(3) If such fasteners are used, such parts shall be impounded by the Contracting Officer's Representative or removed by Contractor as directed by the Contracting Officer's Representative. Contractor shall promptly replace such parts with those acceptable to the Contracting Officer's Representative, and Contractor shall be liable for all costs relating to impoundment, removal and replacement.

(d) Subcontracts. The Contractor shall include the provisions of this clause in all of its subcontracts involving performance of work at the site. However, such provision in the subcontracts shall not relieve the Contractor of its obligation to assure compliance with the provisions of this clause for all aspects of the work.

DOE's Suspect Bolt Headmark List

1. All Grade 5 and Grade 8 fasteners of foreign origin which do not bear any manufacturer's headmarks:


Grade 5

Grade 8

2. Grade 5 fasteners with the following manufacturers' headmarks:

J Jinn Her (TW)

KS Kosaka Kogyo (JP)

3. Grade 8 fasteners with the following manufacturers' headmarks:

A Asahi Mfg (JP)

NF Nippon Fasteners (JP)

H Hinomoto Metal (JP)

M Minamida Sieybo (JP)

MS Minato Kogyo (JP)

E Daiei (JP)

Hollow Triangle Infasco Co. (CA TW JP YU)
(sizes greater than 1/2-in dia)

KS Kosaka Kogyo (JP)

RT Takai Ltd (JP)

FM Fastener Co (of J P)

KY Kyoei (JP)

J Jinn Her(JP)

UNY Unytite (JP)

4. Grade 8.2 fasteners with the following headmarks:

KS Kosaka Kogyo (JP)

5. Grade A325 Fasteners (Bennett Denver Target only) with the following headmarks: A325 KS Kosaka Kogyo (JP)

Type 1

Type 2

Type 3

6. Key: (CA)-Canada; (JP)-Japan; (TW)-Taiwan; (YU)-Yugoslavia

/28/9.3

SECTION 01320
FORMS

U. S. DEPARTMENT OF ENERGY CONTRACTS
TRANSMITTAL OF DOE F-5484.X

Reporting Month:	Reporting Company:
Date: / /	Work Order:
	Contract Number

INDIVIDUAL ACCIDENT/INCIDENT REPORT

NEW CASES

NUMBER OF CASES CASE NUMBER

REVISED CASES

NUMBER OF ENCLOSURES CASE NUMBER

COMMENTS:

TOTAL HOURS WORKED THIS MONTH

NUMBER OF HOURS:

SUBMITTED BY:

CONTACT PERSON:

PHONE NUMBER:

ADDRESS:

DATE RECEIVED:

Rev. 5/99

DOE 5484.3
(05-98)
All Other Editions
Are Obsolete

OMB Control No.
1910-0300

OMB Burden Disclosure Statement

Public reporting burden for this collection of information is estimated to average 120 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Resources Reduction Project (1910-0300), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-0300), Washington, DC 20503.

U.S. Department of Energy
INDIVIDUAL ACCIDENT/INCIDENT REPORT
Official Use Only-Privacy Act

PRIVACY ACT STATEMENT

Pursuant to 5 U.S.C 552a(e) (3), enacted into law by section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Department of Energy (DOE) on this form. This information is maintained in a system of records designated as DOE-38 and described in Federal Register 14309 (April 2, 1982).

1. AUTHORITY. Atomic Energy Act of 1954, as amended. Pursuant to 5 U.S.C. 301; Department of Energy Organization Act, including authorities referenced in Title III of the Department of Energy Organization Act; Federal Tort Claims Act, 28 U.S.C. 2671-2680; Military Personnel and Civilian Employees Claims Act, 31 U.S.C. 240-243; Executive Order 12009.

2. PRINCIPAL PURPOSE(S). This information is used by the DOE in its evaluation of occurrences involving worker injury/illness, property damage, and vehicle damage associated with activities and in exercising its statutory responsibility to monitor and regulate the safety and health practices at DOE and DOE contractor facilities. These data permit a meaningful comparison of both the current and long-term safety and health experience among DOE facilities.

3. ROUTINE USES. The information may be used to provide data to other Federal and State agencies involved in monitoring and/or evaluating occupational injuries and illnesses. The information may also be disclosed to appropriate Federal, State, or local agencies in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION. DOE and DOE contractors must complete occupational injury and illness records in compliance with the guidelines outlined in DOE O 231 and DOE M 231.1-1. The social security number is used to assure that DOE has an accurate identifier not subject to the coincidences of similar names or birth dates among the large number of persons on whom the data are maintained.

5. SYSTEM MANAGER(S) AND ADDRESS
   Deputy Assistant Secretary for Worker Health and Safety, EH-5
   U.S. Department of Energy
   19901 Germantown Road
   Germantown, MD 20874-1290

GENERAL INSTRUCTIONS FOR COMPLETING DOE F 5484.3

This form is to be used to record all accidents/incidents reportable under DOE O 231.1 and DOE M 231.1-1. Each accident should be investigated to the degree necessary to fully complete each section of the form. Mail completed forms to the CAIRS Input Coordinator, SCIENTECH, Inc., 1690 International Way, Idaho Falls, ID 83402 -- Attention: CAIRS Input Coordinator.

GENERAL INFORMATION

1. Indicate the name of the reporting organization (DOE Office, DOE Contractor, or subcontractor) where the accident took place. Enter the 7-character identification number that has been assigned to the specific reporting organization.

2. Enter the case number. All cases for a given reporting organization are to be numbered in sequence, regardless of accident/incident type, with the first four digits representing the year (i.e., the tenth accident of 1995 is numbered 1995010). Check the box marked "Revision," if applicable. (NOTE: Revised data will overwrite previously reported data that has been entered into the database.)

3. Enter multiple-case number, if applicable, Multiple-case accidents/incidents are those that result in more than one recordable instance of injury, property or vehicle damage or combination thereof (e.g., two or more injured persons, two or more damaged vehicles, or any combination of injury/property/vehicle cases). Report each case that resulted from a single accident/incident on a separate DOE F 5484.3, with an identical multiple case accident number to show relationship to the common accident/incident. If multiple accident, the CAIRS data administrator must be contacted for assignment of a multiple case number. For example, if the first multiple-case of the year resulted in two individual employees being injured in a one-car rollover, each case would be reported on a separate DOE F 5484.3 and assigned sequential case numbers (e.g., 1995005 and 1995006). The vehicle damage, if reportable, would be shown on a third form and assigned case number 1995007. However, the same multiple case number (e.g., 01 for the first multiple case of the year) should be entered on line 3 of each of the three forms. Additional multiple accidents in the year should be numbered sequentially (e.g., 02, 03).

4. Check the box that best characterizes the type of accident/incident. Include in vehicle type all transportation accidents (e.g., highway vehicle, aircraft, marine, and railroad).

5. Indicate the investigation Type: A, B, or C. The Non-recordable box is used when a previously reported case has been revised to non-recordable status (e.g., found to be less than the reportable amount for dollars loss).

6. Enter the Department or Division. This input field is available for structuring subgroups within a reporting organization.

7. Enter date of accident/incident.

8. Enter time of accident in Military time.

9. Check the appropriate box to indicate where the accident occurred.

10. Check the appropriate box to indicate if accident/incident occurred on employer's premises.

11. Enter the specific location of the accident (e.g., laboratory, test area 10, office area 615, street address).

EMPLOYEE INFORMATION

12. Check appropriate box (e.g., injured or ill employee or operator or equipment/vehicle.)

13. Enter the name of address of employee or operator.

14. Enter Social Security number of employee or operator.

15. Enter date of birth of employee or operator.

16. Check appropriate box (i.e., "Female" or "Male") to indicate gender of employee or operator.

17. Enter generic job title of employee or operator (e.g., engineer, welder, security guard).

18. Enter time employee began work in Military time.

19. Enter date of hire.

20. Check the appropriate box for length of job/equipment experience.

INJURY/ILLNESS INFORMATION

21. Check appropriate box. Refer to the form OSHA No. 200 (Injury Code 10 or illness Codes 21 through 29) to obtain applicable code.

22. Enter number of workdays lost due to accident/incident. If employee has not returned to work, enter your best estimate of expected days away from work. If necessary, submit a revision if estimated loss of workdays is incorrect.

23. Enter number of restricted workdays resulting from accident/incident. If employee is still on restricted status, enter the best estimate of expected restricted days. Submit a revision if estimated restricted workdays is incorrect.

24. Check appropriate box to indicate whether the employee has returned to work with no further workdays lost or restricted anticipated.

25. Check appropriate box to indicate if employee was transferred or terminated because of disability related to injury/illness.

26. Check appropriate box to indicate whether accident/incident resulted in death. If "yes," enter date of death.

PROPERTY/VEHICLE DAMAGE

27. If "Property Damage" was checked in Number 4, select the appropriate box to indicate the property loss type.

28. If "Vehicle" was checked in Number 4, select the appropriate box to indicate type of vehicle involved in accident/incident.

29. Check appropriate box for each question concerning seat belts.

30. Check appropriate box to indicate if accident/incident involved a recordable injury.

31. Enter the total dollar amount (rounded to nearest dollar) of accident/incident damage loss on first line. On following lines, separate the loss between DOE and non-DOE property or vehicle damage, entering the dollar amounts rounded to the nearest dollar.

32. Record amount of claim against DOE for damages to non-DOE vehicles/property, if applicable, and the amount actually paid by DOE when available. Enter the amount of dollar loss, if any, to vehicle/property that should be reimbursable to DOE; also enter the amount actually paid to DOE, if and when available. Do not delay the report. If necessary, submit a revision to report actual amounts paid after the case is settled.

33. Check appropriate box to indicate whether dollar amounts are final.

34. Give the generic or brand name and model. Identification should be adequate to alert others of potential hazards associated with a specific model.

35. Check appropriate box to indicate if the equipment design or defect contributed to the accident cause or severity.

NARRATIVE GUIDE

36. Explain what activity or assignment was in progress at the time of the accident. (Examples: 1. Routine housekeeping duties were being performed. 2. Employee was involved in a routine security inspection. 3. No activity was in the facility due to extended holiday weekend.)

37. Describe the accident sequentially, beginning with the initiating event, and followed by secondary and tertiary events. End with the nature and extent of injury/damage. Name any object or substance and tell how they were included. Provide the name and address of the health care provider and (if hospitalized as the result of the accident) indicate the name and address of the hospital. (Examples: 1) Employee was pulling utility cart that was loaded with wastepaper from office area to hallway. Wheel of utility cart caught against door casing. Bags of heavy wastepaper that were in cart fell to end of cart. Cart tipped over onto foot of employee. Right foot was crushed between utility cart and door casing, resulting in severe contusion to right foot of employee. 2) No employee activity. HVAC system malfunctioned during long weekend. Upper floor and office building became excessively hot and triggered the automatic sprinkler system. Upper office area and contents were damaged by water. Extensive cleanup required. 3) Employee was driving patrol car from guard station to research facility. Patrol car struck icy section of road. Employee lost control of vehicle, which skidded across road into concrete abutment on side of road. Accident resulted in damage to right fender, tire, headlight, and grill.

38. Conditions--State the conditions that existed at the time of the accident (the specific control factors that were or may have been the direct or immediate cause or causes of the accident). Example: 1) Wheel of utility card was worn and would not roll properly. Utility cart was overloaded with wastepaper. 2) Thermostatic control of HVAC system had been improperly installed during recent replacement. 3) Road was covered with icy spots. Weather was foggy.

    Actions--Enter the actions on the part of the employees that contributed to the occurrence of the accident/incident. Example: 1) Employee overloaded the utility cart with wastepaper. 2) Facility maintenance had not inspected the newly installed thermostatic control. 3) Employee exceeded safe speed on icy road and was inattentive to hazard.

    Factors influencing a or b--List the influencing factors or underlying causes, either conditions or actions or both, that contributed to the accident/incident. Example: 1) Employee had not been instructed in overloading hazards. 2) No existing supervisory review over craft-assigned repairs. 3) Employee had not been trained in driving under winter conditions. Contracting Officer's Representative has no driver training program.

39. Actions taken--Describe the actions taken to prevent recurrence of accident/incident. Example: 1) Wheels of utility cart were replaced with larger size wheels. All carts were inspected for safe operation. Maintenance employees were instructed in overloading hazards. 2) Thermostatic control was

inspected and found free of defects; it was then properly rewired. 3) All security personnel were instructed at the safety training meeting on driving under hazardous conditions.

Actions recommended--Describe corrective actions that are planned by line management and require time for implementation. Example: 1) Provide human factors review of utility carts and other equipment purchases. 2) Management to review maintenance procedures and inspection process. 3) Driver training program will be implemented.

Provide the implementation date for recommended corrective action.

40. Enter the name of the person who completed the form who can be contacted for follow-up, the date the form was prepared, the telephone number, and the person's official position.

41. Enter the name and telephone number of the cognizant supervisor. This should be the individual who, by his signature, concurs in and assures corrective action implementation.

42. Enter the name and telephone number of the person to contact with questions regarding the information contained in the report, if different from 40.

DOE F 5484.3
(05-98)
All Other Editions
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U.S. Department of Energy

OMB Control No.
1910-0300

INDIVIDUAL ACCIDENT/INCIDENT REPORT

Official Use Only – Privacy Act

General Information

1. Organization Name: _____

   Organization Code: ☐☐☐☐☐☐☐

2. Case Number ☐☐☐☐☐☐☐ Revision: ☐ Yes

3. Did accident involve more than one reporting organization?
   ☐ Yes ☐ No

   Multiple Case Number: ☐☐

4. Accident Type: ☐ Injury/Illness ☐ Vehicle ☐ Property Damage ☐ Other

5. Investigation Type: ☐ A ☐ B ☐ C ☐ Non-recordable

6. Department, Division, or I.D. Code: _____

7. Date of Occurrence: ☐☐☐☐☐☐☐☐ (Month Day Year (YYYY))

8. Time of Event: ☐☐☐☐ (Military)

9. Accident Occurred: ☐ Indoors ☐ Outdoors

10. On Employer's Premise: ☐ Yes ☐ No

11. Specific Location: _____

Employee Information

12. Check One:
    ☐ Injury/Illness Employee
    ☐ Operator of Equipment/Vehicle
    ☐ Not Applicable

13. Name: _____

    Home Address: _____

14. Social Security No. ☐☐☐☐☐☐☐☐☐

15. Date of Birth ☐☐☐☐☐☐☐☐ (Month Day Year (YYYY))

16. Sex: ☐ Female ☐ Male

17. Occupation: _____

18. Time Employee Began Work: ☐☐☐☐ (Military)

19. Date of Hire: ☐☐☐☐☐☐☐☐ (Month Day Year (YYYY))

20. Experience on this Job/Equipment
    ☐ Under 3 months
    ☐ 3 to 12 months
    ☐ Over 12 months

(If Property Damage or Vehicle Accident, go to Line 26.)

Injury/Illness (OSHA Information)

21. ☐ Injury Code (10)

Illness Codes

- ☐ Code 7a(21) – Skin disease or disorders
- ☐ Code 7b(22) – Dust diseases and lungs
- ☐ Code 7c(23) – Resp. due to toxic agents
- ☐ Code 7d(24) – Poisoning
- ☐ Code 7e(25) – Disorders-Physical agents
- ☐ Code 7f(25) – Disorders-Repeated trauma
- ☐ Code 7g(29) – All others

22. Workdays Lost: ☐☐☐☐
    (Actual if available or estimated expected)

23. Workdays Restricted: ☐☐☐☐
    (Actual if available or estimated expected)

24. Has employee returned to work with no further anticipated workdays lost or restricted?
    ☐ Yes ☐ No

25. Permanent transfer to different job because of accident?
    ☐ Yes ☐ No

    Terminated because of accident?
    ☐ Yes ☐ No

26. Did employee die? ☐ Yes ☐ No

    If "Yes," enter date ☐☐☐☐☐☐☐☐ (Month Day Year (YYYY))

18 U.S.C. SECTION 1001; ACT OF JUNE 25, 1948: 62 STAT. 749; MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR PRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTERS WITHIN ITS JURISDICTION.

INDIVIDUAL ACCIDENT/INCIDENT REPORT

Official Use Only – Privacy Act

Property/Vehicle Damage

27. Property Loss Type (Select One)

Fire/Smoke: ☐ Building ☐ Brush ☐ Vehicle ☐ Other

Electrical: ☐ Equipment Contact ☐ Wiring ☐ Overload ☐ Insulation ☐ Polarity ☐ Grounding ☐ Other

Explosion: ☐ Vapor ☐ Chemical ☐ Fluids ☐ High Explosives ☐ Dust

Mechanical: ☐ Linear Energy ☐ Rotational Energy ☐ Pressure ☐ Falls ☐ Mechanical Breakdown ☐ Overload

Acts of Nature: ☐ Wind ☐ Rain/Hail ☐ Flood ☐ Freezing/Snow ☐ Lightning ☐ Earthquake ☐ Other

Leaks, Spills, Releases, or Contamination: ☐ Chemical ☐ Nuclear ☐ Environmental Impairment ☐ Other

Miscellaneous: ☐ Thermal ☐ Corrosion ☐ Water Damage ☐ Sabotage ☐ Other

(If Property Damage Accident go to Line 30)

28. Vehicle Type (Select One)

Light Highway: ☐ Automobile ☐ Van ☐ Pickup Truck ☐ Motorcycle, moped ☐ Highway vehicle, n.e.c.

Heavy Highway: ☐ Bus ☐ Delivery Truck ☐ Dump Truck ☐ Semi trailer, tractor trailer, trailer truck ☐ Truck, n.e.c. (e.g., fire truck)

Air Rotary Wing: ☐ Helicopter ☐ Aircraft—rotary wing, n.e.c.

Air Fixed Wing: ☐ Jet ☐ Propeller-driven aircraft ☐ Aircraft—fixed wing, n.e.c.

Other Vehicles: ☐ Railroad ☐ Marine

29. Was vehicle equipped with seat belts? ☐ Yes ☐ No

If "Yes," was seat belt in use? ☐ Yes ☐ No

30. Did vehicle accident involve recordable injury? ☐ Yes ☐ No

31. Total Accident Damage $ _____

DOE Property/Vehicle $ _____

Non-DOE Property/Vehicle $ _____

32. Claim Against DOE $ _____ Paid by DOE $ _____

Reimbursable to DOE $ _____ Paid to DOE $ _____

33. Are the dollar amounts final? ☐ Yes ☐ No

Equipment/Hardware/Vehicle Involved (as applicable)

34. #1 Equipment _____
Generic (or brand) name and model

#2 Equipment _____
Generic (or brand) name and model

35. Did equipment or defect contribute to accident cause or severity? ☐ Yes ☐ No

U.S. Department of Energy

INDIVIDUAL ACCIDENT/INCIDENT REPORT

Official Use Only – Privacy Act

NARRATIVE GUIDE

DO NOT INCLUDE THE NAME (OR OTHER PERSONAL IDENTIFIER) OF THE EMPLOYEE/OPERATOR OR WITNESS IN THIS SECTION.
Use third person references, e.g., he slipped on the wet floor and broke his right toe.

36. Activity in progress at time of accident. Be specific. For example, if the employee was using equipment or handling materials or chemicals, name them and tell what he was doing with them.

37. Events Describe the accident sequentially, beginning with initiating events. Tell what happened, how it happened and end with nature and extent of injury/damage. Use a separate sheet for additional space.

Name any objects or substances (e.g., utility knife, glass beaker containing saline solution) involved and tell how they were involved.

Describe the nature of the injury/damage. Name the body part affected if injury or illness. (e.g., amputation of right index finger at second joint)

Name and address of primary health care provider (e.g., physician, nurse, etc.) _____

If hospitalized overnight, name and address of hospital _____

38. Accident Causes
a. Conditions

b. Actions

c. Factors influencing a or b.

39. Corrective Actions (If risk is acceptable, corrective action may not be necessary. If so, indicate "Not applicable" in section "a." below.)
a. Actions taken

b. Actions recommended

c. To be completed by _____(Implementation Date)

40. Report Prepared by _____ Date _____ Telephone _____

Official Position ☐ Supervisor ☐ Safety Professional ☐ Other

41. Supervisor responsible for Corrective Action _____ Date _____ Telephone _____

42. Accident Investigation Contact (if different from line 40) _____ Telephone _____

Request for Y-12 National Security Complex Access and Badge

DOE Temporary Visitor Badge ☐ DOE Photo Badge ☐	Date:
Renewal: ☐ Add-On: ☐ New: ☐	
Project Title:	Subcontract No.
Contractor:	
Purpose:	

******ALL PERSONNEL LISTED MUST BE U.S. CITIZENS******

Full Name	Date of Birth	Social Security No.	Badge No.	Employer

Requested By:

_____ _____

Contractor Representative Date

Concurrence:

_____ _____

BWXT Y-12 Representative Date

Received by:

_____ _____

Y-12 Security Representative Date

Request For Y-12 National Security Complex Vehicle Pass

Company Requesting Pass:		Company Contact Phone No.
Purpose of Visit		
Location/Building(s) to Visit:		
Y-12 National Security Complex Entry Portal(s):		
Date(s) Needed:		
Justification:		
Vehicle Make/Type	Vehicle Model:	Vehicle License Number:

Please return vehicle pass in drop box at Exit Portal

******ALL PERSONNEL LISTED MUST BE U.S. CITIZENS******

Full Name	Date of Birth	Social Security No.	Badge No.	Employer

Requested By:

_____ _____

Contractor Representative Date

Concurrence:

_____ _____

BWXT Y-12 Representative Date

Received by:

_____ _____

Y-12 Security Representative Date

NOTE:

- **Vehicle Passes can only be issued for a period of up to 90 days.**
- **Allow a minimum of two working days for the Vehicle Pass to be processed.**
- **Call (865) 576-1670 if questions arise.**
- **Vehicle Passes are to be picked up at Portal 5 at the east end of the Complex.**

Release and Certificate of Final Payment

With reference to Contract No. _____ dated _____, 20____as amended, between the undersigned Contractor and DOE / NNSA-YSO, the Undersigned hereby certifies that it has made full payment of all costs, charges and expenses incurred by it or on its behalf for work, labor, services, materials and equipment furnished and/or used in connection with the work under said Contract through _____(date).

The Undersigned further certifies that to the best of its knowledge and belief, each of its materialmen and subcontractors at every tier has made full payment of all costs, charges and expenses incurred by them or on their behalf for work, labor, services, materials and equipment furnished and/or used by them in connection with the Undersigned's work under said Contract through _____(date).

In consideration of $_____ as full and final payment under said Contract for all work performed through ___ _____(date), the Undersigned Contractor hereby unconditionally releases and forever discharges the U.S. Department of Energy / National Nuclear Security Administration (DOE / NNSA-YSO) from all requests for equitable adjustment, claims, liens and obligations of every nature, known and unknown, arising out of or relating to the performance of said Contract and all change orders and amendments thereto, through _____(date), except as set forth below:

(Note: If none write "None" in space above. Any claims excepted must be described and the specific amount claimed must be set forth.)

As additional consideration for this payment, the Contractor agrees to the fullest extent of the law, to indemnify and hold harmless the DOE / NNSA-YSO Administration from and against all costs, losses, damages, claims, causes of action, judgments and expenses, including attorney's fees, arising out of or relating to claims against DOE / NNSA-YSO which claims arise out of or related to the performance of the work under the said Contract through _____(date) and which may be asserted by the Contractor or any of its suppliers, subcontractors at any tier or any of their representatives, officers, agents or employees except for those claims listed above, and except for claims arising out of the sole negligence or willful misconduct of the party indemnified or held harmless.

The foregoing shall not relieve the undersigned Contractor of its obligations under the provisions of said Contract, as amended, which by their nature survive completion and acceptance of the work including, without limitation, warranties, guarantees and indemnities.

Executed this _____ day of _____, 20____

_____
[NAME OF CONTRACTOR]

By: _____

Title: _____

REQUEST TO WORK AT THE SITE OUTSIDE NORMAL WORK HOURS

CONTRACT NUMBER:	CONTRACTOR:
PROJECT TITLE:	DATE PREPARED:
CONTRACTOR AUTHORIZED REPRESENTATIVE:	CONTACT/TELEPHONE NUMBER:
DATE(S) / HOUR(S) OF OVERTIME:	
INGRESS/EGRESS:	
PLANNED ACTIVITIES / PERSONNEL:	
SUBCONTRACTORS WORKING:	
SUBMITTED BY: _____ CONTRACTOR REPRESENTATIVE	DATE: _____
APPROVAL: _____ CONTRACTING OFFICER'S REPRESENTATIVE	DATE: _____

cc: BWXT Y-12 Technical Representative (STR)

SECTION 01325

SCHEDULING SYSTEM DATA EXCHANGE FORMAT

PART 1 - GENERAL

1.1 Application of This Provision

The data exchange format provides a platform for exchanging scheduling and planning data between various software systems. This section shall be used in conjunction with the Section, PROJECT SCHEDULE. The Data Exchange Format shall allow project management systems to share information with other programs. Scheduling information shall be transferred from the Contractor's project management system to the Government as described in this section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 FORMAT PROCEDURES

3.1.1 Electronic Data Exchange File Required for All Schedule Submissions

a. The Contractor shall provide schedule data in the Data Exchange Format for each Preliminary, Initial, Monthly NAS Updates, and requests for time extensions or change proposals. The Contractor's failure to provide schedule data in the exact format described herein shall result in disapproval of the entire schedule submission.

b. The entire set of schedule data shall be transferred at every exchange of scheduling data. Thus, for updates to existing projects, the data exchange file shall contain all activities that have not started or are already complete as well as those activities in progress.

3.1.2 Data Transfer Responsibility

The Contractor shall be responsible for Electronic Data Exchange File data that may have been lost or destroyed during transit between the Contractor and the Contracting Officer. If Electronic Data Exchange File data is damaged during transit, then the Contractor shall provide the Contracting Officer with a new Electronic Data Exchange File within two (2) working days of notification by the Contracting Officer.

3.1.3 Data Consistency Responsibility

The Contractor shall be responsible for the consistency between the Electronic Data Exchange File and printed reports which accompany schedule submissions. If Electronic Data Exchange File data for a schedule submission differs, in any way, from the printed schedule reports or standard activity coding, then the Contracting Officer shall disapprove the entire schedule submission. The Contractor shall provide the Contracting Officer with a completely revised, and consistent, schedule submission within 24 hours of notification of inconsistency by the Contracting Officer.

3.1.4 Creating the Electronic Data Exchange File

The Contractor shall have the option of creating the electronic data exchange file by one of the three following methods:

3.1.4.1 Commercially Available Software

The Contractor shall be required to secure software that meets this requirement. Many commercially available scheduling systems support the standard data exchange format.

3.1.4.2 Interface Program

Under this option the Contractor shall produce his own data translation software. This software shall take the information provided by the Contractor's scheduling system and reformat the data into the Data Exchange Format.

3.1.4.3 Manual Methods

Under this option the Contractor shall manually reformat his scheduling system report files or create all necessary data by manually entering all data into the Data Exchange Format.

3.2 GENERAL EXCHANGE FILE REQUIREMENTS

3.2.1 File Transfer Medium

All required data shall be submitted on compact disc(s) under the Windows operating system. Other file transfer medium may be approved by the Contracting Officer if compatible with the Government's computing capability.

3.2.2 File Type and Format

The data file shall consist of a 132 character, fixed format, "ASCII" file. Text shall be left-justified and numbers shall be right-justified in each field. Data records must conform, exactly, to the sequence, column position, maximum length, mandatory values, and field definitions described below to comply with this standard data exchange format. Unless specifically stated, all numbers shall be whole numbers. All data columns shall be separated by a single blank column.

3.2.3 Electronic Data Exchange File Name

The Contractor shall insure that each file has a name related to either the schedule data date, project name, or contract number. No two Electronic Data Exchange Files shall have the same name through the life of this contract. The Contractor shall submit his file naming convention to the Contracting Officer for approval. In the event that the Contractor's naming convention is disapproved, the Contracting Officer shall direct the Contractor to provide files under a unique file naming convention.

3.2.4 Disc Label

The Contractor shall affix a permanent exterior label to each diskette submitted. The label shall contain the type of schedule (Preliminary, Initial, Update, or Change), full project number, project name, project location, data date, name and telephone number of the Contractor's scheduler, and the MS-DOS version used to format the diskette.

3.2.5 Standard Activity Coding Dictionary

The Contractor shall submit, with the initial schedule submission, a consistent coding scheme that shall be used throughout the project for the Activity Codes shown in Paragraph, Activity Records, of this section. The coding scheme submitted shall demonstrate that each code shall only represent one type of information through the

duration of the contract. Incomplete coding of activities or an incomplete coding scheme shall be sufficient for disapproval of the schedule.

3.3 DATA FORMAT

3.3.1 Data Exchange File Format Organization

The Data Exchange File Format shall consist of the following records provided in the exact sequence shown below:

Paragraph Reference	Record Description	Remarks
3.3.2.1	Volume Record	First Record on Every Data Disk
3.3.2.2	Project ID Record	Second Record
3.3.2.3	Calendar Record(s)	Minimum of One Record Required
3.3.2.4	Holiday Record(s)	Optional Record
3.3.2.5	Activity Record(s)	Mandatory Record
3.3.2.6	Precedence Records	Mandatory for Precedence Method
3.3.2.7	Unit Cost Record(s)	Optional for Unit Cost Projs.
3.3.2.8	Progress Record(s)	Mandatory for Updates
3.3.2.9	File End Record	Last Record of Data File

3.3.2 Record Description

3.3.2.1 Volume Record

The Volume Record shall be used to control the transfer of data that may not fit on a single disk. The first record in every disk used to store the data exchange file shall contain the Volume Record. The Volume Record shall sequentially identify the number of the data transfer disk(s). The Volume Record shall have the following format:

Description	Position	Len.	Value	Column Type	Max. Just.	Reqd.
RECORD IDENTIFIER	1- 4	4	VOLM		Fixed	
DISK NUMBER	6- 7	2	-	Number	Right	

a. The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "VOLM".

b. The DISK NUMBER field shall identify the number of the data disk used to store the data exchange information. If all data may be contained on a single disk, this field shall contain the value of "1". If more disks are required, then the second disk shall contain the value "2", the third disk shall be designated with a "3", and so on. Identification of the last data disk shall not be accomplished with the Volume Record. Identification of the last data disk is accomplished in the PROJECT END RECORD (see Paragraph, File End Record).

3.3.2.2 Project ID Record

The Project ID Record is the second record of the file and shall contain project information in the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1 - 4	4	PROJ	Fixed	
DATA DATE	6 - 12	7	-	ddmmmyy	See 3.3.2.2 b.
PROJECT IDENTIFIER	14 - 17	4	-	Alpha.	Left
PROJECT NAME	19 - 66	48	-	Alpha.	Left
CONTRACTOR NAME	68 -103	36	-	Alpha.	Left
ARROW OR PRECEDENCE	105	1	A,P	Fixed	
CONTRACT NUMBER	107-112	6	-	Alpha.	Left
PROJECT START	114-120	7	-	ddmmmyy	Filled
PROJECT END	122-128	7	-	ddmmmyy	Filled

a. The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "PROJ". This record shall contain the general project information and indicates which scheduling method shall be used.

b. The DATA DATE is the date of the schedule calculation. The abbreviation "ddmmmyy" refers to a date format that shall translate a date into two numbers for the day, three letters for the month, and two numbers for the year. For example, March 1, 1999 shall be translated into 01Mar99. This same convention for date formats shall be used throughout the entire data format. To insure that dates are translated consistently, the following abbreviations shall be used for the three character month code:

Abbreviation	Month
JAN	January
FEB	February
MAR	March
APR	April
MAY	May
JUN	June
JUL	July
AUG	August
SEP	September
OCT	October
NOV	November
DEC	December

c. The PROJECT IDENTIFIER is a maximum of four character abbreviation for the schedule. These four characters shall be used to uniquely identify the project and specific update as agreed upon by the Contractor and Contracting Officer. When utilizing scheduling software these four characters shall be used to select the project. Software manufacturers' shall verify that data importing programs do not automatically overwrite other schedules with the same PROJECT IDENTIFIER.

d. The PROJECT NAME field shall contain the name and location of the project edited to fit the space provided. The data appearing here shall appear on scheduling software reports. The abbreviation "Alpha.", used throughout paragraph, RECORD DESCRIPTIONS, refers to an "Alphanumeric" field value.

e. The CONTRACTOR NAME field shall contain the Construction Contractor's name edited to fit the space provided.

f. The ARROW OR PRECEDENCE field shall indicate which method shall be used for calculation of the schedule. The value "A" shall signify the Arrow Diagramming Technique. The value "P" shall signify the Precedence Diagramming Technique. The ACTIVITY IDENTIFICATION field of the Activity Record shall be interpreted differently depending on the value of this field (see Paragraph 3.3.2.5 b.). The Precedence Record shall be required if the value of this field is "P" (see Paragraph, Precedence Record).

g. The CONTRACT NUMBER field shall directly identify the contract for the project. For example, a complete government construction contract number, "DACA85-89-C-0001", shall be entered into this field as "890001".

h. The PROJECT START shall contain the date that the project will start or has started. On government construction projects, this date is the date that the construction Contractor acknowledges the Notice to Proceed.

i. The PROJECT END shall contain the data that the contract must complete on or prior to. On government construction projects, this date is the PROJECT START plus the contract period, typically expressed in a specific number of calendar days.

3.3.2.3 Calendar Record

The Calendar Record(s) shall follow the Project Identifier Record in every data file. A minimum of one Calendar Record shall be required for all data exchange activity files. The format for the Calendar Record shall be as follows:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	CLDR	Fixed	
CALENDAR CODE	6- 6	1	-	Alpha.	Filled
WORKDAYS	8- 14	7	SMTWTFS	See 3.3.2.3 c.	
CALENDAR DESCRIPTION	16- 45	30	-	Alpha.	Left

a. The RECORD IDENTIFIER shall always begin with "CLDR" to identify it as a Calendar Record. Each Calendar Record used shall have this identification in the first four columns.

b. The CALENDAR CODE shall be used in the activity records to signify that this calendar is associated with the activity.

c. The WORKDAYS field shall contain the work-week pattern selected with "Y", for Yes, and "N", for No. The first character shall be Sunday and the last character Saturday. An example of a typical five (5) day work-week would be NYYYYYN. A seven (7) day work-week would be YYYYYYY.

d. The CALENDAR DESCRIPTION shall be used to briefly explain the calendar used.

3.3.2.4 Holiday Record

Optional Holiday Record(s) shall follow the Calendar Record(s). The Holiday Record shall be used to designate specific non-work days for a specific Calendar. More than one Holiday Record may be used for a particular calendar. If used, the following format shall be followed:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	HOLI	Fixed	
CALENDAR CODE	6- 6	1	-	Alpha.	Filled
HOLIDAY DATE	8- 14	7	-	ddmmmyy	Filled
HOLIDAY DATE	16- 22	7	-	ddmmmyy	Filled
HOLIDAY DATE	24- 30	7	-	ddmmmyy	Filled
HOLIDAY DATE	32- 38	7	-	ddmmmyy	Filled
HOLIDAY DATE	40- 46	7	-	ddmmmyy	Filled
HOLIDAY DATE	48- 54	7	-	ddmmmyy	Filled
HOLIDAY DATE	56- 62	7	-	ddmmmyy	Filled
HOLIDAY DATE	64- 70	7	-	ddmmmyy	Filled
HOLIDAY DATE	72- 78	7	-	ddmmmyy	Filled
HOLIDAY DATE	80- 86	7	-	ddmmmyy	Filled
HOLIDAY DATE	88- 94	7	-	ddmmmyy	Filled
HOLIDAY DATE	96-112	7	-	ddmmmyy	Filled
HOLIDAY DATE	114-120	7	-	ddmmmyy	Filled
HOLIDAY DATE	122-128	7	-	ddmmmyy	Filled

a. The RECORD IDENTIFIER shall always begin with "HOLI" and shall signify an Optional Holiday Calendar is to be used.

b. The Calendar Code indicates which work-week calendar the holidays shall be applied to. More than one HOLI record may be used for a given CALENDAR CODE.

c. The HOLIDAY DATE is to be used for each date to be designated as a non-work day.

3.3.2.5 Activity Records

Activity Records shall follow any Holiday Record(s). If there are no Holiday Record(s), then the Activity Records shall follow the Calendar Record(s). There shall be one Activity Record for every activity in the network. Each activity shall have one record in the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	ACTV		Fixed
ACTIVITY IDENTIFICATION	6- 15	10	-		See 3.3.2.5 b.
ACTIVITY DESCRIPTION	17- 46	30	-	Alpha.	Left
ACTIVITY DURATION	48- 50	3	-	Integer	Right
ACTIVITY COST	52- 60	9	-	Integer	Right
CONSTRAINT DATE	62- 68	7	-	ddmmmyy	Filled
CONSTRAINT TYPE	70- 71	2	-	See 3.3.2.5 g.	
CALENDAR CODE	73- 73	1	-	Alpha.	Filled
HAMMOCK CODE	75- 75	1	Y,blank		Fixed
WORKERS PER DAY	77- 79	3	-	Integer	Right
RESPONSIBILITY CODE	81- 84	4	-	Alpha.	Left
WORK AREA CODE	86- 89	4	-	Alpha.	Left
MOD OR CLAIM NUMBER	91- 94	4	-	Alpha.	Left
BID ITEM	96- 99	4	-	Alpha.	Left
UCI CODE	101-105	5	-	See 3.3.2.5 o.	
USER DEFINED 1	107-110	4	-	See 3.3.2.5 p.	
USER DEFINED 2	112-115	4	-	See 3.3.2.5 p.	
USER DEFINED 3	117-120	4	-	See 3.3.2.5 p.	
USER DEFINED 4	122-125	4	-	See 3.3.2.5 p.	
USER DEFINED 5	127-130	4	-	See 3.3.2.5 p.	

a. The RECORD IDENTIFIER for each activity description record must begin with the four character "ACTV" code. This field shall be used for both the Arrow Diagram Method (ADM) and Precedence Diagram Method (PDM) (see Paragraph 3.3.2.2 f.).

b. The ACTIVITY IDENTIFICATION consists of coding that differs, depending on whether the ADM or PDM method was selected in the Project Record (see Paragraph 3.3.2.2 f.). If the ADM method was selected, then the field shall be interpreted as two right-justified fields of five (5) integers each. If the PDM method was selected, the field shall be interpreted as one (1) right-justified field of ten (10) integers each. The maximum activity number allowed under this arrangement is 99999 for ADM and 9999999999 for the PDM method.

c. The ACTIVITY DESCRIPTION shall be a maximum of 30 characters. Descriptions must be limited to the space provided.

d. The ACTIVITY DURATION contains the estimated duration for the activity on the schedule. The duration shall be based upon the work-week designated by the activity's related calendar (referenced in 3.3.2.5 h.).

e. The ACTIVITY COST contains the estimated earned value of the work to be accomplished in the activity.

f. The CONSTRAINT DATE field shall be used to identify a date that the scheduling system may use to modify float calculations. If there is a date in this field, then there must be a valid entry in the CONSTRAINT TYPE field. The CONSTRAINT DATE shall be the same as, or later than, the PROJECT START DATE. The CONSTRAINT DATE shall be the same as, or earlier than, the PROJECT END DATE.

g. The CONSTRAINT TYPE field shall be used to identify the way that the scheduling system shall use the CONSTRAINT DATE to modify schedule float calculations. If there is a value in this field, then there must

be a valid entry in the CONSTRAINT DATE field. Below are the minimum list of entries for the CONSTRAINT TYPE. Other types may be available from specific software manufacturers.

Code	Definition
ES	The CONSTRAINT DATE shall replace an activity's early start date, if the early start date is prior to the CONSTRAINT DATE.
LF	The CONSTRAINT DATE shall replace an activity's late finish date, if the late finish date is after the CONSTRAINT DATE.

h. The CALENDAR CODE, as previously explained, relates this activity to an appropriate work-week calendar. The ACTIVITY DURATION must be based on the valid work-week referenced by this CALENDAR CODE field (see Paragraph 3.3.2.5 d.).

i. The HAMMOCK CODE indicates that a particular activity does not have its own independent duration, but takes its start dates from the start date of the preceding activity (or node) and takes its finish dates from the finish dates of its succeeding activity (or node). If the value of the HAMMOCK ACTIVITY field is "Y", then the activity is a HAMMOCK ACTIVITY.

j. The WORKERS PER DAY is an optional field that shall be specified at the discretion of the Field Operating Agency (FOA). This field shall contain the average number of workers expected to work on the activity each day the activity is progress. The total duration times the average number of workers per day shall equal the Contractor's estimate of the total man days of work required to perform the activity.

k. The RESPONSIBILITY CODE shall identify the Subcontractor or major trade involved with completing the work for the activity.

l. The WORK AREA CODE shall identify the location of the activity within the project.

m. The MOD OR CLAIM NUMBER code is an optional field that shall be specified at the discretion of the Field Operating Agency (FOA). This code shall uniquely identify activities that are changed on a construction contract modification, or activities that justify any claimed time extensions.

n. The BID ITEM field is an optional field that shall be specified at the discretion of the Field Operating Agency (FOA). This field shall designate the bid item number associated with the activity.

o. The Construction Specification Institute Masterformat CSI CODE is an optional field that shall be specified at the discretion of the Field Operating Agency (FOA). The CSI CODE shall contain the value of code corresponding to the work to be accomplished in this activity.

p. USER DEFINED fields are optional and not required to meet the data exchange standard. They are provided to allow for a fixed expansion of capabilities for individual very large projects that may require additional fields.

3.3.2.6 Precedence Record

The Precedence Record(s) shall follow the Activity Records if a Precedence Type Schedule (PDM) is identified in the ARROW OR PRECEDENCE field of the Project Record (see Paragraph 3.3.2.2 f.). The Precedence Record has the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PRED		Fixed
ACTIVITY IDENTIFICATION	6- 15	10	-	Integer	See 3.3.2.6 b.
PRECEDING ACTIVITY	17- 26	10	-	Integer	
PREDECESSOR TYPE	28- 29	2	-	See 3.3.2.6 d.	
LAG DURATION	31- 34	4	-	Integer	Right

a. The RECORD IDENTIFIER shall begin with the four character "PRED" in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION identifies the activity whose predecessor shall be specified in this record. Refer to the Activity Record for further explanation on this field (see Paragraph 3.3.2.5 b.).

c. The PREDECESSOR ACTIVITY number is the number of an activity that precedes the activity noted in the ACTIVITY IDENTIFICATION field.

d. The PREDECESSOR TYPE field indicates the type of relationship that exists between the chosen pair of activities. The PREDECESSOR TYPE field must, as a minimum, contain one of the codes listed below. Other types of activity relations may be supported from specific software vendors.

Code	Definition
SS	Start-to-Start relationship
FF	Finish-to-Finish relationship
FS	Finish-to-Start relationship

e. The LAG DURATION field contains the number of days delay between the preceding and current activity.

3.3.2.7 Unit Cost Record

The Unit Cost Record shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Unit Cost Record shall follow any Activity Records. The fields for this record shall take the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	UNIT		Fixed
ACTIVITY IDENTIFICATION	6- 15	10	-	Integer	See 3.3.2.7 b.
TOTAL QTY	17- 27	11	-	Floating Pt.	
COST PER UNIT	29- 39	11	-	Floating Pt.	
QTY TO DATE	41- 51	11	-	Floating Pt.	
UNIT OF MEASURE	53- 55	3	-	Alpha.	

a. The RECORD IDENTIFIER shall be identified with the four character "UNIT" placed in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION for each activity shall match the format described in the activity record (see Paragraph 3.3.2.5 b.).

c. The TOTAL QTY is the total amount of this type of material to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 25, 26, and 27.

d. The COST PER UNIT is the cost, in dollars and cents, for each unit to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 37, 38, and 39.

e. The QTY TO DATE is the quantity of material installed in this activity up to the data date. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 49, 50, and 51.

f. The UNIT OF MEASURE is an abbreviation that may be used to describe the units being measured for this activity.

3.3.2.8 Progress Record

Progress Record(s) shall follow all Unit Cost Record(s). If there are no Unit Cost Record(s), then the Progress Record(s) shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Progress Record shall follow any Activity Records. One Record shall exist for each activity in-progress or completed. The fields for this Record shall take the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PROG	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10	-	Integer	See 3.3.2.8 b.
ACTUAL START DATE	17- 23	7	-	ddmmmyy	Full
ACTUAL FINISH DATE	25- 31	7	-	ddmmmyy	Full
REMAINING DURATION	33- 35	3	-	Integer	Right
COST TO DATE	37- 45	9	-	Integer	Right

a. The RECORD IDENTIFIER shall begin with the four character "PROG" in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION for each activity for which progress has been posted, shall match the format described in the Activity Record (see Paragraph 3.3.2.5 b.).

c. An ACTUAL START DATE is required for all in-progress activities. The ACTUAL START DATE shall be the same as, or later than, the PROJECT START date contained in the Project Record (see Paragraph 3.3.2.4 h.). The ACTUAL START DATE shall also be the same as, or prior to, the DATA DATE contained in the Project Record (see Paragraph 3.3.2.2 b.).

d. An ACTUAL FINISH DATE is required for all completed activities. If the REMAINING DURATION of an activity is zero, then there must be an ACTUAL FINISH DATE. The ACTUAL FINISH DATE must be the same as, or later than the PROJECT START date contained in the Project Record (see Paragraph 3.3.2.2 h.). The ACTUAL FINISH DATE must also be the same as, or prior to the DATA DATE contained in the Project Record (see paragraph 3.3.2.2 b.).

e. A REMAINING DURATION is required for all in-progress activities. Activities completed, based on time, shall have a zero (0) REMAINING DURATION.

f. Cost progress is contained in the field COST TO DATE. If there is an ACTUAL START DATE, then there must also be some value for COST TO DATE. The COST TO DATE is not tied to REMAINING DURATION. For example, if the REMAINING DURATION is "0", the COST TO DATE may only be 95% of the ACTIVITY COST. This difference may be used to reflect 5% retainage for punch list items.

3.3.2.9 File End Record

The File End Record shall be used to identify that the data file is completed. This record shall be the last record of the entire data file. The File End Record shall have the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 3	3	END		Fixed

a. The RECORD IDENTIFIER for the File End Record shall be "END". No data contained in the data exchange file that occurs after this record is found shall be used.

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SECTION 01340
PROJECT SCHEDULE

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ENGINEERING REGULATIONS (ER)

ER 1-1-11 (1995) Progress, Schedules, and Network Analysis Systems

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONTRACTOR PREPARED NETWORK ANALYSIS SYSTEM (NAS) (MAR 90).

3.1.1 The progress chart to be prepared by the Contractor pursuant to the General Clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS" shall consist of a network analysis system (NAS) as described below. The scheduling of construction is the responsibility of the Contractor and contractor management personnel shall actively participate in development of the network logic diagram so that intended sequences and procedures are clearly understood. The Contractor shall provide the NAS in Precedence (PDM) format. The network diagram required at the initial schedule submission shall depict the order and interdependence of activities and the method by which the work is to be accomplished. Conditions of submittal are:

3.1.1.1 The diagram shall show a continuous activity flow from left to right. The activity or event numbers, description, duration, and value shall be shown on the diagram.

3.1.1.2 Dates shall be shown on the diagram for start of the project, any milestones required by the contract, and contract completion.

3.1.1.3 The critical path shall be clearly identified.

3.1.1.4 Submittal, review, procurement, fabrication, delivery, installation, start-up, and testing of special or long lead-time materials and equipment shall be included in the NAS diagram.

3.1.1.5 Government and other agency activities shall be shown. These include but are not limited to: notice to proceed, approvals, inspections, and utility tie in for phasing requirements.

3.1.2 A preliminary network diagram, defining the Contractor's planned operations for the first 60 days shall be provided within 10 calendar days after notice to proceed is acknowledged. The approved preliminary schedule shall be used for payment not to exceed 60 days after notice to proceed.

3.1.3 The initial NAS shall be submitted within 30 calendar days after notice to proceed. It shall provide (1) a reasonable sequence of activities which represent work through the entire project and (2) a reasonable level of activity detail. The schedule interval shall extend from notice to proceed through the contract duration specified in "COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK" to contract completion date. Completion of the last activity in the schedule shall be constrained by the contract completion date such that if the

projected finish of the last activity falls after the contract completion, then the float calculation shall reflect negative float. Interim milestone dates specified shall be so constrained also. Progress payments will be withheld until the Contractor's schedule is approved.

3.1.3.1 The Contractor shall participate in a review and evaluation by the Contracting Officer of the proposed network diagrams and analysis. Any revisions necessary as a result of this review shall be resubmitted for approval of the Contracting Officer within five (5) calendar days after the conference. The approved schedule shall then be the schedule to be used by the Contractor for planning, organizing and directing the work and for reporting progress. If the Contractor thereafter desires to make changes in his method of operating and scheduling, he shall revise and submit for approval, without additional cost to the Government, all or the affected portion of the detailed diagrams and mathematical analysis and the summary diagram to show the effect on the entire project.

3.1.4 The Contractor shall submit a reproducible and two copies of the network diagram at the initial submittal and three copies of the specified reports at the initial and every monthly update throughout the life of the project. The format of the reports shall contain: Activity Number (s), Activity description, Original Duration, Remaining Duration, Early Start date, Late Start date, Early Finish date, Late Finish date, and Total Float. Precedence schedule reports shall include and display preceding and succeeding activities. Cost and/or Earned Value reports shall contain Estimated Earned Value, Percent Complete (based on cost), and Earnings to Date. Report formats are as follow:

3.1.4.1 Logic Report: This report shall list all activities sorted according to activity number. Activities shall be printed in ascending order of activity number. Any standard report which lists all activities including restraints in this manner is acceptable.

3.1.4.2 Criticality Report: This report shall list all activities sorted in ascending order of total float. Activities which have equal values of total float shall be listed in ascending order of Early Starts.

3.1.4.3 Cost or Earned Value Report: This report shall compile Contractor's total earned value on the project from the notice to proceed until the most recent monthly progress meeting based on agreed progress between the Contractor and the Contracting Officer. Provided that the Contractor has submitted a complete schedule update, this report shall serve as the basis for determining Contractor payment. (Activities shall be grouped by bid item and then sorted by activity number(s). This report shall subtotal all activities in a bid item and provide a bid item percent complete and then total all bid items to provide a total project percent complete.)

3.1.5 A monthly meeting shall be conducted on site attended by the Contractor's project manager and appropriate Contracting Officer's representatives. During this meeting the Contractor will describe, on an activity by activity basis, all proposed revisions and adjustments to the NAS required to reflect the current status of the project. The Contracting Officer's representative shall approve activity progress, proposed revisions and adjustments, and the use of any optional calculations. The following shall be addressed:

3.1.5.1 The actual start and actual finish dates for all activities in progress or completed as appropriate.

3.1.5.2 The estimated remaining duration for each activity in progress. Progress calculations must be based on remaining duration for each activity and be in an approved calculation mode.

3.1.5.3 The earned value for each activity started but not completed. Payment shall be based on cost of completed activities plus cost to date of in progress activities.

3.1.5.4 All logic changes pertaining to change orders on which a Notice to Proceed has been issued, Contractor proposed changes in activity sequence or durations, and corrections to schedule logic to avoid out of sequence progress.

3.1.6 Following the monthly progress meeting, a complete update of the NAS based on the approved progress, revisions, and adjustments agreed upon at the meeting shall be computed and submitted along with the application for progress payment. This update shall be subject to approval of the accurate entry of information agreed upon at the meeting. Actual starts and finishes, remaining duration, or percent complete shall not be automatically updated by default dates contained in many CPM scheduling software systems, except that early start for an activity which could start prior to the update but has no actual start shall default to the data date of the update. Activities which have posted progress without predecessor activities being completed shall be allowed only on a case by case approval of the Contracting Officer's representative who may require logic changes to correct all such out of sequence progress.

3.1.7 A narrative report shall be provided with each update of the NAS. This report shall include (1) a description of activities and progress along the four most critical paths, (2) a description of current and anticipated problem areas or delaying factors and their impact, and (3) an explanation of the corrective actions taken. Only modifications that have been authorized and approved by the Contracting Officer shall be included in the schedule submission. The narrative report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes. This report, along with the progress update above shall provide the basis for the Contractor's progress payment request and the Contractor shall be entitled to progress payments determined from the currently approved NAS update. If the Contractor fails or refuses to furnish the information and NAS data which, in the sole judgment of the Contracting Officer, is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided a progress payment estimate and progress payment will not be made.

3.1.8 The Contractor shall prepare proposed NAS revisions for all contract changes and submit them to the Contracting Officer's representative. These shall include a narrative listing of the affected activities and a statement of the expected changes along with a subnet of the diagram area. When agreed upon by the Contracting Officer's representative, the change logic and durations shall be utilized in analysis of the overall project and the appropriate impact of the change determined for inclusion of time impact for a modification. When notice to proceed with changes must be issued prior to settlement of price and/or time, the Contractor shall submit the same revisions for concurrence by the Contracting Officer's representative prior to inclusion in the NAS. If the Contractor fails to submit or include such revisions within 15 days of the notice to proceed, the Contracting Officer's representative will furnish to the Contractor suggested logic and/or revised durations to be entered in the NAS until the Contractor submits revisions, and final changes and impact have been negotiated. If the Contractor has any objections to the data furnished by the Contracting Officer, he shall advise the Contracting Officer promptly of his objections and written counterplan. However he will continue to use the revisions by the Contracting Officer until such time as alternate data is approved. If the Contractor fails to submit his alternative plan within 10 days after the date such suggested revisions were furnished by the Contracting Officer, the Contractor will be deemed to have concurred with the Contracting Officer's suggested logic/duration time changes. The changes then will be the basis for equitable adjustment for performance of the work.

3.1.9 In the event the Contractor requests an extension of the contract completion date for any other contractual reason, he shall furnish such justification as the Contracting Officer may deem necessary for a determination of the Contractor's right to an extension of time under the provisions of the contract. In such event the schedule revisions shall clearly display that the Contractor has used in full all available float time for the work involved with the request. Actual delays that are found to be caused by the Contractor's own actions or lack of action and which result in the extension of the projected contract completion date shall not be a cause for extension of the contract completion date. The Contracting Officer may find cause to extend the contract completion date under the contract in the absence of a request by the Contractor when, in the Contracting Officer's judgment, it is equitable.

3.1.10 Float available in the schedule at any time shall not be considered for exclusive use by either the Contractor or the Government. Extensions of time for performance of work required under Contract Clauses entitled, "CHANGES", "DIFFERING SITE CONDITIONS", "DEFAULT (FIXED PRICE CONSTRUCTION)", or

"SUSPENSION OF WORK" will be granted only to the extent that equitable time adjustments for affected activities exceed the total float along their paths.

3.1.11 The Contractor will be required to input the schedule into the Government Resident Management System (RMS). (See Section 01455 - QUALITY CONTROL SYSTEM (QCS) for a description of the QCS program that interfaces with RMS.) Inherent to the schedule input is the mandatory use of the Standard Data Exchange Format (See Section 01325 – SCHEDULING SYSTEM DATA EXCHANGE FORMAT). The Contractor must select a scheduling software which supports the SDEF.

3.1.12 Staff. The Contractor shall maintain on the jobsite as part of his organization, a staff trained in the use and application of scheduling systems whose responsibility will be the monitoring of progress and providing computer input for updating the mathematical analysis and revising logic diagrams when necessary. The size of this staff will be subject to the approval of the Contracting Officer and will be supplemented at no additional cost to the Government if additional personnel are required by directive of the Contracting Officer. The Contractor will establish and maintain the computer capability on the jobsite to perform the mathematical analysis updates.

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SECTION 01356
STORM WATER POLLUTION PREVENTION MEASURES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4439	(1997) Standard Terminology for Geosynthetics
ASTM D 4491	(1996) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1996)) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1995) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(1995) Identification, Storage, and Handling of Geosynthetic Rolls

1.2 GENERAL

The Contractor shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the equirements of the National Pollution Discharge Elimination System (NPDES) permit.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01300- SUBMITTALS

SD-07 Certificates

Mill Certificate or Affidavit.

Certificate attesting that the Contractor has met all specified requirements.

1.4 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented shall include temporary seeding and mulching. On his daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., excavation, embankment, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE

CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have permanently ceased.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.4.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices.

1.4.2.1 Silt Fences

The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

1.4.2.2 Straw Bales

The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, bales shall be placed as work progresses, bales shall be removed/replaced/relocated as needed for work to progress in the drainage area). Areas where straw bales are to be used are shown on the drawings. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. Rows of bales of straw shall be provided as follows:

a. Along the downhill perimeter edge of all areas disturbed.

b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.

c. Along the toe of all cut slopes and fill slopes of the construction areas.

d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. Rows shall be spaced a maximum of 30 meters apart.

e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced a maximum of 30 meters apart.

f. At the entrance to culverts that receive runoff from disturbed areas.

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments, which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of -18 to 49 degrees C (0 to 120 degrees F). The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (%)		30 % max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 50 mm by 50 mm (2 inches by 2 inches) when oak is used and 100 mm by 100 mm (4 inches by 4 inches) when pine is used, and shall have a minimum length of 1.5 m (5 feet). Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum mass of 1.98 kg per linear meter (weight of 1.33 pounds per linear foot) and a minimum length of 1.5 m (5 feet).

2.1.3 Mill Certificate or Affidavit

A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry condition. The bales shall have a standard cross section of 350 mm by 450 mm (14 inches by 18 inches). All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 50 mm by 50 mm (2 inches x 2 inches) in cross section and shall have a minimum length of 1 m (3 feet). Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum mass of 1.98 kg per linear meter (weight of 1.33 pounds per linear foot) and a minimum length of 1 m (3 feet).

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 400 mm (16 inches) above the ground surface and shall not exceed 860 mm (34 inches) above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 150 mm (6 inches) overlap, and securely sealed. A trench shall be excavated approximately 100 mm (4 inches) wide and 100 mm (4 inches) deep on the upslope side of the location of the silt fence. The 100 mm by 100 mm (4 inches by 4 inches) trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 100 mm. (4 inches.) After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 100 mm (4 inches) against the uphill side of the barrier. Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum 450 mm (18 inches) deep into the ground to securely anchor the bales.

3.3 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.

3.3.2 Straw Bale Maintenance

Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade.

3.4 INSPECTIONS

3.4.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 13 mm (0.5 inch) or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

3.4.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

3.4.4 Monthly Inspection Report and Certification Form for Erosion and Sediment Controls

On the first working day of each month the Contractor shall complete, sign, and submit the original form to the State Office of Pollution Control (OPC). On the first working day of each month the Contractor shall also furnish one copy of the form submitted to the OPC to the Contracting Officer as part of the Contractor's daily CQC Report and attach a copy of the completed form to the Plan. Unless otherwise notified by the OPC, the Contractor shall submit the Monthly Inspection Report and Certification Forms for an additional two months after the final completion of all storm water pollution prevention measures required in this contract have been implemented.

-- End Of Section --

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1110-1-12	Quality Management

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction". The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Design Quality Control (DQC) Plan For Design/Build Projects Only

The Contractor's DQC Plan shall provide and maintain an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. The Contractor's DQC Plan shall be prepared in accordance with CESPDR 1110-1-8, "Quality Management Plan", Appendix D. As a minimum, all documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. Performance of the independent technical review (ITR) should not be accomplished by the same element that produced the product. In addition, the DQC Plan shall incorporate the Lessons Learned Databases provided by the Government. Errors and deficiencies in the design documents shall be corrected prior to submitting them to the Government.

The Contractor shall include in the DQC plan a time-scaled bar chart or Critical Path Method (CPM) design schedule showing the sequence of events involved in carrying out the project tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major tasks including those that control the flow of work. The bar chart or schedule shall include review and correction periods proper to submittal of each item. This should be a forward planning as well as a project monitoring tool. The bar chart or schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised bar chart or schedule reflecting the change within seven calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

The DQC Plan shall be implemented by an assigned person with the Contractor's organization who has the responsibility of being present during the times work is in progress, and shall be cognizant of and assure that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the individual and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor, in writing, of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.2 Content of the Construction CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01300 – SUBMITTALS.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control

with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract, or a construction person with a minimum of 10 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager when required by the Contracting Officer. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in the required discipline. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors".

3.4.5 Organizational Changes

The Contractor shall obtain Contracting Officer's acceptance before replacing any member of the CQC staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement. Upon acceptance of any changes, the Contractor shall revise the CQC plan to accurately reflect the changes. The CQC plan shall be kept current at all times during the life of the contract.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01300- SUBMITTALS. CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements. When Section, HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTROL SYSTEMS; DIRECT DIGITAL CONTROL FOR HVAC; TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS; or COMMISSIONING OF HVAC SYSTEMS are included in the contract, the submittals required by those sections shall be coordinated with Section 01300- SUBMITTALS to ensure adequate time is allowed for each type of submittal required.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, 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 shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

Commander, U.S. Army Engineer Waterways Experiment Station
ATTN: CEWES-SC
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.8.4 Post Completion Feedback Meeting and Preparation of Written Minutes

At the completion of this project, the CQC Systems Manager will host a meeting to review the project and to discuss lessons learned during the construction of the project. This meeting should be scheduled for 4 hours on-site and should be attended by the Project Manager and representatives of the major subcontractors, including mechanical and electrical. The Contracting Officer will invite members of the design team to participate in this meeting.

3.9 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 that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.9.1 Correspondence

The Contractor shall establish and implement a serialized numbering system for letters sent to the Government. The numbering system shall identify the contract number and shall progress sequentially starting with the number one (1) and continuing thereafter without break in numbering. All letters sent to the Government shall include a subject heading which identifies the Contract Clause Number, Special Clause Number, or Technical Provision Number, and the particular subject item addressed by the letter.

3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected 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 work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer 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 01420
SAFETY

1. SAFETY. The Contractor shall comply with all applicable Federal laws and with such additional measures as the Contracting Officer may find necessary in accordance with the Contract Clause titled: ACCIDENT PREVENTION. Applicable provisions of the Corps of Engineers manual entitled "Safety and Health Requirements Manual", EM 385-1-1, current edition, shall be applied to all work under this contract. The reference manual may be obtained from the Contracting Officer's Representative, at the job site.

2. ZERO INJURY PROGRAM. The Contractor is required to implement a ZERO INJURY PROGRAM for this project. Implementation shall comply with the requirements hereinafter stated and other guidance provided by the Albuquerque District.

2.1 Definition. The term ZERO INJURY identifies a unique attitude which exists on projects achieving the category of "safety excellence". This attitude appears as a zealous commitment by top management to the concept that zero injury is the only acceptable goal. From the standpoint of worker psychology, any other goal leaves the subtle message that injuries will occur and that they are inevitable on a construction site. It is no longer acceptable to take chances. Shortcuts taken because of laziness or even while trying to do an efficient job are no longer welcomed. Praise for shortcuts or chance-taking will not exist.

The elimination of injuries is vital to the efficient execution of construction projects. Productivity and safety are so intertwined in the workplace, that to spend time and energy on safety not only improves safety performance, it also improves schedule and reduces costs.

2.2 Experience Modification Rate. Prior to awarding any subcontract, the prime contractor shall furnish to the Contracting Officer the EMR of the proposed subcontractors (at any tier).

2.2.1 Should a subcontractor (at any tier) have an EMR of 1.05 or higher, a meeting with the Contracting Officer prior to that subcontractor performing any work will be required to explain how the prime contractor intends to maintain an accident free work site.

2.3 Contractor Performance Appraisal. The occurrence of accidents and near-misses due to negligence are strong indications that there has been insufficient emphasis on effective implementation and/or commitment to the zero injury program. Should it become obvious that only lip service is being given to this program, an interim unsatisfactory performance appraisal rating will be issued. If safety continues to be unsatisfactory or marginal, the unsatisfactory rating will become final. The Contractor should be aware that this appraisal will be stored in a national computer database which can be accessed by a multitude of agencies or municipalities desiring information on prospective contractors. An unsatisfactory rating in this database may affect the Contractor's ability to obtain future Government work.

2.4 Implementation. Immediately upon award of this contract the Contractor shall commence implementation of a zero injury program at follows:

a. Adopt the "Zero Injury" philosophy beginning with the CEO who sets the expectation that worker injury is unacceptable on all work.

b. Environmental, Safety, and Health (ES&H) Representative. Refer to Section 01110, Environmental, Safety, and Health for the requirements of the ES&H representative

c. Create a culture that all employees at all levels accept ownership of the safety performance objective of "Zero Injuries". The CEO sets the expectation and empowers all employees to do what is necessary to reach zero injury performance.

d. To the maximum extent possible, the contractor is encouraged to use the techniques outlined in Construction Industry Institute Publication 32-1, "ZERO INJURY TECHNIQUES". As a minimum, the Contractor shall address the "High-Impact Zero Injury Techniques" (as outlined in Appendix C of the Albuquerque District pamphlet "Zero Accident Program") in the Accident Prevention Program.

e. Institute a Return-to-Work program as defined in Appendix E of Albuquerque District pamphlet "ZERO ACCIDENT PROGRAM" as a guide.

3~~5~~. ACCIDENT REPORTS. Monthly Exposure Report. The Contractor shall submit SPA Form 743-J, Monthly Exposure Report, to the Contracting Officer no later than the 5th of each month. This report is a compilation of manhours worked each month by the prime contractor and each subcontractor.

5. CLEANUP. The Contractor's accident prevention program shall identify the individuals responsible for cleanup and shall establish a regular cleanup procedure and schedule. If the Contracting Officer determines that cleanup is not being performed satisfactorily, the Contractor shall establish a work crew to perform the continuous cleanup required by the Contract Clause titled: CLEANING UP. The individual(s) appointed to the work crew to perform daily cleanup shall not perform any other duties under this contract, unless approved by the Contracting Officer. The number of individuals appointed to perform cleanup shall be increased as directed by the Contracting Officer until adequate cleanup is maintained.

6. SPECIAL REQUIREMENTS. The following requirements shall be met by the Contractor if applicable:

6.1Electrical Work: Electrical work shall not be performed on or near energized lines or equipment unless specified in the plans and specifications.

6.1.1Upon request by the Contractor, arrangements will be made for deenergizing lines and equipment so that work may be performed. All outages shall be requested through the authorized representative of the Contracting Officer a minimum of 14 days, unless otherwise specified, prior to the beginning of the requested outages. Dates and duration shall be specified.

6.4~~1~~.2 Upon approval of the Contracting Officer's representative, the following work may be performed with the lines energized using certified hot line equipment on lines above 700 volts, when the following conditions have been met.

6.4~~1~~.2.1 Work below the conductors no closer than the clearance required in EM 385-1-1 from the energized conductors.

6.4~~1~~.2.2 Setting and connection of new pretrimmed poles in energized lines which do not replace an existing pole.

6.4~~1~~.2.3 Setting and removing transformers or other equipment on poles.

6.4~~1~~.2.4 Installation or removal of hot line connectors, jumpers, dead-end insulators for temporary isolation, etc., which are accomplished with hot line equipment from an insulated bucket truck.

6.4~~1~~.3 The Contractor shall submit a plan, in writing, describing his method of operation and the equipment to be used on energized lines. Proper certification from an approved source of the safe condition of all tools and equipment shall be provided with the plan. The work shall be planned and scheduled so that proper supervision is maintained. The Contractor shall review his plan with the Contracting Officer's representative prior to being granted permission to perform the work.

6.4~~1~~.4 No work on lines greater than 600 volts shall be performed from the pole or without the use of an insulated bucket truck.

6.4~~1~~.5 No work shall be done on overbuilt lines while underbuilt lines are energized, except for temporary isolation and switching in accordance with 7.1.2.4 hereinbefore.

6.5~~2~~ Electrical Tools: Hand held electric tools shall be used only on circuits protected by ground fault circuit interrupters for protection of personnel.

6.6~~3~~ Electrical Cords: All general use extension cords shall be of a type listed by Underwriters' Laboratories and shall be classified as Type S, SE, SEO, SO, SOO, ST, STO, or STOO, as described in Table 400-4 of the current edition of the National Electric Code (NFPA 70).

6.7~~4~~ Generators: Prior to use, GFI outlets shall be installed and tested with a GFI circuit tester (tripping device). Portable and vehicle mounted generators shall be inspected or compliance with EM 385-1-1 and NFPA 70.

6.8~~5~~ Rollover Protective Structures:

6.8~~5~~.1 R.O.P.S. for rollers and compactors shall be certified to meet SAE requirement J1040C.

6.8~~5~~.2 R.O.P.S., as required by paragraph 16.B.12, EM 385-1-1, includes self-propelled pulverizers.

6.9~~7~~ Self-Propelled Elevating Work Platforms: All self-propelled elevating work platforms shall be designed, constructed, maintained, used, and operated in accordance with the guidance provided in American National Standard for Self-Propelled Elevating Work Platforms (ANSI A92.6-1990), ANSI B56.1, and OSHA Stds. 1910.31 and 1910.28 (Forklift Work Platforms), together with any amendments which may be in force at time contract is awarded.

6.10~~8~~ Language: For each work group that has employees that do not speak English the Contractor shall provide a bilingual foreman that is fluent in the language of the workers. The Contractor shall implement the requirements of EM 385-1-1, Para. 01.B.01, 01.B.02, and 01.B.03 through these foremen.

6.11~~9~~ Guarding of Roofs and Open-Sided Floors: To supplement and emphasize the requirements of Contract Clause "Accident Prevention" and the safety manual, EM 385-1-1, the following is provided:

6.11~~9~~.1 Perimeter guard rails shall be installed on all open-sided floors on multistoried buildings, and on all roof perimeters. Guard rails shall be installed as the decking crew completes an area and before any other work starts and shall remain intact as long as construction work is in progress in the area.

6.11~~9~~.2 The Contractor shall submit his proposed method of fall protection to the Contracting Officer's Representative as part of his Hazard Analysis for approval before beginning roof operations.

6.11~~9~~.3 Ladders: All ladders must be classified as "Heavy Duty" or "Extra Heavy Duty" type 1A-300 lb rating as specified in ANSI A14.1, Safety Code for Portable Ladders.

7. The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer 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 any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor. The Contractor shall be responsible for subcontractor compliance with this provision. The Contractor shall include the provisions of this

clause in all subcontracts involving performance of work at the site. However such provision in the subcontractor's contract shall not relieve the Contractor of his obligation to assure compliance with the provisions of this clause for all aspects of the work.

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SECTION 01425
SITE SAFETY AND HEALTH

1. SAFETY AND HEALTH.

Description. This subsection describes, in general terms, the minimum Contractor safety, health, and emergency response requirements associated with this contract. The Contractor shall have an ongoing Safety and Health Program meeting the requirements of the OSHA standard, 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response". In addition, the Contractor shall prepare, implement, and enforce, of each site, a Site Safety and Health Plan (SSHP) whenever work is to be performed at an uncontrolled hazardous waste site. The Contractor shall ensure that all safety and health provisions are followed by the subcontractors, suppliers, and support personnel.

1.04.12 Environmental, Safety, and Health (ES&H) Representative. Refer to Section 01110, Environmental, Safety, and Health for the requirements of the ES&H representative .

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SECTION 01453

CONTRACTOR DESIGN QUALITY CONTROL FOR DESIGN OR DESIGN/BUILD TASK ORDERS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the task order schedule.

1.3 SUBMITTALS

Design Quality Control Plan

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 DESIGN QUALITY CONTROL PLAN (DQCP)

All documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product shall not perform the independent technical review (ITR). The plan must identify the Independent Technical Review Team and their qualifications. The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should reflect calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within 7 calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal.

The Contractor shall furnish for review by the government, not later than 10 days after Notice to Proceed, the Contractor Design Quality Control Plan for the design portion of the contract. The professional quality, technical accuracy and the coordination of all design documents and other services to be provided by the prime Contractor and subcontractor/consultants is of major importance. A logical and functional quality control program requiring technical and interdisciplinary reviews to eliminate errors and deficiencies in the design documents is required. As a minimum, the DQCP will address the following elements:

Management Approach - Define the specific management-methodology to be followed during the design phase of the work including the relationship between prime contractor and subcontractors/consultants. Address coordination, quality control, communications and lines of responsibility. The DQCP must also cover the process of review and approval of construction submittals as specified in Section 01331.

Management Structure - Delineate the organizational structure and interrelationship of management and the design team including all subcontractor and consultants. Identify the key design and review team members showing their specific responsibilities. Either the designer or the reviewer must be a registered professional for the Architectural, Civil, Structural, Mechanical and Electrical disciplines.

List submittals required, dates for submittal, dates for completion of Government review and products required to be submitted. Technical review comments provided by the ITR Team must be submitted with each design submittals. The approved complete checklists shall be submitted at each design phase as part of the project documentation.

Designer or Engineer of Record (EOR) - The registered professional ultimately responsible and liable for adequacy and safety of the design. FOR review is required on all submittals and FOR approval is required on all submittals of extensions of design and submittals of critical materials. See Section 01331 for definitions of these type submittals.

3.2.1 Acceptance of Plan

Acceptance of the Contractor's Quality Control Plan for Design is required prior to the start of design. Acceptance is conditional and will be predicated on satisfactory performance during the preparation of design documents. The Government reserves the right to require the Contractor to make changes in his CQ Plan for Design, and operations including removal of personnel, as necessary, to obtain the quality specified.

END OF SECTION

SECTION 01455
QUALITY CONTROL SYSTEM (QCS)

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

Administration
Finances
Quality Control
Submittal Monitoring
Scheduling
Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320 - PROJECT SCHEDULE, Section 01300 - SUBMITTALS , and Section 01400 - QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2" high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

Software

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control (CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCs database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001 (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01400 - QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01400 - CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320 PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

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SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. This section includes temporary utilities, change facilities, protection of the work area, erosion and sediment control, and dust control.

1.2 REFERENCES

A. ANSI A225.1, 1987, Manufactured Home Installation.

B. NFPA 70-2002, National Electrical Code (NEC).

C. NFPA 501A, 2000, Standard for Fire Safety Criteria for Manufactured Home Installation, Sites, and Communities.

D. ANSI D 6.1, Manual on Uniform Traffic Control Devices for Streets and Highways, 1986.

E. SBCCI, Southern Building Code Congress International, 1999, Standard Building Code, 1999.

F. TN 1200-3, Rules of the Tennessee Department of Health and Department of Environment and Conservation, Division of Air Pollution.

G. TN 1200-5, Rules of the Tennessee Department of Health and Department of Environment and Conservation, Division of Water Supply.

1.3 SUBMITTALS

A. Traffic Control Plan may be required to be submitted to the Contracting Officer's Representative, for approval. If required, it will be specified with the Contract.

PART 2 PRODUCTS

2.1 MATERIALS

A. Barrier Fence: 48-in. high, orange plastic barrier fence, Vallen Safety Catalog No. FNC-450.

2.2 EQUIPMENT

A. Temporary facilities shall meet the requirements of SBC, NEC, NFPA 501 A, and anchor and support requirements of ANSI A225.1.

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 3 EXECUTION

3.1 INSTALLATION

A. Temporary Utilities

1. Provide temporary lines to use existing Y-12 utilities. The Contractor is responsible for installing, maintaining, and repairing temporary lines and distribution equipment. Tie-ins and disconnects to existing systems will be performed by BWXT Y-12 through the COR. Provide material and equipment in place and ready for tie-in. Remove temporary utilities upon completion of the subcontract and after final disconnect.

    a. Electric power (480 V) can be provided by BWXT Y-12. Provide GFCIs for temporary electrical lines. Perform temporary electrical work in accordance with NFPA 70 (NEC) requirements. Contractor to furnish power distribution from existing 480 disconnects as approved by BWXT Y-12.
    b. Water can be provided by BWXT Y-12. Install reduced-pressure backflow preventers for temporary water lines in accordance with TN 1200-5.
    c. Telephone service is available through Qwest. The Contractor is responsible for providing telephone service.
    d. Toilet facilities can be provided by BWXT Y-12. Otherwise, provide chemical toilet facilities and maintain them in a manner that provides safe and sanitary conditions for the duration of the Contract.

B. Protection of the Work Area

1. Contractor staging and lay down area will require a 7' high chain link security fence with vehicular swing gates for access. Deliveries shall be staged in this area until ready for installation.
2. Access to the work site will be controlled and restricted to Contractor personnel and other personnel on an approved entry list. The Contractor will monitor personnel entry and maintain the entry list.
3. Provide and maintain an orange plastic fence around the perimeter of the work site, as applicable.
4. Provide flagging, signs, and barricades for the job site storage areas and hazardous work areas.
5. Remove temporary fencing, barriers, barricades, and signs upon completion of the Contract.

C. Signage

1. Post a sign providing Contractor's name, key personnel names and telephone numbers, project title, and contract number for work sites and storage areas.

D. Traffic and Pedestrian Control

1. Notify Contracting officer’s representative one (1) working day in advance of plant road closing needed to perform work.
2. Develop a traffic control plan to identify required road closures, lane closures, and potential impediments to BWXT Y-12

3. emergency vehicle traffic. Submit plan to the Contracting Officer's Representative for approval 2 weeks prior to implementation. Contracting Officer's Representative approval is required prior to implementation of the plan.
4. Provide traffic control that conforms to ANSI D 6.1, Manual on Uniform Traffic Control Devices for Streets and Highways, as required.
5. Provide and maintain pedestrian walkways and building access to the greatest extent possible. The walk area shall be flagged with orange plastic barrier fencing and applicable signs.
6. Provide structurally sound temporary crossing walkways for pedestrians over open excavations.
7. Provide an adequate number of concrete barricades in front of open trenches adjacent to vehicle traffic.

E. Temporary Facilities

1. Temporary facilities include office trailers, change facilities, and other facilities located at the work site that will be removed upon completion of the Contract. Contracting Officer's Representative approval is required prior to the Contractor setting up any temporary facilities at the Y-12 Complex.
2. Temporary facilities shall meet the requirements stated.
3. Locate temporary facilities a minimum of 35 feet clear of existing buildings.
4. Provide a platform, stairs, and handrails at each exterior door. Platforms shall be level with the trailer floor, and steps shall have a non-skid surface.
5. Anchor and support the trailer to prevent sliding and overturning in accordance with ANSI A225.1 and NFPA 501A. An Excavation/Penetration Permit must be furnished by BWXT Y-12 prior to anchoring the trailer.
6. Outside the trailer – provide a sign containing the Contractor's name, name and telephone number of supervisor, and Contracting Officer's Representative-assigned building number. Provide a listing of telephone numbers to reach a responsible individual at all times including off-shift and weekend hours.
7. Provide portable fire extinguishers that are properly mounted and clearly identified.

F. Dust Control

1. Control dust emissions in accordance with TN 1200-3.
2. Prevent dust from migrating to areas adjacent to the work site. Limit use of water to prevent erosion.
3. Provide hoods, enclosures, and other methods of containment during sandblasting or similar operations.

G. Erosion and Sediment Control

1. See Section 01356, as applicable.

END OF SECTION

SECTION 01525

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z359.1(1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ASME INTERNATIONAL (ASME)

ASME B30.5(2000) Mobile and Locomotive Cranes

ASME B30.22(2000) Articulating Boom Cranes

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910Occupational Safety and Health Standards for General Industry

29 CFR 1910.94Ventilation

29 CFR 1910.120Hazardous Waste Operations and Emergency Response

29 CFR 1910.146Permit-required Confined Spaces

29 CFR 1919Gear Certification

29 CFR 1926Safety and Health Regulations for Construction

29 CFR 1926.62Lead in Construction

29 CFR 1926.65Hazardous Waste Operations and Emergency Response

29 CFR 1926.450Scaffolds

29 CFR 1926.500Fall Protection

29 CFR 1926.1101Asbestos

U. S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1(2003) Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10(1998) Portable Fire Extinguishers

NFPA 51B(2003) Fire Prevention During Welding, Cutting, and Other Hot Work

NFPA 70(2002) National Electrical Code

NFPA 241(2000) Safeguarding Construction, Alteration, and Demolition Operations

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

E&SH Plan, see Section 01110; G

Activity Hazard Analysis (AHA), see Section 01110; G

Crane Critical Lift Plan, see Section 01110; G

Crane Work Plan, see Section 01110; G

Proof of qualification for Crane Operators, see Section 01110; G

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports, See Section 01110, Environmental, Safety, and Health

Monthly Exposure Reports, See Section 01420, Safety

Regulatory Citations and Violations

Crane Reports

SD-07 Certificates

Confined Space Entry Permit

Submit one copy of each permit attached to each Daily Quality Control Report.

1.3 DEFINITIONS

a. Certified Safety Trained Supervisor (STS). An individual who is currently certified as an STS by the Board of Certified Safety Professionals.

b. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

c. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

d. Low-slope roof. A roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

e. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

f. Multi-Employer Work Site (MEWS). A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors.

g. Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).

h. Qualified Person for Fall Protection. A person with a recognized degree or professional certificate, extensive knowledge, training and experience in the field of fall protection who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.

i. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work;

(3) Restricted work;

(4) Transfer to another job;

(5) Medical treatment beyond first aid;

(6) Loss of consciousness; or

(7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

j. Environmental, Safety, and Health (ES&H) Representative. Refer to Section 01110, Environmental, Safety, and Health for the requirements of the ES&H representative.
k. Steep roof. A roof having a slope greater than 4 in 12 (vertical to horizontal).

l. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

m. Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.).

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

1.5 DRUG PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employee uses illegal drugs or consumes alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine, or saliva specimens and test the injured and involved employees for the influence of drugs and alcohol. A copy of the test shall be made available to the Contracting Officer upon request.

1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Environmental, Safety, and Health (ES&H) Officer

ES&H Officer
shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The SSHO shall meet the following requirements:

A minimum of 5 years safety work on similar projects.
32-hour OSHA construction safety class or equivalent within the last 5 years.
An average of at least 24 hours of formal safety training each year for the past 5 years.

1.6.1.6 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacitates of 50,000 pounds or greater, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators). Proof of current qualification shall be provided.

1.6.2 Personnel Duties

1.6.2.1 Environmental, Safety, and Health Representative. Refer to Section 01110, Environmental, Safety, and Health, paragraph 1.11

1.6.3 Meetings

1.6.3.1 Preconstruction Conference

a. The Contractor will be informed, in writing, of the date of the preconstruction conference. The purpose of the preconstruction conference is for the Contractor and the Contracting Officer's representatives to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project's Accident Prevention Plan (APP) before the initiation of work.

b. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

c. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.

d. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

e. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

1.6.3.2 Weekly Safety Meetings

Conduct weekly safety meetings at the project site for all employees. The Contracting Officer will be informed of the meeting in advance and be allowed attendance. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily [production] [quality control] report.

1.6.3.3 Work Phase Meetings

The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection. The analysis should be used during daily inspections to ensure the implementation and effectiveness of safety and health controls.

1.7 TRAINING

1.7.1 New Employee Indoctrination

New employees (prime and sub-contractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site. Refer to Section 01110, Environmental, Safety, and Health, Part 3, Execution.

1.7.2 Periodic Training

Provide Safety and Health Training in accordance with USACE EM 385-1-1 and the accepted APP. Ensure all required training has been accomplished for all onsite employees.

1.7.3 Training on Job Hazard Analysis (AHA)

Prior to beginning a new phase, training will be provided to all affected employees to include a review of the AHA to be implemented. Refer to Section 01110, Environmental, Safety, and Health, Part 3, Execution.

1.10 DISPLAY OF SAFETY INFORMATION

Within 1 calendar day after commencement of work, erect a safety bulletin board at the job site. The following information shall be displayed on the safety bulletin board in clear view of the on-site construction personnel, maintained current, and protected against the elements and unauthorized removal:

a. Map denoting the route to the nearest emergency care facility.

b. Emergency phone numbers.

c. Copy of the most up-to-date APP.

d. Current AHA(s).

e. OSHA 300A Form.

f. OSHA Safety and Health Protection-On-The-Job Poster.

g. Confined space entry permit.

h. Hot work permit.

i. A sign indicating the number of hours worked since last lost workday accident.

j. Safety and Health Warning Posters.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.13 REPORTS

1.13.1 Accident Reports

a. In addition to the requirements of Section 01110, Environmental, Safety, and Health, for any weight handling equipment accident (including rigging gear accidents) the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the WHE Accident Report (Crane and Rigging Gear) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Crane operations shall not proceed until cause is determined and corrective actions have been implemented to the satisfaction of the contracting officer. The Contracting Officer will provide a blank copy of the accident report form.]

1.13.2 Accident Notification

In addition to the requirements of Sectio 01110, Environmental, Safety, and Health, the Contractor shall notify the Contracting Officer within 15 minutes, but not later than four hours after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than $2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

1.13.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.13.4 Regulatory Citations and Violations

Contact the Contracting Officer immediately of any OSHA or other regulatory agency inspection or visit, and provide the Contracting Officer with a copy of each citation, report, and contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

1.13.5 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

1.13.6 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and USACE EM 385-1-1 section 16 and Appendix H. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. The Contractor shall also certify that all of its crane operators working on DOD activities have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

1.14 HOT WORK

Prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, a written permit shall be requested from the facility where the work is being performed. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

a. Oil painting materials (paint, brushes, empty paint cans, etc.), and all flammable liquids shall be removed from the facility at quitting time. All painting materials and flammable liquids shall be stored outside in a suitable metal locker or box and will require re-submittal with non-hazardous materials.

b. Accumulation of trays, paper, shavings, sawdust, boxes and other packing materials shall be removed from the facility at the close of each workday and such material disposed of in the proper containers located away from the facility.

c. The storage of combustible supplies shall be a safe distance from structures.

d. Area outside the facility undergoing work shall be cleaned of trash, paper, or other discarded combustibles at the close of each workday.

e. All portable electric devices (saws, sanders, compressors, extension chord, lights, etc.) shall be disconnected at the close of each workday. When possible, the main electric switch in the facility shall be deactivated.

f. When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FACILITY IMMEDIATELY.

g. Obtain services from a NFPA Certified Marine Chemist for "HOT WORK" within or around flammable materials (such as fuel systems, welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, vaults, etc.) that have the potential for flammable or explosive atmospheres.

PART 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

The Contractor shall provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE - DO NOT ENTER -" in bold letters a minimum of 25 mm (one inch) in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 1.52 m (5 feet).

2.2 FALL PROTECTION ANCHORAGE

Fall protection anchorage, conforming to ANSI Z359.1, installed under the supervision of a qualified person in fall protection, shall be left in place for continued customer use and so identified by signage stating the capacity of the anchorage (strength and number of persons who may be tied-off to it at any one time).

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose Government or Contractor employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent Government or Contractor employees from being exposed to any hazardous condition that could result from the work or storage. The Prime Contractor shall keep a complete inventory of hazardous materials brought onto the work-site. Approval by the Contracting Officer of protective measures and storage area is required prior to the start of the work.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.3 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. The Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer and the Facility to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and escape procedures.

3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

3.3.2 Fall Protection Equipment

The Contractor shall enforce use of the fall protection equipment designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is on a surface 1.8 m(6 feet) or more above lower levels. Fall protection systems such as guardrails, personnel fall arrest system, safety nets, etc., are required when working within 1.8m (6 feet) of any leading edge. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.I. and 05.J. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M and USACE EM 385-1-1.

3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any

swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets.

(2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with 29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep Roofs: Work on steep roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.3.4 Safety Nets

If safety nets are used as the selected fall protection system on the project, they shall be provided at unguarded work places, leading edge work or when working over water, machinery, dangerous operations or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, fall arrest systems or restraint/positioning systems are impractical. Safety nets shall be tested immediately after installation with a drop test of 181.4 kg (400 pounds) dropped from the same elevation a person might fall, and every six months thereafter.

3.3.5 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Exiting horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.3.6 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.7 Guardrail Systems

Guardrails shall consist of top and mid-rails, post and toe boards. The top edge height of standard railing must be 42 inches plus or minus 3 inches above the walking/working level. When mid-rails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/working level. Posts shall be placed no more than 8 feet apart (29 CFR 1926.500 and USACE EM 385-1-1).

3.3.8 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 REQUIREMENTS

All personnel who enter the site shall wear mandatory personal protective equipment (PPE). All personnel shall also comply with PPE postings of shops both inside and outside the site. PPE shall be governed in all other areas by the nature of the work the employee is performing. They will also use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Mandatory PPE includes:

a. Hard Hat

b. Safety Glasses

c. Safety Toed Shoes

3.5 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural

building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work. Refer to Section 01110, Environmental, Safety, and Health, paragraph 3.14 for additional scaffolding requirements.

3.5.1 Stilts

The use of stilts for gaining additional height in construction, renovation, repair or maintenance work is prohibited.

]3.6 EQUIPMENT

3.6.1 Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.

c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.6.2 Weight Handling Equipment

a. Cranes must be equipped with:

(1) Load indicating devices (LIDs) and a boom angle or radius indicator,

(2) or load moment indicating devices (LMIs).

(3) Anti-two block prevention devices.

(4) Boom hoist hydraulic relief valve, disconnect, or shutoff (stops hoist when boom reaches a predetermined high angle).

(5) Boom length indicator (for telescoping booms).

(6) Device to prevent uncontrolled lowering of a telescoping hydraulic boom.

(7) Device to prevent uncontrolled retraction of a telescoping hydraulic boom.

(8) Wind indicating device.

(9) Drum rotation indicator.

b. The Contractor shall notify the Contracting Officer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.

c. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.

d. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.

e. The presence of Government personnel does not relieve the Contractor of an obligation to comply with all applicable safety regulations. The Government will investigate all complaints of unsafe or unhealthful working conditions received in writing from contractor employees, federal civilian employees, or military personnel.

f. Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.

g. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.

h. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.

i. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

j. A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5lb of extinguishing agent shall be available at all operator stations or crane

cabs. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

k. All employees shall be kept clear of loads about to be lifted and of suspended loads.

l. A weight handling equipment operator shall not leave his position at the controls while a load is suspended.

m. The Contractor shall use cribbing when performing lifts on outriggers.

n. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

o. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

p. A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.

q. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

r. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

s. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.6.3 Equipment and Mechanized Equipment

a. Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review.

b. Manufacturer specifications or owner's manual for the equipment shall be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Such additional safety precautions or requirements shall be incorporated into the AHAs.

c. Equipment and mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operation by a competent person prior to being placed into use.

d. Daily checks or tests shall be conducted and documented on equipment and mechanized equipment by designated competent persons.

3.7 EXCAVATIONS

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect, and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly. The competent person shall perform soil classification in accordance with 29 CFR 1926.

3.7.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.7.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

3.7.3 Utilities with Concrete Slabs

Utilities located within concrete slabs or pier decks, bridges, and the like are extremely difficult to identify. The location must be coordinated with station utility departments in addition to a private locating service. Outages on system utilities shall be used in circumstances where concrete chipping, saw cutting, or core drilling is required and utilities are unable to be completely identified.

3.7.4 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, tabulated data, and calculations. Extreme care must be used when excavating near direct burial electric underground cables.

3.7.5 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.8 ELECTRICAL. This section shall be referenced in combination with Section 01420, Safety, Subsection 6.1, Electrical Work

3.8.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.8.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

3.9 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1 and OSHA 29 CFR 1910.146. Any potential for a hazard in the confined space requires a permit system to be used.

a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of USACE EM 385-1-1.

d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

e. Include training information for employees who will be involved as entrants and attendants for the work. Conform to Section 06.I.06 of USACE EM 385-1-1.

f. Daily Entry Permit. Post the permit in a conspicuous place close to the confined space entrance.

g. Refer to Section 01110, Environmental, Safety, and Health paragraph 3.2.B for additional requirements regarding confined space entry.

3.10 CRYSTALLINE SILICA

Any dust producing activity such as grinding, abrasive blasting, foundry operations, and jack hammering of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and USACE EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment. Appropriate controls should be in place to prevent exposure above the occupational exposure limits. Refer to Section 01110, Environmental, Safety, and Health, paragraph 3.14 for additional requirements regarding concrete silica dust.

3.11 HOUSEKEEPING

3.11.1 Clean-Up

All debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

3.11.2 Falling Object Protection

All areas must be barricaded to safeguard employees. When working overhead, Barricade the area below to prevent entry by unauthorized employees. Construction warning tape and signs shall be posted so they are clearly visible from all possible access points. When employees are working overhead all tools and equipment shall be secured so that they will not fall. When using guardrail as falling object protection, all openings shall be small enough to prevent passage of potential falling objects.

SECTION 01550
WASTE MANAGEMENT

PART 1 GENERAL

1.1 SUMMARY

A. This section includes requirements for handling, packaging, transportation, and disposal or recycling of waste.

B. Dispose of sanitary/construction debris waste at the Government disposal facilities located near the Y-12 Complex. The Contractor shall dispose of waste at these facilities without charge. Segregate, label, and transport waste in accordance with the specified requirements.

1.2 REFERENCES

A. 40 CFR 261, EPA, Identification and Listing of Hazardous Waste

B. 40 CFR 279, EPA, Standards for the Management of Used Oils

C. 40 CFR 761, EPA, PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibition

D. 49 CFR 172, DOT, Emergency Response Information and Training

E. 49 CFR 173, DOT, Shippers-General; Requirements for Shipments and Packaging

F. DOT, Hazardous Material Table, Special Provisions, Hazardous Materials Communications

G. TDEC 1200-1-11, Hazardous Waste

H. TDEC 1200-4, Water Pollution Control and Groundwater Protection

I. TDEC 1200-1-7, Solid Waste Processing and Disposal

J. Material Disposition Table, attached

K. DOE Order, DOE O 5400.5

1.3 DELIVERY, STORAGE, AND HANDLING

A. Ensure sufficient quantities of dumpsters or containers are available to handle waste/excess material.

B. Inspect dumpsters and containers to ensure they contain only proper materials. Notify the Contracting Officer's Representative if unauthorized waste is found.

C. Store waste at a staging area until Contracting Officer's Representative approval is obtained for removal from the work site.

D. Contractor-provided waste containers, for disposal of non-radiological contaminated waste, shall not have contamination levels greater than the limits specified in DOE Order 5400.5.

SECTION 01550
WASTE MANAGEMENT

PART 2 PRODUCTS

2.1 MATERIALS

A. The Contractor shall provide containers for storage of all wastes.

PART 3 EXECUTION

3.1 WASTE IDENTIFICATION AND LABELING

A. UCN-2109 form is required to be completed before waste material can be removed from the work site. The Contractor shall prepare the necessary documentation.

1. Landfill personnel require the Contractor to provide copies of the approved UCN-2109 form before disposing of waste.
2. The UCN-2109 forms will be completed by the Contractor.

B. BWXT Y-12 will label the waste package containers.

1. BWXT Y-12 RADCON will survey the waste material, verify that the waste meets the Y-12 Landfill acceptance criteria, and issue a green tag before transferring waste.

C. Asbestos disposal requires additional documentation.

D. Provide a minimum of three (3) working days advance notice before scheduled removal of waste from the work site.

3.2 WASTE SEGREGATION

A. Segregate wastes by type (e.g. hazardous, special, spoil, material, general construction debris).

B. The Contracting Officer's Representative will assist in identifying waste type, packaging, labeling, marking, and storage requirements.

C. The waste handling requirements listed in this specification cover most waste expected to be encountered. If other wastes are encountered during performance of the work, contact the Contracting Officer's Representative for guidance and instructions concerning the unexpected wastes. Special waste permits that may be required will be provided by BWXT Y-12 and can take up to 90 days to obtain.

3.3 WASTE HANDLING

A. Deliver the wastes to Landfill VI between the hours of 7:30 a.m. and 2:30 p.m., Monday through Friday. Additional hours may be scheduled through the Contracting officer's representative. A one (1) working day advance notice is required. Segregate wastes into the following categories:

1. Combustible waste: Lumber, siding, paneling, flooring, doors, plastic, and miscellaneous building demolition materials.

2. Noncombustible debris (other than excavated material): Brick, concrete, masonry materials, soil, rock, gravel, road spoils, rebar (embedded in concrete), paving material, clay material, PVC material, sheetrock/gypsum board, roofing materials, non-friable insulation, siding, paneling, flooring, miscellaneous metals associated with demolition, doors, and miscellaneous building demolition materials including non-friable asbestos.
3. Glass and glass containers are to be deposited into designated containers for glass. There are no special handling/packaging requirements for transport.

B. Friable insulation shall be properly packaged and labeled. Loose friable insulation will not be accepted for disposal. Deliver to Landfill V between the hours of 8 to 11 a.m. and 12 to 2 p.m., Tuesdays only.

C. Radioactive, hazardous waste as defined in 40 CFR 261, PCB waste as defined in 40 CFR 761, and free liquid wastes will not be accepted for disposal at Landfill V or VI.

D. Store, package, transport, and dispose of hazardous and radiological waste as follows:

1. Store RCRA type waste on-site in a BWXT Y-12-approved 90-day or Satellite Accumulation Area (SAA) in accordance with TDEC 1200-1-11. Register the accumulation area with BWXT Y-12.
2. Transport RCRA waste generated at the work site to BWXT Y-12 for storage and management.
3. Store and package radioactive waste in DOE-approved (e.g. 55-gallon drums, B-25 boxes) containers. Transportation and disposal will be by BWXT Y-12.
4. Store and package PCB materials as identified in 40 CFR 761. BWXT Y-12 will pick up the material at the work site. Segregate wire from general demolition debris and package as PCB waste if it is PCB contaminated. Areas from which PCB wastes are generated shall be registered with BWXTin accordance with RCRA regulation.

E. Waste Oil, Solvents, and Sludge Packaging Requirements

1. Package oil and solvents in DOT-specification 55- or 30-gallon 6D polyethylene-lined bung top drums. Package sludges in DOT-approved 17C or 17H open top drums with polyethylene lining. Leave 5 in. of headspace in each drum to allow for expansion of drum contents. Ensure drums are in good condition and free of dents, rust, corrosion, and residue. Ensure drums are free of any labels identifying previous contents.
2. Once the drums are filled, tighten the large (2 ¼-in.-diameter) bung with a bung wrench. For drums of waste oil and solvents, replace the smaller (3/4-in.-diameter) bung with a vent plug.
3. After filling, wipe the exterior (sides and top) of drums clean of residue and tag. Apply tag to the side of each drum. Tags shall be a BWXT Y-12-furnished UCN-2114A, "Hazardous Waste Identification," for RCRA hazardous wastes, or a UCN-2114B, "Waste Identification," for nonhazardous waste. Insert the tag in a self-adhesive vinyl envelope and attach to the side of the drum, near the top, and angle downward to keep out water. Mark the tag with permanent ink, and print all information, including the Contractor's name and contract number.
4. Segregate oil, solvent, and sludge waste by type, origin, and contaminants.
5. If any packaging requirements are not met, the waste will not be accepted.

3.04 WASTE RECYCLE PROGRAM

A. The Contractor shall make every effort to remove packing material prior to delivery of the material to the work site and recycle the material appropriately. Perform routine oil and lubricant changes off-site.

B. On-site recycling: Package and transport recyclable waste to designated locations.

1. Wood: Segregate into treated and untreated material. Segregate the untreated wood into painted and unpainted material. Band material together and store on pallets. Transport to a Y-12 location designated by the Contracting Officer's Representative. Pallets shall be provided by the contractor.
2. Aluminum: Store cans in clear plastic bags. Contact the COR who will coordinate with BWXT Y-12 for instructions on disposition for recycling.
3. Cardboard: Keep neatly stacked and dry. Transport to a Y-12 location designated by the Contracting Officer's Representative.
4. Scrap metal:
   a. For small work scopes, palletize and band material in lengths not to exceed 6 ft.
   b. For larger work scopes, cut materials to lengths that will fit containers.
5. Store light bulbs in a manner to prevent breakage. Segregate broken bulbs from unbroken bulbs. Contact the COR who will coordinate with BWXT Y-12 for instructions on disposition for recycling.
6. Store and maintain used oils for recycle in accordance with 40 CFR 279 and EPA requirements. The Contracting Officer's Representative will designate a Y-12 recycle location for oils.

3.05 TRANSPORTATION

A. Provide complete containment for spoil, waste, and salvageable materials during transport.

B. Transport asbestos waste in accordance with 49 CFR 173.216. Line the truck cargo bed with 6-mil polyethylene. Vehicles shall have valid DOT registration, and drivers shall have a valid Commercial Driver's License.

C. Transport waste to designated Y-12 disposal facility utilizing shortest possible route.

3.06 WASTE CONTROL

A. Waste cannot be taken off-site without prior approval of the Contracting Officer's Representative.

B. BWXT Y-12 is responsible for characterizing and certifying that waste is not volumetrically contaminated, and does not exceed surface contamination values for release in accordance with DOE O 5400.5, unless otherwise stated in the Division 1 Specifications.

END OF SECTION

REQUEST FOR INSPECTION
OF COMPLETED WORK

MATERIAL DISPOSITION TABLE

RADCON GREEN TAG – (non-radioactive contamination)		
WASTE MATERIAL	**TRANSPORTATION**	**DISPOSAL LOCATION**
Aerosol cans –empty	Contractor	Industrial Landfill V
Aerosol cans – product remaining	Contractor	Site Support 90-Day Yard
Asbestos-Containing Material (ACM) • Friable • Non-friable construction debris	 Contractor Contractor	 Industrial Landfill V Construction Landfill VI
Demolition debris – wood, sheet rock, roofing, incidental metals	Contractor	Construction Landfill VI
Earthen materials – soil, brick, concrete	Contractor	Industrial Landfill Spoil Area
Fluorescent bulbs	Contractor	Bldg. 9401-1 Lamp Recycle
Fluorescent light ballasts: • Non-PCB • PCB	 Contractor BWXT Y-12	 Industrial Landfill V w/ special waste approval or Site Support 90-Day Yard Site Support 90-Day Yard
Glass	Contractor	Industrial Landfill V
Gray water (i.e. shower & wash water)	N/A	Sanitary Sewer
Incandescent bulbs	Contractor	Bldg. 9401-1 Lamp Recycle
Mercury	BWXT Y-12	Site Support 90-Day Yard
PCB-contaminated solid materials: • PCB level <2 PPM • PCB level ≥ 2 and <50 PPM • PCB level $\geq$ 50 PPM PCB bulk product waste (painted debris)	 Contractor BWXT Y-12 Contractor	 Same as non-PCB Industrial Landfill V w/ special waste approval Commercial PCB Recycle/Disposal LFV (under Special Waste Approval from TDEC)
Sanitary trash (plastic, paper, food waste)	Contractor	Industrial Landfill V
Scrap metal, including lead	Contractor	New Salvage Yard metal recycle area
Used oil: • No Rad Added Certification • Detectable uranium (below yellow tag)	 Contractor BWXT Y-12	 Site Support 90-Day Yard for recycle Contracting Officer's Representative Storage
Wiring (non-PCB, non-ACM)	Contractor	New Salvage Yard metal recycle area
RADIOACTIVE-CONTAMINATED MATERIALS (Yellow RADCON Tag)		
ACM Materials	The Contractor shall package radioactive contaminated wastes in BWXT Y-12-furnished DOT containers for transportation. BWXT Y-12 will transport radioactive contaminated waste.	
Construction Debris		
Roofing		
Scrap metal		
Wood		
Aerosol cans		
Light bulbs		

SECTION 01720
AS-BUILT DRAWINGS

PART 1 - GENERAL

1.1 AS-BUILT DRAWINGS

1.1.1 Design/Build Task Orders

The Contractor shall produce the working as-built drawing prints from the design drawings approved by the Government. The working as-built drawing prints shall be kept at the construction site for mark-up by the Contractor to record all as-built conditions. Once approved by the Government the Contractor shall transfer the information recorded as the working as-built drawings to the final as-built drawings.

1.1.2 Non-Design/Build Task Orders

The Contractor will receive from the Government the contract drawings as described in SECTION 00800 - SPECIAL CONTRACT REQUIREMENTS. A set of prints taken from the contract drawings called the working as-built drawing prints shall be kept at the construction site for mark-up by the Contractor to record all as-built conditions. Once approved by the Government the Contractor shall transfer the information recorded as the working as-built drawings to the final as-built drawings.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01300 - SUBMITTAL S:

SD-07, Certificates

CADD Operator Qualifications; G.

Documentation of experience, instruction, and certification used to establish the proficiency of the CADD operator providing the as-built CADD drawing files.

SD-11, Closeout Submittals

As-Built Drawings; G.

Drawings showing final as-built conditions of the project. The final as-built drawing submittal shall consist of the following:

a. Two (2) complete copies of the CADD drawing files on separate compact discs.

b. Two (2) sets of full-size prints.

d. Two (2) sets of half-size prints.

e. One (1) set of approved working as-built prints.

1.3 WORKING AS-BUILT DRAWINGS

The working as-built drawing prints and working as-built drawing CADD files shall be revised to show the as-built conditions during the prosecution of the project. Changes from the contract plans which are made in the work or additional information discovered or provided in the course of construction shall be accurately and neatly recorded as changes or additions to the original contract drawings.

1.3.1 Content of Working As-Built Drawings

The working as-built drawings shall include, but not be limited to, the following information:

a. The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location of exterior utilities includes actual measured horizontal distances from utilities to permanent facilities/features. These measurements shall be within an accuracy range of 300 mm (6 inches) and shall be shown at sufficient points to permit easy location of utilities for future maintenance purposes. Measurements shall be shown for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, clean outs, meter, etc. The general depth range of each underground utility line shall be shown (i.e., 1 m (3 ft) depth). The description of exterior utilities includes the actual quantity, size, and material of utility lines.

b. The location and dimensions or any changes within the building or structure.

c. Correct grade or alignment of roads, structures or utilities if any changes were made from contract plans.

d. Correct elevations if changes were made in site grading.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

f. The topography and grades of all drainage installed or affected as a part of the project construction.

g. Options: Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built drawings.

h. Shop drawings containing as-built information shall be incorporated into the working as-built drawings. This additional information may be added to an existing working as-built drawing or may require the addition of a new drawing to the working as-built drawing set.

1.3.2 Quality Control of Working As-Built Drawings

Subject to the approval of the Contracting Officer, a member of the Contractor's Quality Control Organization shall be assigned sole responsibility for the maintenance and currency of working as-built drawings. Any reassignment of duties concerning the maintenance of the as-built drawings shall be promptly reported to the Contracting Officer.

1.3.3 Withholding for Working As-Built Drawings

The working as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings and will continue the monthly deduction

until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of the updated drawings.

1.4 FINAL AS-BUILT DRAWINGS

The final as-built drawings shall be the final record of construction as installed and completed by the Contractor and as indicated on the working as-built drawings. All changes, variations and/or required additions to the contract drawings shall be included. In the event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the final as-built drawings, the Contractor shall furnish revised and/or additional drawings as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submission.

1.4.1 Withholding for Final As-Built Drawings

The amount for this item is established by the Contracting Officer's Representative, and does not reflect the actual cost of providing Final As-Built Drawings. The amount indicated in the item will be withheld from payment to the Contractor until the Final As-Built Drawings have been approved and accepted by the Contracting Officer.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WORKING AS-BUILT DRAWINGS

The Contractor shall mark up two (2) sets of paper prints by the red-line process to show the as-built conditions. The as-built marked prints shall be kept current on a weekly basis and available on the jobsite at all times. The Contractor shall maintain current CADD drawing files to reflect all changes recorded on the working as-built drawings.

3.1.1 Review of Working As-Built Drawings

3.1.1.1 Review at 50% Construction Complete

One set of the working as-built drawings, one copy of the working as-built CADD files on compact disc, and one set of prints of the working as-built CADD drawings shall be delivered to the Contracting Officer when construction is 50% complete.

3.1.1.2 Review at Final Inspection

One set of the working as-built drawings, one copy of the working as-built CADD files on compact disc, and one set of prints of the working as-built CADD drawings shall be delivered to the Contracting Officer for review and approval 30 days prior to scheduling of the final inspection. Final inspection will not be scheduled by the Contracting Officer until working as-built drawings have been received. After completion of the final inspection the Government will return the copy of the working as-built drawings for corrections. The Contractor shall complete the corrections and return the working as-built drawings to the Contracting Officer within ten (10) calendar days. Upon approval, the corrected working as-built drawings will be returned to the Contractor for use in preparation of the final as-built drawings.

3.2 FINAL AS-BUILT DRAWINGS

After receipt of the approved as-built working drawings, the Contractor shall revise the CADD drawings to reflect the as-built changes to match the approved working as-built drawings.

3.2.1 Submittal of Final As-Built Drawings

The Contractor shall have 30 days after final approval of the working as-built drawings to complete and provide the final as-built drawings submittal.

3.3 COMPUTER AIDED DESIGN AND DRAFTING (CADD) DRAWINGS

3.3.1 Identification of Final As-Built Drawings

When final revisions have been completed, each drawing shall be lettered with the words "DRAWING OF WORK AS-BUILT" in letters at least 3/16" high placed below the title block between the border and the trim line. The date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest existing revision notation.

3.3.1 Drafting Standards and Title Blocks

Preparation of the final as-built drawings shall conform to the CADD drafting standards defined for DOE/BWXT projects, and the title block standards prescribed by DOE/BWXT.

SECTION 01730
OPERATION AND MAINTENANCE INSTRUCTIONS

PART 1 - GENERAL

1.1 OPERATION AND MAINTENANCE INSTRUCTIONS, SPARE PARTS LISTS, SPARE PARTS, SPECIAL TOOLS, INVENTORIES OF INSTALLED PROPERTIES AND TRAINING OF OPERATION AND SERVICE PERSONNEL

The Contractor shall be responsible for the preparation, coordination, execution and submittal of all operation and maintenance instructions, training of operating and service personnel, spare parts lists, special tools and inventories of equipment. Manuals and maintenance instructions shall be for all system installations provided in this contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment. These O & M manuals shall be consolidated by division of the technical specifications (i.e. 15000, mechanical systems). Contents are indexed, and suitably cross-referenced to and between various volumes. The manuals must be divided into chapters for each major system and subdivided into the proper chapters as necessary to promote readability. Bound set covers are labeled with the system name; building number; contractor's name; and the contract number of the project. All copies shall be forwarded to the Resident Office for review and approval.

1.1.1 A draft manual shall be submitted in quadruplicate for review no later than 30 days prior to scheduled contract completion. Failure to do so will result in a 10% retainage of the current progress payment. Four copies of these documents shall be submitted unless a greater number is required by the Technical Provisions. If a lesser number is specified, four shall be submitted. After review by the Government, the Contractor will have 15 days to make corrections and submit final manuals. Except for those portions which cannot be fully developed prior to testing and checkout, as stated in paragraph 1.1, final approved manuals shall be furnished prior to scheduling training of operating and service personnel. Approved operation and maintenance instructions shall be provided 15 days prior to scheduling training of operating and service personnel. The Contractor shall coordinate the content of each instruction period required in the Technical Provisions of these specifications with the Contracting Officer's representative prior to the actual start of the training period.

1.2 VIDEO TAPING TRAINING SESSIONS

All training sessions required by the technical specifications for operations and service personnel shall be video and sound recorded.

1.2.1 Duration: The time allotted for training under sections of the technical specifications includes multiple training sessions to accommodate various personnel schedules. The amount of time requiring videographic documentation shall be one third of the stated training duration.

1.2.2 Video Tape Recording: Acceptable video recordings shall be recorded in digital format using standard NTSC color and EIA standards. Cameras shall record a minimum of 400 lines of horizontal resolution, and have a minimum signal-to-noise ratio of 46db. Format shall be VHS on 1/2 inch, extra high grade video tape and allow conversion to 640 x 480 still images which can be digitally transferred and printed.

1.2.2.1 The final production submittal of the recorded training sessions shall be presented in standard VHS format or Optical Compact Disk (CD) in DVD format. A scene index shall accompany the recording to allow easy access to any portion of the material. The original recording tapes and final production submittal copies shall be labeled and delivered to the Contracting Officer.

1.2.3 Video Production: The final video production shall include the following features:

a. Legible close-ups of nameplates and equipment when referenced by the instructor.

b. Clear visual identification of equipment or system components referenced by the instructor.

c. Specification section titles and scene transitions between sections.

d. Adequate professional lighting.

e. Microphones with wind screens for clear audio.

f. Standard presentation introduction to include the date, presenter's name, company, project name, specification title and section number.

1.2.4 Sound Recording: Voice recordings shall be recorded with an appropriate type, directional sensitivity and style of microphone. Acceptable pickup elements are dynamic and condenser. Acceptable types of microphones are handheld, lavalier, shotgun, wireless, and PZM. Frequency response shall be 50 to 15k Hz +/-10dB. Signal-to-noise ratio shall be 55dB or greater.

1.2.5 Videographer: The videographer shall be video professional with a minimum of two years experience.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 - SUBMITTALS:

SD-08, Statements

Video Contractor Qualifications; FIO.

Lead videographer experience.

SD-19, Operation and Maintenance Manuals

Video Tapes; FIO.

Four copies of recorded training sessions on standard cassette videotapes or DVD compact disks.

1.4 USE AND POSSESSION PRIOR TO COMPLETION

The Government may take possession of any completed or partially completed work, as provided for under Contract Clause entitled "USE AND POSSESSION PRIOR TO COMPLETION". If the installed equipment and/or systems thereto have not been accepted by the Government due to the Contractor's failure to submit the above specified items, the Contractor shall operate and maintain such plant or system at no additional cost to the Government until such time that the specified items have been received, approved and any subsequent testing, check-out and/or training has been completed.

1.5 INVENTORY OF INSTALLED PROPERTY

A list of equipment or units of equipment that require electrical power or fuel, or may require removal or replacement such as air handling units (AHU), fans, air conditioners, compressors, condensers, boiler, thermal exchangers, pumps,

cooling towers, tanks, fire hydrants, sinks, water closets, lavatories, urinals, shower stalls, and any other large plumbing fixtures, light fixtures, etc., shall be made and kept up to date as installed. The list shall be reviewed periodically by the Government to insure completeness and accuracy. Partial payment will be withheld for equipment not incorporated in the list. List shall include on each item as applicable: Description, manufacturer, model or catalog number, serial number, input (power, voltage, BTU, etc.), output (power, voltage, BTU, tons, etc.), size or capacity (tanks), and net inventory costs; any other data necessary to describe item. Final list shall be turned over to the Contracting Officer two weeks prior to prefinal inspection.

1.6 PAYMENT

A separate Bid Item titled "Operation and Maintenance Manuals" has been placed in the Proposal Schedule for the above listed items. The amount of this Bid Item has been established by the Contracting Officer and entered into the Bid Schedule. This Bid Item becomes a part of the overall Contractor's bid, but payment of the amount shown shall be withheld until all the above listed items have been received and approved. On those systems where complete and comprehensive operation and maintenance instructions cannot be fully developed until the system is checked, tested, and/or balanced, a proposed draft shall be submitted within the above specified time. The fully developed and completed package shall be submitted not more than 30 days after the system has been checked, tested and/or balanced. Upon approval of the above listed items the funds being withheld under this item "Operation and Maintenance Manuals" shall be returned to the Contractor. Failure to submit all specified operation and maintenance manuals, training videotapes, spare parts listings, spare parts, special tools and inventories of installed property in a timely manner shall be cause for withholding of payment and for delaying substantial completion of the work. Commencement of warranty under the specification section entitled "WARRANTY OF CONSTRUCTION," will not occur until all these items are delivered and approved by the Contracting Officer.

PART 2 – GENERAL (NOT USED)

PART 3 – EXECUTION (NOT USED)

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SECTION 01740
WARRANTY OF CONSTRUCTION

1. WARRANTY OF CONSTRUCTION (FAR 52.246-21) (MAR 1994).

1.1 In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph 1.9 of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

1.2 This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

1.3 The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of-

1.3.1 The Contractor's failure to conform to contract requirements; or

1.3.2 Any defect of equipment, material, workmanship, or design furnished.

1.4 The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

1.5 The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

1.6 If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

1.7 With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall-

1.7.1 Obtain all warranties that would be given in normal commercial practice;

1.7.2 Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

1.7.3 Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

1.8 In the event the Contractor's warranty under paragraph 1.2 of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

1.9 Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

1.10 This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

1.11 Defects in design or manufacture of equipment specified by the Government on a "brand name and model" basis, shall not be included in this warranty. In this event, the Contractor shall require any subcontractors, manufacturers, or suppliers thereof to execute their warranties, in writing, directly to the Government.

2. PRE-WARRANTY CONFERENCE. Prior to contract completion and at a time designated by the Contracting Officer or his representative, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements specified herein. The Contracting Officer shall establish communication procedures for oral notification to the Contractor of warranty defects; establish reasonable time for Contractor responses; and other details deemed necessary by the Contracting Officer for the execution of the construction warranty. In connection with these requirements the Contractor will furnish the name, telephone number and address of representatives authorized to perform warranty repairs. If the Contractor is located outside the local service area, the name, telephone number and address of a licensed and bonded company which is authorized to initiate and maintain warranty work action on behalf of the Contractor shall be furnished. This point of contact will be located within the local service area of the warranty work and shall be an established company capable of performing the type of work under the warranty item. At this conference, the Contracting Officer shall furnish names and telephone numbers of the personnel authorized to notify the Contractor or his designated representative of any failure, defect or damage, and to request warranty repair work.

3. WARRANTY REPAIRS. Warranty repair work which threatens the health, safety, or well-being of personnel or the safety of property and/or equipment will be handled by the Contractor on an immediate basis as orally directed by the Contracting Officer or authorized representative, as established in subparagraph, Pre-Warranty Conference, above. Such items requiring immediate attention shall include but not be limited to: air conditioning, heating, and ventilating systems; sewage disposal facilities or components thereto; fire protection systems; water supply system or components thereto; and electrical power systems. Other warranty repair which does not threaten the health, safety, or well-being of personnel and/or safety of property or equipment will be handled by the Contractor within seventy two hours or the time frame established during the pre-warranty conference. Failure of the Contractor to respond as requested will be cause for the Contracting Officer to have the warranty repair work performed by others and proceed against the Contractor in accordance with paragraph 1.7. Any work required to correct a warranty item accomplished by the Government shall not void the warranty of the item.

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A BWXT/Bechtel Enterprise

Y-12 NATIONAL SECURITY COMPLEX

ENGINEERING INTERFACE DOCUMENT FOR THE Y-12 NATIONAL SECURITY COMPLEX

Prepared by the
Y-12 National Security Complex
Oak Ridge, TN 37831-8169
Managed by
BWXT Y-12, L.L.C.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-00OR22800

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BWXT Y-12, L.L.C.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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Engineering Interface Document
for the
Y-12 National Security Complex

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Engineering Interface Document for the Y-12 National Security Complex

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Preface

Purpose of Document

The purpose of this Engineering Interface Document is two-fold.

1. To provide design guidance for projects at the Y-12 National Security Complex,

2. To be used as a tool for employees in the design organization as an introduction to design requirements and points of contact.

Engineering Interface Document for the Y-12 National Security Complex

1.0 GENERAL REQUIREMENTS

The following information is to provide experienced design agents the minimum information required to design facilities in the property protection area of the Y-12 National Security Complex (NSC), often generally referred to as the east part of the complex. It does not include work proposed in or around Buildings 9203/9202.

The information in this document is intended to serve as a guide to a design agent experienced at work on government installations. Specific concerns about special requirements such as security alarms, security fences, sensors, fire alarm systems, and emergency notification systems will be addressed on a project specific basis.

1.1 Document Numbers

Document numbers will be provided by BWXT Y-12. The information is organized by Engineering discipline.

1.2 Specifications

Specifications shall be in Construction Specifications Institute (CSI) format. Division 1 of the construction documents shall include as a minimum:

A. Field Engineering
B. Safety and Health (input by BWXT Y-12)
C. Safety Requirements for Welding and Cutting (Burning)
D. Grinding and Incidental Welding
E. Asbestos (if required)
F. Work in Radiological Areas (if required)
G. Work on Hazardous Waste Sites (if required)
H. Respiratory Protection
I. Submittals
J. Quality Assurance
K. Construction Facilities and Temporary Controls
L. Waste Disposal

1.3 Drawings

Drawings shall be provided using Microstation. Seed files will be provided by BWXT Y-12.

1.4 References – The base set of regulations, national consensus codes and standards and DOE Orders and Standards to be used for design and construction are listed in Standards/Requirements Identification Document (S/RID) 11169. The date of the reference document that is in effect as of the start of design shall establish the "Code of Record."

A. National Codes and Standards - (Note: Deviations and/or alternate approaches to national consensus codes and standards require the review and approval of the Design Authority and the Authority Having Jurisdiction (AHJ) prior to use.)

1. Air-Conditioning and Refrigeration Institute (ARI)
2. Air Moving and Control Association (AMCA)
3. American National Standards Institute (ANSI)
4. American Society for Testing and Materials (ASTM)
5. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
6. American Society of Mechanical Engineers (ASME)
7. American Water Works Association (AWWA)
8. American Welding Society, Inc. (AWS)
9. Factory Mutual (FM)
10. Industrial Ventilation, A Manual of Recommended Practice
11. Institute of Electrical and Electronics Engineers, Inc. (IEEE)
12. Instrument Society of America (ISA)
13. International Building Code (IBC)
14. National Electrical Code (NEC)
15. National Electrical Safety Code
16. National Fire Protection Association (NFPA)
17. Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA)
18. Southern Building Code Congress International (SBCCI), Standard Mechanical Code
19. Standard Building Code (SBC)
20. Standard Plumbing Code (SPC)
21. Underwriters' Laboratories (UL)

B. Department of Energy (DOE) Orders, Standards, and CFRs

1. DOE Order 420.1A Facility Safety
2. DOE G420.1-1 Non-Reactor Nuclear Safety Design Criteria and Explosives Safety Criteria Guide
3. DOE G420.1-2 Guide for the Mitigation of National Phenomena Hazards for DOE Nuclear Facilities and Non-Nuclear Facilities
4. DOE Order 430.2A, Departmental Energy and Utilities Management
5. DOE-STD-1020-(2002) Natural Phenomena Hazards Design and Evaluation Criteria for DOE Facilities
6. DOE-STD-1021-(1993) Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components
7. 10 CFR 434, Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings
8. 29 CFR 1910 Occupational Safety and Health Administration (OSHA) Occupational Safety and Health Standards
9. 29 CFR 1926 OSHA Safety and Health Regulations for Construction

C. Discipline Specification and Standards

Reference Specification and Standards Indexes are given in Appendix C and Appendix D, respectively. In addition, Civil/Structural/Architectural disciplines use the licensed AIA MASTERPSEC and use typical cell libraries available in GEOPAK and MicroStaton Triforma.

1.5 Submittals

A. Submittals include but are not limited to the following. If specific submittals (e.g., vendor manuals, etc.) are required, these will be identified.

1. Red-lined existing site drawings including:
   a. Location of underground utilities (duct banks, piping)
   b. Sewers, drains, telephone lines
   c. Coordinates in complex grid unless otherwise stated
   d. Equipment layouts with underground conduit and piped dimensioned
   e. Utility tie-in points
2. Shop drawing
3. Product Data
4. Samples
5. Test and Inspection Reports
6. Certifications

B. Submittals for Approval – submit for Company approval the following.

1. Items requiring written approval before delivery of material or equipment to the work site.

2. Proposed substitutions

C. Submittal for Information – submit to the Company for information the following.

1. Materials or equipment not requiring approval prior to delivery to the work site.

2. Reports, documentation, or written procedures needed prior to start of related work.

D. Submit to the Company documents necessary to support the Configuration Management (CM) program in accordance with Y17-009INS "Establishing and Maintaining the Technical Basis. A Technical Basis Index Summary (TBIS) is required for existing and new SSCs meeting the criteria for CM.

1.6 Quality Assurance

A. Procurement Quality

Purchase orders for materials or equipment shall include or reference applicable quality requirements to the supplier and include the right of access to the suppliers' facilities.

B. Source Quality Control

Indicate requirements for quality control for off-site fabrication.

C. Field Quality Control

Indicate requirements for quality control and related quality assurance for on-site activities and installed materials, manufactured units, equipment, composites, and accessories.

1.7 Delivery, Storage, and Handling

A. State packing, shipping, handling, and unloading requirements that are particular to products, materials, equipment, and components.

B. Describe the condition of acceptance of items at the project site.

C. State special measures needed to prevent damage to products prior to application or installation.

D. State special measures needed to minimize waste and proper disposal of waste for specific products.

Equipment identification and labeling requirements shall be provided on a project specific basis by BWXT Y-12.

2.0 PRODUCTS AND MATERIALS

2.1 Acceptable Manufacturers

List the names of manufacturers with capacity to provide products specified. Names of manufacturers may be supplemented by the addition of brand names, model numbers, or other product designations.

2.2 Acceptable Materials

A. Describe in detail the materials to be furnished. Raw materials, field assembly, and installations may be specified. Environmental concerns such as toxicity, recycle content, and recycleability should be addressed.

B. Describe the function, operations, and other specified requirements of equipment, components, or accessories.

2.3 Substitutions

A. Establish a workable procedure for the preparation, submittal, and processing of requests for substitutions. Include the substitution procedure in the contract documents.

B. Indicate that other products may be considered by using the phrase “or approved substitute.”

C. Ensure substituted products perform in all respects the same as the specified products (i.e., appearance, performance fire rating, code compliance, maintenance, and life span).

D. Disposition substitution during the bidding phase and strongly discourage substitution during the construction period. Request for substitutions made during the construction period should be considered only if needed to replace unavailable products or to remedy a situation where a specified product is proven to be unsuitable.

3.0 EXECUTION

3.1 Civil, Structural, and Architectural

A. National consensus codes and standards are to be followed with the following clarification.

1. Structural design shall follow the latest edition of the IBC.

2. Architectural design shall follow the latest edition of SBC, NFPA 101, and ADAAG.

3. Civil design shall use the 100-year flood as the design basis for surface drainage.

4. Fences, roads, and civil works in general shall match existing work at the site.

B. Seismic design requirements shall conform to the following requirements and appropriate DOE Orders and Standards - DOE O 420.1A, DOE G 420.1-1, DOE G 420.1-2, DOE-STD-1020, DOE-STD-1021, Y15-009INS, and Y15-001INS.

The guidance is applicable to non-nuclear facilities which are rated as PC 1 or PC 2 in accordance with DOE STD 1020-2002.

Facility Safety Classes *(Assigned by Facility Safety)*	**Operations Grading Numbers** *(DAR must sign off on grading #)*	**NPH Performance Category** *(In accordance w/DOE Std. 1020)*
Safety Class	1	3 or 4
Safety Significant	2	2 or 3
Non-Safety Related	3	0, 1, or 2
Non-Safety Related	4	0, 1, or 2
Non-Safety Related	CMX	0, 1, or 2

3.2 Mechanical

A. Piping

National consensus codes and standards are to be followed.

1. Piping other than plumbing piping shall be in accordance with the latest edition of ASME B31.3 – Process Piping.

2. Plumbing shall be in accordance with the Standard Plumbing Code.

3. Pressure vessels shall be in accordance with the latest edition of ASME Section VIII Boiler and Pressure Vessel Code, be registered with the National Board, and be provided with U-1A certification.

4. Install underground potable water piping systems in accordance with AWWA C600, Standard Plumbing Code and NFPA 24 (piping materials and valves to match existing underground system in accordance with Technical Specification 15105).

5. Steam condensate discharge to a French drain is by permit only. Discharge options include the condensate return system, the storm drain, or surface pad outside.

6. Compressed air systems shall not be cross-connected to other gases or liquids.

7. Use backflow prevention devices that are taken from the latest State of Tennessee approved list for these devices.

8. The following information regarding interfaces with piping utilities systems is unique to Y-12.

   a. Potable Water: Underground supply from the City of Oak Ridge through a 24-inch main along Bear Creek Road. Seven connections ranging from 10- to 24-inch feeds the distribution network.

   b. Process Water: Underground supply from potable water supply with backflow preventer installed between points of use.

   c. Demineralized Water: Supplied from an on-site demineralizer facility to the stainless steel piping distribution system at 100 psig. Approximately 1/2 of the distribution system is below ground.

   d. Raw Water: Slightly chlorinated but unfiltered water is supplied from the City of Oak Ridge via two distribution lines. The raw water use is to augment flow in East Fork Poplar Creek.

   e. Chilled Water: Seven chilled water systems are currently operating. Five systems produce chilled water in the range of 42° - 45°F. One system produces 32°F and one produces 14°F coolant using a methanol/water mixture.

   f. Cooling Tower Water: Used to rejected heat from various processes and equipment at the Complex. The Complex has 33 cooling tower systems.

   g. Compressed Air: Divided into three systems as plant air at 90 psig, instrument air at 100 psig/125 psig and breathing air. Plant and instrument air is supplied from the same compressor systems. Plant air is used for pneumatic tools, furnace cooling, tank sparging, air pumps and lifts. Instrument air is dry (-40 dew point), clean and oil-free and used in operations for pneumatic instrumentation/control systems, valve actuators and cylinders, and air bearings. Breathing air has dedicated compressors for facilities' specific needs and meets OSHA requirements for breathing air systems.

h. Helium: Gaseous helium is stored in tube trailers at 3000 psig and some at 400 psig. The helium gas is reduced in pressure to 100 psig and distributed through overhead piping to the Complex.

i. Hydrogen: Gases hydrogen is stored in tube trailers at 2000 psig. The hydrogen gas is reduced in pressure to 50 psig and distributed through pipeline to the Complex. Some of the piping is underground and is cathodically protected.

j. Nitrogen: Liquid nitrogen is delivered by truck and off-loaded to storage tanks. Liquid nitrogen is vaporized and monitored for moisture and oxygen. It is delivered at 90 psig and distributed through piping to the Complex.

k. Oxygen: Liquid oxygen is delivered by truck and off-loaded to vacuum insulated storage tanks. Liquid oxygen is vaporized, metered, and delivered at 90 psig through piping to the Complex.

l. Natural Gas: Delivered via East Tennessee Natural Gas pipe line. The pipeline is underground, cathodically protected and traverses the Complex in an east-to-west direction. Pressure is reduced to 115 psig and distributed to piping ranging from 6- to 14-inch mains. Two pressure reducing stations operate within the Complex. One serves the west end and the other the Steam Plant. Natural gas is metered and further reduced at the use points within the Complex.

B. Fire Protection

1. National consensus codes and standards are to be followed.

   a. Latest edition of the SBC

   b. Standard Fire Prevention Code

2. Evaluate sprinkler piping designs for the addition of approved backflow prevention assemblies using the following criteria.

   a. New Building Construction and Building Additions

      Approved backflow prevention assemblies shall be installed for new sprinkler systems.

      1) New sprinkler systems shall have as a minimum an approved Double Check-Detector Valve Assembly (DCDVA).

      2) New sprinkler systems with additive (i.e., antifreeze or foam injection) shall have an approved Reduced-Pressure Principle Backflow-Prevention Assembly (RPBA).

   b. Existing Facility Modification

      1) Modification requiring approved backflow prevention assemblies

- Sprinkler systems with additives [except as stated in 2) below].
- Sprinkler systems requiring a new tie-in to the underground main.
- Sprinkler systems where the underground main is increased in size.

2) Modifications not requiring approved backflow prevention assemblies

- Minor maintenance or repair
- Like-for-like replacements of above-ground systems components
- Conversion of sprinkler systems from an existing type to a wet type

- Systems where sprinkler heads are being added, relocated, or sprinkler piping modified which do not require the underground main to be increased in size.

3) For any other proposed system modifications – Engineering and ES&H Directorates shall review for approval on a case-by-case basis to ensure there is no increased risk of backflow.

C. HVAC

1. National consensus codes and standards are to be followed with the following clarification.

   The following National Codes and Standards shall be utilized in the design of HVAC systems - ASHRAE Handbooks and Standards; SBCCI Standard Mechanical Code; SMACNA Ductwork Construction Standards; ARI; AMCA; Industrial Ventilation, A Manual of Recommended Practice; OSHA; ANSI; NFPA; and UL. Additional codes and standards may apply depending on specific project requirements.

2. Energy Management(applies to all disciplines)

   a. Sustainable design principles shall be applied to new buildings and considered for building alterations in accordance with DOE Order 430.2A, Departmental Energy and Utilities Management.

   b. Design of new facilities shall be in compliance with 10CFR434, “Energy Code for New Federal Commercial and Multi-family High Rise Residential Buildings.”

   c. Utilize DOE/EPA Energy Star® products or products in the upper 25% of the energy efficiency if available.

   d. Qualify new office buildings for the Energy Star® Building Label- rating system that qualifies a building as a top 25% energy performer.

   e. Determine estimated energy consumption for new buildings as described in 2.f.

   f. Energy Efficiency/Sustainable Design Reports shall be prepared for new buildings with areas of 10,000 gross square feet or greater, or with estimated energy use of 500 million BTUs or greater, in accordance with Attachment 3 of DOE Order 430.2A.

3. Work which involves High Efficiency Particulate Air (HEPA) filtration will have additional direction provided by BWXT Y-12.

    a. HEPA filters – procured per Technical Specification 15885 and furnished by BWXT Y-12.

    b. HEPA filtered exhaust systems – designed in accordance with guidelines contained in Engineering Standard ES-5.16-1.

    c. HEPA filter housings – normally of the bag-in/bag-out type and purchased in accordance with Equipment Specification JS-EC-9000000-A001.

    d. HEPA filter life – 10 years from date of manufacture for dry systems; 5 years from date of manufacture for wet systems (see Y/EN-6392, "Establishment and Implementation of Maximum HEPA Filter Life for Fixed Systems").

    e. HEPA filter in-place testing requirements – in accordance with Y-12 Plant Procedure Y71-910, "High Efficiency Particulate Air (HEPA) Filter Testing."

4. The following information regarding interfaces with HVAC utility systems and equipment unique to Y-12 is provided for use as needed.

    a. Central Heating and Cooling Utilities (availability must be determined for particular location)

    b. Steam: 235 psig at 500°F (leaving steam plant)

    c. Chilled water: 42°F supply

    d. Brine (Methanol/Water Mixture): 14°F (24 to 26% methanol)
    32°F (21 to 22% methanol)

    e. Steam Heating Coils and Control Valves – for low-pressure application (25 psig or less) must withstand 100-psig steam superheated to 450°F; for high-pressure application (greater than 25 psig) must withstand 300-psig steam superheated to 500°F. Coils shall have cupro-nickel tubes and headers.

    g. HVAC Controls – controls for new HVAC systems shall normally be Direct Digital Controls (DDC). Controllers shall be Honeywell XL500 controllers and connected to the Y-12 Plant Utilities Management System (UMS) located in Building 9766. If the controllers are not Honeywell XL 500 controllers, then these must be compatible with the UMS. Controlled devices shall normally be pneumatic and operate on 20-psig instrument air.

5. Component identifiers will be provided by BWXT Y-12.

D. Equipment (machines, hoists, etc.)

Specialized equipment requirements will be provided by BWXT Y-12.

3.3 Chemical Processes

Chemical processes requirements will be provided by BWXT Y-12.

3.4 Electrical

A. Power Distribution

The normal power distribution system at the Y-12 Plant is a 13.8 kV, three-phase, 4 wire, grounded "Y" connection system run on overhead wire. Any new facilities are required to be connected to the 13.8 kV system through either pad- or pole-mounted transformers. The secondary of the transformers can be: 480 volt, three-phase, 4 wire "Y" connected with a grounded neutral; 120/208 volt, three-phase, 4 wire "Y" connected with a grounded neutral; 240 volt, single-phase, 3 wire with a grounded neutral. The transformer secondary voltage will be determined on a case-by-case basis depending on the loads in the facility.

National consensus codes and standards are to be followed with the following clarification.

B. EST Fire Alarm System

The following information regarding interfaces with the Y-12 Complex and equipment unique to Y-12 is provided for use as needed.

1. New Building Construction and Building Additions

   a. The new fire alarm devices shall be Edwards Systems Technology “SIGA” type modules and smoke detectors.

   b. Cable for initiating device circuits shall be Belden #9575, 2/c #16, shielded for aerial cable and Belden #9572, 2/c #16, unshielded for installation in conduit.

   c. Installation of new EST III transponders or tie-in to existing transponder signaling line. Circuits will be determined by Y-12 Electrical Engineering on a case-by-case basis.

   d. Tie-in to the existing signaling line circuits will be by BWXT Y-12 client.

2. Existing Facility Modifications

   a. The requirements for new buildings and building additions apply.

   b. The tie-in of devices to an existing initiating device circuit will be by BWXT Y-12 client.

   c. The requirements for new buildings and building additions apply.

   d. The tie-in of devices to an existing initiating device circuit will be by BWXT Y-12 client.

C. Emergency Notification System

Emergency Notification System (ENS) refers to an audio system and central station control equipment that provides manual origination, control, and transmission of information and instructions pertaining to emergency situations affecting the occupants of a building or facility. Each new building or building addition shall be provided with ENS. Exterior notification, as well as indoor notification shall be considered. The extent of the design agent's responsibility will be limited to the design/installation of the conduit/wiring system, speakers, junction boxes, surge protection, and equipment identification. An ENS shall meet the requirements of NFPA 72 when used for fire emergencies. Other national consensus codes and standards are to be followed with the following clarification.

1. ENS System Component Requirements (or approved substitute)

a. Speakers

General Office Applications - 15 watt, dual cone, with 4 watt impedance matching transformer, Atlas Sound Model # C5AT72 with one of three types of baffles: Bi-directional, Atlas Sound Model #510-8; Wall type, Atlas Sound Model #415-8W; or Ceiling type w/enclosure, Atlas Sound Model #51-8 with Atlas Sound Model #EZ96-8

Higher Ambient/Outdoor Applications – 32 watt, wide angle projector, with weather-proof enclosure, Electro-Voice Model #CFID32T

b. Speaker Wiring

Trunk Line Cable - Twisted pair No. 12 stranded tinned copper, 300 V, Belden 9412.

Speaker Monitoring Cable - Twisted pair No. 16 stranded tinned copper, 300 V, Belden 9410.

c. Junction Boxes

Junction boxes and/or pull boxes shall be provided with a mounting panel appropriately sized with screw cover, tamperproof stainless steel pin-in-hex screws, and screw-type compression terminal strips.

d. Surge Protection

Surge protection shall be installed on incoming and outgoing overhead aerial cables for speaker circuits. Enclosures shall contain mounting back strap and ground bar assembly on mounting panel. Protectors shall be Tii Industry Model #Tii 355(M). Cover shall be secure with tamperproof stainless steel pin-in-hex screws.

e. Conduit

As a general rule, EMT may be used for speaker circuits where NFPA 70 permits such usage or unless environmental conditions require another type of conduit.

2. ENS System Design Requirements

   a. The maximum wattage permissible on an amplifier circuit shall be limited to 200 W.

   b. Speaker lines shall be connected for balanced 70.7-V distribution.

   c. Conventional paralleling of speaker transformer primary terminals is not allowed. The “hi” and “lo” wire of each speaker trunk line cable pair (#12) shall be routed into and then out of each speaker primary.

   d. At the last speaker primary in a circuit, a monitoring cable pair (#16) shall be routed back to the surge protection enclosure.

   e. Requirements for speaker, junction box, surge protection enclosure, and conduit identification will be provided on a project specific basis.

D. Public Address System (PAS)

Each new building or building addition shall be provided with a PAS. Requirements for the PAS speaker components shall be identical to the ENS speakers. Speaker lines shall be connected for balanced line 70-V distribution and connected in a standard wiring configuration. Amplifiers/microphones for the PAS will be provided by Qwest.

3.5 Instrumentation and Controls (Utility Interfaces)

National consensus codes and standards are to be followed with the following clarification.

The following National Codes and Standards shall be utilized in the design of Instrumentation and Control systems – Instrument Society of America (ISA); FM; National Electrical Code (NEC); NFPA; ANSI; and UL. Additional codes and standards may apply depending on specific project requirements.

A. Electrical power supply to control systems, including emergency power requirements shall be identified on a specific project basis. The design of electrical supply shall be by the Electrical Engineering discipline.

B. Instrumentation and Controls

   1. Sensors, controllers (analog or digital, pneumatic or electronic), programmable logic controllers, distributed control systems, man-machine interfaces, control logic, process control software shall be identified on a specific project basis.

   2. Security systems: Central Alarm Station, Secondary Alarm Station, Special Nuclear Material (SNM) detection systems, personnel monitoring stations, intrusion detection and assessment systems design requirements shall be identified on a specific project basis.

   3. Software used in control systems shall comply with Y80-101INS, “Software Management Instruction.”

4. The following Y-12 specific requirements apply to control system equipment and components.

    a. Y10-176 System and Component Labeling
    b. Y15-002 Configuration Control Equipment Data Sheets
    c. Y15-003 Equivalency Evaluation
    d. Y15-187 Integrated Safety and Change Control Process

5. The following construction specifications shall be customized for control systems on a specific project basis.

    a. 16941 Consoles, Panels, Cabinets and Racks, GFE
    b. 16942 Field Components Installation, GFE
    c. 16943 Consoles, Panels, Cabinets and Racks Installation
    d. 16944 Field Components Installation
    e. 16945 Tubing and Tube Fittings

6. Instrumentation drawings shall comply with the following standards.

    a. ISA S5.1 Instrumentation Symbols and Identification
    b. ISA S5.4 Instrument Loop Diagrams
    c. ES-2.1-8 Instrument System Diagrams and Instrument Tabulations
    d. ES-2.1-12 Process Operation Diagrams
    e. Other standards may be invoked based on specific project requirements.

7. Piping

    a. Primary sensor installation details—such as orifice plates, flow nozzles, thermowells, control valves, flow meters, etc., shall be coordinated with Piping discipline, with attention given to sensor location, sensor orientation, upstream/downstream straight-run requirements, as well as additional valving and fittings required for service or calibration.

    b. Instrument Air supply for pneumatically operated instrumentation shall be 20 psig.

8. Structural

    a. Mounting details, including penetrations and/or seismic requirements, for new floor or wall mounted control cabinets shall be reviewed by Structural Engineering.

9. Architectural

    a. Location of control cabinets, consoles, etc., shall include required working clearance for electrical/mechanical access for servicing.

10. HVAC

    a. Equipment ventilation requirements, where needed, shall be coordinated with HVAC Engineering.

11. Chemical Process

    a. Materials in contact with process media shall be selected to be compatible with the process.

3.6 Welding

A. Engineering employees welding engineers that assure that appropriate welding requirements are included with all designs and should be consulted to provide or review the design for welding. Following is a summary of the basic design requirements related to welding.

B. Perform welding and weld examination of structural systems including handrails in accordance with the following American Welding Society Codes for the appropriate material.

    1. AWS D1.1, Structural Welding Code, Steel
    2. AWS D1.2, Structural Welding Code - Aluminum
    3. AWS D1.3, Structural Welding Code - Sheet Steel
    4. AWS D1.6, Structural Welding Code - Stainless Steel

C. Perform welding and weld examination of welded piping in accordance with ASME B31.3. The weld examinations required of ASME B31.3 for the appropriate level of service are to be specified with the exception of special services piping applications such as identified in Engineering Technical Specifications 15128 and 15147 piping.

D. Fire protection sprinkler piping that is welded shall meet the requirements of NFPA 13, 14, and 15. Welds are examined in accordance with the requirements of ASME B31.3 for Category D fluid service piping. These requirements are included in Specifications 15104A and 15104B.

E. Perform bonding of non-metallic piping and piping lined with non-metals for process piping including chemical and hazardous liquids drains using qualified bonders and bonding procedures in accordance with ASME B31.3. This does not apply to non-metallic piping for plumbing, sanitary drains, and roof drains.

F. Perform welding and weld examination of welded ductwork in accordance with AWS D9.1, Sheet Metal Welding Code. In addition, Engineering Technical Specification 15898 ductwork requires liquid penetrant examination of all welds.

G. Include the method for controlling filler material in the welding requirements for all designs.

Appendix A

Engineering Contacts/Engineered Equipment Design Technical Authorities

Facility Design Engineering
D. R. Norris
(865) 574-3179

Architectural
M. B. Evans, Manager
(865) 576-3280
Chemical Engineering
M. V. Keigan, Manager
(865) 574-3176
Civil Engineering
W. J. Moore
(865) 576-6621
Civil/Structural/Architectural
W. E. Manrod, Manager
(865) 576-8742
Electrical Engineering
S. M. O'Neal, Jr., Manager
(865) 574-9271
Engineering Mechanics
D. W. Hatcher, Manager
(865) 574-2769
Fire Protection
K. Zimmermann, Manager
(865) 576-0333
HVAC
R. E. Phillips, Manager
(865) 576-7466
Instrumentation and Controls
P. E. Moor, Manager
(865) 574-1680
Mechanical (Specialties)
C. M. Amonett, Manager
(865) 574-6405
Seismic Design Requirements
R. J. Hunt
(865) 574-1979
Structural Engineering
A. Manzo
(865) 576-2360
Welding
D. J. Etzler
(865) 576-3313

Equipment Type	Technical Authority	UID	Phone	Pager
Boilers	R. M. (Bob) Jessee	RJ5	574-1472	800-401-4914
Below-the-Hook Lifting Devices (lifting fixtures)	S. M. (Steve) McTeer	MCT	574-2139	
Breathing Air Systems	J. R. (Bob) Farmer	FRJ	241-3888	
Conveyors	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Cryogenic Systems	D. (Dave) Herrmann	DHH	574-2252	873-6957
Dikes (secondary containment structures)	J. W. (John) Baker	W5B	574-7702	
DOE Regulated Intermediate Bulk Storage Containers	J. C. (Jim) Walls	MTI	576-1718	873-7056
Elevators and Dumbwaiters	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Forklifts, Powered Industrial Trucks	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Furnaces, Ovens	*NFPA rqmts., SME*			
	S. L. (Steve) Doak	DO4	574-2734	
	R. T. (Bob) Wimbrow	5RW	576-4589	417-6442
	Mechanical			
	E. (Eugene) Lozyniak	LOZ	574-2134	
	Electrical			
	J. A. (Jim) Henry	UJZ	574-8223	873-7800
Gas Purifiers	C. A. (Charlie) Levin	LVN	241-9113	
HEPA Filters: Design & Testing	R. S. (Bob) Hamby	HSR	574-2204	417-5352

Equipment Type	Technical Authority	UID	Phone	Pager
Hoists - Pneumatic, Electric, Manual	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Mobile Work Platforms (bucket trucks, aerial lifts, etc.)	G. S. (Steve) Smith	GSG	574-2781	873-5910
Overhead and Mobile Cranes	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Portable Floor Cranes	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Pressure Relief Valves, Rupture Disks	D. W. (Dale) Hatcher	DWH	574-2769	873-5260
Reduced Pressure Backflow Preventers	D. (Dave) Herrmann	DHH	574-2252	873-6957
Safety Harness and Lanyards	P. E. (Preston) Cloud	PC9	241-6054	873-9224
Safety Showers and Eyebaths	B. M. (Ben) Adkins	XBA	574-6359	
Slings - Wire and Synthetic Web	S. M. (Steve) McTeer	MCT	574-2139	
Steam Water Heaters	J. R. (Bob) Farmer	FRJ	241-3888	
Welding Program	K. A. (Ken) Hasting D. J. (Pete) Etzler	K8H ET4	574-3919 576-3313	873-7062 873-7547
Vacuum Systems	D. (Dave) Herrmann	DHH	574-2252	873-6957

Appendix B
Site Operations/Utilities Contacts

Chilled Water Technical Issues
Melvin Passmore
(865) 574-0223

Coordinator of Chiller Buildings
W. J. Davidson
(865) 576-2915
Electrical AHJ
P. R. Goins
(865) 574-0539
Electrical Safety
D. W. Neubauer
(865) 574-1562
P. F. Chapman
(865) 574-1560
ENS/CAAS
Tim Morris
(865) 574-8747
EST Fire Alarm
R. G. Ross
(865) 574-8172
Erosion Control and National Historic Preservation Act
M. C. Wiest Jr.
(865) 574-3390
Exhaust Stack Permits (Clean Air Compliance)
J. M. Eaton
(865) 576-8115
Fire Protection
B. C. Brown
(865) 574-1634
In-Place HEPA Filter Testing
Tony Gross
(865) 576-4118
Instrument Air
Melvin Passmore
(865) 574-0223
Internal permits for connection of storm drains and sanitary drains
R. H. Hardin
865-574-4164
Potable Water Systems
L. T. Petrowski
(865) 574-0467

Power Operations
K. W. Gerth
(865) 574-0506
D. D. Brown
(865) 241-9489
Steam Plant Issues
T. C. Surratt
(865) 574-4033
R. G. Wilson
(865) 574-1417
Steam Distribution
Melvin Passmore
(865) 574-0223
Telephone
D. K. Smith, Qwest
(865) 241-5822
Utilities Monitoring System
J. A. Montgomery
(865) 576-4010
Security
Bud Hockett
(865) 241-4688
Dexter Beard
(865) 574-9689

Appendix C
Specifications Indexes

Engineering Master Technical Specifications*

Division 0	Instructions to Users
Division 1	General Requirements
Division 2	Site Work*
Division 3	Concrete*
Division 4	Masonry*
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Division 7	Thermal and Moisture Protection*
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Division 9	Finishes
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Division 12	Furnishings*
Division 13	Special Construction*
Division 14	Conveying Systems*
Division 15	Mechanical (Piping and HVAC)
Division 16	Electrical
Division 17	Instrumentation (not used)
Division 18A	Welding
Division 18B	On-Site Welding Program

*For Civil/Structural/Architectural Disciplines use AIA MASTERSPEC which is used under a licensing agreement.

Appendix D
Standards Indexes

Engineering Design Standards*

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Index 1	Electrical
Index 2	Instrumentation
Index 3	Mechanical
Index 4	Piping
Index 5	HVAC
Index 6	Drafting
Index 12	Material Handling
Index 14	Computer Applications
Index 15	Glovebox

*Civil/Structural/Architectural Disciplines do not publish standards but use cell libraries, drafting details, and calculations on a project specific basis.