SECTION 010010 – GENERAL REQUIREMENTS
E-Cool building 31, Replace FFDG-Supplied Process Chiller

PART 1 GENERAL 2
1.1 PURPOSE 2
1.2 SUMMARY 2
1.3 REFERENCES 2
1.4 SITE LOCATION 3
1.5 DESCRIPTION OF WORK 3
1.6 MATERIALS & EQUIPMENT FURNISHED BY FERMILAB 5
1.7 BUY AMERICAN ACT 5
1.8 SERVICES FURNISHED BY FERMILAB 5
1.9 ITEMS AFFECTING WORK PLANNING 6
1.10 ELECTRONIC PROJECT DRAWINGS 7
1.11 PARKING AND STAGING AREA 7
1.12 SITE ACCESS AND HAULING 7
1.13 TRANSPORTATION OF EQUIPMENT AND MATERIALS 8
1.14 TEMPORARY SERVICES AND FACILITIES 8
1.15 FERMILAB CLOSURE 9
1.16 MATERIAL SUBSTITUTIONS 10
1.17 DOCUMENTATION 10
1.18 SUBCONTRACTOR'S REQUESTS FOR INFORMATION (RFI) 11
PART 2 PRODUCTS - Not Used 12
PART 3 EXECUTION 12
3.1 NOTICE TO PROCEED 12
3.2 CONSTRUCTION SCHEDULE 13
3.3 QUALITY CONTROL AND CONTROL OF INSTALLATION 14
3.4 ACCEPTANCE 15

ATTACHMENT A REQUEST FOR INFORMATION

ATTACHMENT B QA/QC PUNCHLIST ITEM STATUS

SECTION 010010 – GENERAL REQUIREMENTS
E-Cool building 31, Replace FFDG-Supplied Process Chiller

A. GENERAL

A.1 PURPOSE

A. The following specification provides the project-specific requirements that are supplementary to the requirements of the Fermi Forward Discovery Group, LLC (FFDG) Subcontract General Provisions and the FFDG General Terms and Conditions for Construction.

B. The Subcontractor is required to plan, control, and deliver the final project according to the project specifications. The project must possess complete functional systems and be assembled safely and in quality fashion following industry standards, regulatory requirements, and best practices.

A.2 SUMMARY

A. The Subcontractor shall provide in the performance of the work under this subcontract all labor, materials, equipment, transportation, services, occupational exposure monitoring and supervision required to maintain work sites that meet the ES&H requirements found in Section **013100**.

B. All major elements of the work are believed to be adequately described herein. The Subcontractor is expected, as a requirement of the Subcontractor's qualifications, to utilize his or her knowledge and experience to anticipate, and include in the cost of the work any incidentals of work which may be required, but are not specifically expressed herein, in order to provide a complete and fully functional facility and/or system.

C. Definitions and roles and responsibilities can be found in Section **013100**.

D. FFDG Construction Management Office:
1. Procurement Administrator: Dasia Guthrie, dguthrie@fnal.gov
2. Construction (Project) Manager: Joseph M. Perona x4772 41904N
3. Design Coordinator: Joseph M. Perona x4772 41904N
4. Construction Coordinator: Joseph M. Perona x4772 41904N
5. ES&H Coordinator:
6. Quality Assurance Coordinator,

A.3 REFERENCES

A. The publications listed below form a part of this subcontract to the extent referenced.
1. FFDG General Terms and Conditions for Construction (01/2022)
2. 010010 General Requirements
3. 013100 Environment, Safety, and Health Requirements

B. The publications listed below form a part of this specification to the extent referenced.
1. 013300 Submittals
2. 014100 Quality Requirements

C. Drawings:
   1. Engineering_drawing.pdf
   2. Manual_Scan_JPG.jpg
   3. New_data_plate.pdf
   4. Notes_for_project_of_replacing_FFDG-Supplied_Process_Chiller_MI-31.pdf
   5. Technical_Proposal_Evaluation.docx

A.4 SITE LOCATION

A. The Subcontractor shall confine all operations (including storage of materials) on Fermilab premises to areas authorized or approved by FFDG. The Subcontractor shall hold and save FFDG and the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Subcontractor's performance.

B. The project is located on the Fermi National Accelerator Laboratory (Fermilab) Site, adjacent to the city of Batavia, Illinois. Work will be performed in Kane County.

A.5 DESCRIPTION OF WORK

A. The Subcontractor shall furnish all required supervision, labor, materials, tools, plant and appurtenances necessary to perform diligently and fully all work as described in the drawings and technical specifications. All work includes transportation, overhead, bonding costs, safety oversight, quality control oversight, and supervision as required to construct the project described in the drawings, technical specification and the detailed description contained herein.

B. The Subcontractor's scope of work is not limited to the general work outline described below. The Subcontractor shall perform all work required to complete the construction work in accordance with the drawings and/or specifications. The description and quantities listed below are general in nature and are only intended to describe the range and complexity of this scope of work. The description and quantities provided below are not to be used as the basis for establishing a cost proposal. Specific quantities and definitions of the scope of work for providing a proposal shall be based solely on estimates developed by the Offer from the drawings, specifications, and the information obtained from examining of the project site.

Scope of Work: MI-31 Process Chiller Replacement

1. Project Mobilization

- **Location: FIMS 731, E-Cool Service Building 31 (MI-31).**
- **Site Preparation: Mobilize personnel, tools, and equipment to the site.**

2. Pre-Construction & Safety

- **Refrigerant Recovery: The TM/CC shall have all the refrigerant removed prior to project commencement.**
- **Lockout/Tagout (LOTO): Contractor is responsible for LOTO and zero-energy verification of electrical and water sources.**
  - **Condenser (A731CD01): Panel PHP-MI31A1-1, Circuits 14-16-18 (20A).**
  - **Process Chiller (A731C01): Panel PHP-MI311A1-2, Circuits 7-9-11 (60A).**
  - ***Note: Contractor must perform final field verification of all circuits.***

- **Waste Management: The TM/CC will provide a metal dumpster for construction debris.**

3. Demolition & Removal (Outside Condensing Unit)

- **Line Set: Remove and cap existing refrigerant lines at the penetrations.**
- **Controls: Remove and dispose of all associated control wiring.**
- **Electrical: Remove conductors from the unit back to the panel. Breaker shall remain, labeled as "SPARE" on the panel schedule.**
- **Unit Prep: Free the unit for future removal by the Fermi personnel.**
    - ***Note: New Chiller is air-cooled; the legacy condensing unit will not be replaced.***

4. Demolition & Removal (Indoor Chiller)

- **Line Set/Controls: Remove and cap refrigerant lines; dispose of existing controls.**
- **Electrical/Supports: Remove existing electrical whip and physical supports.**
    - ***Note: Ensure all overhead obstructions are cleared to accommodate the increased height of the new unit.***
- **Mechanical/Plumbing:**
    - **Contractor to disconnect and cap/plug water supply lines during construction.**
- **Rigging: The TM/CC will provide an overhead crane and operator for chiller extraction from the lower level and removal from the site.**
- **Housekeeping: Perform final cleanup of the footprint prior to installation.**

5. Installation (AEC GPL07A Packaged Chiller)

- **Rigging: The TM/CC will provide a crane/operator to lower the new chiller to the lower level.**
- **Setting: Contractor shall set, level, and plumb the unit in its final designated location.**
- **Electrical:**
    - **Install new conductors and MOCP-compliant breaker per manufacturer specifications.**
    - **If a fused disconnect is used, install time-delay fuses sized to the unit's nameplate.**
- **Mechanical:**
    - **Route and install new supply, return, and automatic water make-up lines from existing headers.**
    - **Layout Change: Contractor must adapt piping to the new process connection locations (per AEC Installation Guidelines).**
    - **Safety Controls: Install a thermal dispersion flow switch in the process piping to provide low-flow cutout protection.**
-
- **Controls/Testing:**
    - **The TM/CC will handle control logic internally.**
    - **Contractors must be present to assist with system-side adjustments and testing.**
- **Commissioning: Contractor is responsible for the formal startup and initial inspection of the new chiller.**

6. Project Closeout

- **Site Restoration: Final cleanup and removal of all contractor-owned materials.**

- **Documentation: Deliver all O&M manuals, warranties, and project redlines to the TM/CC.**
    1.

A.6 MMATERIALS & EQUIPMENT FURNISHED BY FFDG

B. AEC GPL07A Packaged Chiller

B.1 BUY AMERICAN ACT

A. FFDG maintains a preference for domestic construction material. In accordance with FFDG General Terms and Conditions for Construction, the following construction material or components are exempt from the Buy American Act.

B. There are no exemptions for this project.

B.2 SERVICES FURNISHED BY FFDG

A. FFDG will furnish the services as described below:
    1. Electrical Power: Electrical power at 120v for hand tools will be provided at the project site.
    2. Drinking Water: FFDG will provide drinking water for this project.
    3. Toilet Facilities: FFDG will provide toilet facilities for this project.
    4. Existing Utility Locates: FFDG will provide locates of existing known utilities as defined in Section **013100** Part 6.18 B. The Subcontractor shall excavate electrical, fiber optics, and gas utilities, in accordance with Section **013100** Part 6.18.

B. Fermilab existing utility and building services shall be coordinated with the FFDG Construction Coordinator:
    1. FFDG will de-energize and re-energized the existing Domestic Water System (DWS), Industrial Cooling Water (ICW), Low Conductivity Water (LCW), fire protection suppression system, electrical services entering facilities, and fire detection in the building(s). These activities shall be coordinated through the FFDG Construction Coordinator. The construction Coordinator shall be notified a minimum 48 hour prior to systems needing to be de-energized.

C. FFDG furnished services shall be coordinated with the FFDG Construction Coordinator.
    1. The FFDG Construction Coordinator coordinates issuance of permits, reference Section **013100** for additional information;
    2. The FFDG Construction coordinator or designee requests for and provides disablement of existing systems; Availability and use of existing Fermilab utility services will comply with Section **013100,** Part 6.18.

D. Electrical Power:
    1. Article 1.8, paragraph A.1 above describes the electric power that will be furnished by FFDG for the Subcontractor's use;

2. Installation of the Subcontractor's electrical power distribution shall include ground-fault circuit protection and shall be subject to FFDG approval;
3. Any additional power required not specified shall be furnished and paid for by the Subcontractor.

E. Drinking Water:
1. Article 1.8, paragraph A.2 above describes the drinking water that will be furnished by FFDG for the Subcontractor's use;
2. The FFDG Construction Coordinator shall approve drinking water distribution containers. Water shall be adequate, clean and dispensed from a fully enclosed potable water container with individual paper drinking cups;
3. The Subcontractor shall furnish and pay for any additional potable water required.

F. Toilet Facilities:
1. Article 1.8, paragraph A.3 above describes the Fermilab toilet facilities that will be available for the Subcontractor's use;
2. When Fermilab toilet facilities are not available to the Subcontractor, the Subcontractor shall provide an adequately serviced chemical toilet for every twenty (20) personnel on the project;
3. The FFDG Construction Coordinator shall approve of the toilet type and locations.

B.3 ITEMS AFFECTING WORK PLANNING

A. Safety Representative: Subcontractor Safety Representative is not required on the project. Reference Section **013100**, Part 6.2.B for further information regarding the onsite safety representative.

B. Additional Training: Additional training provided by FFDG other than the subcontractor's orientation as specified in Section **013100,**Part 4.2.B for further information.
1. No extra training

C. Erosion Control: State if Erosion Control is required on this project, if so, reference in accordance with Section **013100** Part 6.19. No erosion control is required. Section **013100**, Part 6.19.

D. Metal Recycling: TM/CC will provide a metal dumpster for this project.

E. Waste Disposal: The laboratory will dispose of existing regulated waste or laboratory generated regulated waste. The Subcontractor is permitted to dispose of any regulated waste that is generated during the performance of this subcontract. However, the subcontractor is required to notify the Construction Coordinator prior to the commencement of any regulated waste generation and off-site shipments of any waste materials destined for disposal.
1. No regulated waste is anticipated for this project.

F. Reporting: Subcontractor shall submit recycling data from vendor, reference Section **013100** Part 7.2.E for additional information.

ELECTRONIC PROJECT DRAWINGS

G. FFDG may, at the Subcontractor's request and in accordance with technical specifications, release "electronic" project drawings for use in preparation of shop drawings by the Subcontractor or Sub-tier subcontractors or vendors.

H. These electronic drawings will be distributed to the Subcontractor utilizing FFDG's current file and media format.

I. The project design drawings reflect the intent and scope of the project and general routing. The routing of utilities and building/facility services indicated on the design drawings is for providing proposal only. The Subcontractor and/or Sub-subcontractors are expected to make a site visit and make allowances for all necessary adjustments for the actual system installation and to examine physical conditions which may be material to the performance of his or her work, and coordinate the actual routing as necessary to accommodate the existing conditions, obstructions, and the work of other trades.

B.4 PARKING AND STAGING AREA

A. Parking of the Subcontractor's and the Sub-tier subcontractor's vehicles shall be confined to the Subcontractor's designated construction area or general public parking spaces.

B. The Subcontractor shall provide and maintain temporary barricades, fences, or other means to delineate the construction limits, as required for the protection of public and FFDG employees. Provide signage at all entrances to the construction site with the Subcontractor's company's name and contact information. Signage shall include: Danger Construction Area, Do Not Enter. Visitors shall sign-in with the Subcontractor's representative and must be aware of the current hazards and conditions and be escorted either by the Subcontractor or a representative of the Construction Management Office.

C. The Subcontractor's parking and staging area is described in: Parking is available in front of the building and on the side of the building.

D. No material shall be stored beyond the construction limits unless prior written arrangements have been made through the FFDG Construction Coordinator.

B.5 SITE ACCESS AND HAULING

A. The Subcontractor shall, under regulations prescribed by FFDG, use only established roadways and use such temporary roadways constructed by the Subcontractor when and as may be authorized by FFDG. Where materials are transported during the course of the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicles or prescribed by any Federal, State or local law or regulation. When it is necessary to cross curbings or sidewalks, the Subcontractor shall protect them from damage. The Subcontractor shall repair or pay for the repair of any damaged curbs, sidewalks or roads.

B. Construction equipment and delivers to the site are restricted to the Wilson Street Gate Entrance. At the discretion of FFDG, the Kautz Road access point from Butterfield Road may be used on unique deliveries, such as concrete. Access must be arranged at a minimum of 48 hours prior to the use of this access point through the Construction Coordinator.

C. Fermilab site access and hauling shall be subject to the following conditions:
   1. Electronic communication devices, such as cell phones, texting devices, laptops, etc. must not be used while driving any motor vehicle on Fermilab's site;
   2. All roads shall remain open to emergency traffic at all times;
   3. All equipment and vehicles shall be confined to operating along defined construction roads and approved access routes;
   4. No overland hauling or off-road travel shall be permitted without prior approval of the FFDG Construction Coordinator;
   5. Interruption of normal traffic patterns or temporary road closings necessitated by movement of equipment or delivery of materials or utility installations shall require advance notice and shall require proper barricades, signage and flag persons to divert normal traffic safely;
   6. Traffic on paved roads shall be restricted to rubber-tired vehicles. Where crawler mounted equipment is required to cross paved roads or areas, the pavement shall be suitably protected from damage to the satisfaction of the FFDG Construction Coordinator;
   7. Dust, debris mud, and litter on any Fermilab roads caused by the Subcontractor's operations shall be removed by the Subcontractor in a manner as directed by the FFDG Construction Coordinator;
   8. Illinois Rules of the Road shall apply to the Subcontractor's use of all existing roads.

B.6 TRANSPORTATION OF EQUIPMENT AND MATERIALS

A. Transportation of equipment and materials shall be subject to the following conditions:
   1. Transportation of equipment and materials used by the Subcontractor at the job site shall be furnished by the Subcontractor at his/her own expense;
   2. The Subcontractor shall be responsible for minimizing any interference with local traffic, other Subcontractors and Fermilab operations;
   3. The Subcontractor shall coordinate the anticipated schedule for major material deliveries and site hauling of excavated materials with the FFDG Construction Coordinator.

B.7 TEMPORARY SERVICES AND FACILITIES

A. Temporary services and facilities shall be subject to the following conditions:
   1. Temporary services and facilities required during the construction period shall be furnished, installed, and paid for by the Subcontractor;
   2. All installations shall be subject to FFDG approval;
   3. Temporary lighting shall be installed throughout the project to provide safe access and exit conditions and adequate lighting for the various work operations. The installation shall comply with the National Electrical Code (NFPA 70);

4. Telephone/Internet service for the project will be provided by and paid for by the Subcontractor;
5. Temporary fire protection shall be in accordance with the OSHA (29 CFR 1926);
   a. An approved fire extinguisher shall be provided by the Subcontractor on all trucks and similar equipment, at all enclosures, and at on-site construction offices;
   b. Each extinguisher shall be inspected monthly and a date tag certifying adequacy of the charge and workability of the extinguisher shall be affixed;
   c. The Subcontractor shall remove the temporary extinguishers at the conclusion of the job.

B. Temporary ventilation shall be sufficient to provide a safe working environment for construction personnel, in accordance with OSHA 29 CFR 1926.57. Subcontractor shall provide exhaust and supply air fans, ducting and other equipment as needed.

C. Temporary heating shall include heating devices, protective coverings and temporary enclosures as necessary to protect the work and to provide a safe working environment for personnel.
   1. Coal or kerosene type salamanders, pots or open fires shall not be permitted;
   2. Where permanent heating equipment has been installed and made operational prior to completion of the project, the Subcontractor may request temporary use of such equipment, at no cost, provided it is properly maintained by the Subcontractor and that all required warranties are extended to include the period of use by the Subcontractor prior to Final Acceptance of the project by FFDG. Such equipment shall be turned over to FFDG in like-new condition, including new filters and similar consumables.

D. Temporary Drainage shall be sufficient to remove standing water and prevent flooding.
   1. Subcontractor shall furnish pumping equipment and other dewatering equipment as required for proper operation;
   2. Pump discharges from dewatering activities shall be intercepted by silt removal or sedimentation basins before being directed to natural drainage courses and away from adjacent work limits of other subcontractors.

E. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Subcontractor only with the FFDG approval and shall be built with labor and materials furnished by the Subcontractor without expense to FFDG. The temporary buildings and utilities shall remain the property of the Subcontractor and shall be removed by the Subcontractor at its expense upon completion of the work. With the written consent of FFDG, the buildings and utilities may be abandoned and need not be removed.

B.8 FERMILAB CLOSURE

A. The Fermilab site is closed for major holiday and no construction activities shall occur, unless specifically approved by the FFDG Construction Coordinator, on these days:
   1. New Year's Day – January 1st
   2. Martin Luther King Jr. Day – 3rd Monday in January

3. Memorial Day – Last Monday in May
4. Juneteenth Day – June 19th
5. Independence Day – July 4th
6. Labor Day – 1st Monday in September
7. Thanksgiving Day – 4th Thursday in November
8. Day After Thanksgiving – Friday after Thanksgiving
9. Christmas Eve (1/2 Day) – December 24th
10. Christmas Day – December 25th
11. New Year's Eve (1/2 Day) – December 31st

B. If any of these holidays occur on a weekend day, a weekday will be used for the holiday.

B.9 MATERIAL SUBSTITUTIONS

A. In accordance with FFDG General Terms and Conditions for Construction, products or materials that are equivalent of those specified will be considered for approval by FFDG. The submittal procedure described elsewhere will be followed, with the following additional conditions:
   1. In addition to the required information for the proposed substitute material, the submittal shall contain the same information pertaining to the original specified product for purposes of comparison;
   2. The submittal shall explain fully the differences, if any, between the original specified product and proposed substitute product;
   3. Any change to the drawings or specifications for related work required for proper installation of the proposed substitute product shall be indicated in the submittal;
   4. If the proposed substitute product requires alterations of any kind to other equipment or construction, or necessitates any engineering design changes for its proper installation, such alterations and engineering design changes shall be accomplished at no cost to FFDG;
   5. The substitute submittal must contain a statement detailing the cost and schedule impact of the proposed substitution;

B. FFDG is the sole judge of the acceptability of the proposed substitution.

B.10 DOCUMENTATION

A. The FFDG Construction Coordinator may prepare weekly progress meeting minutes including on-going punch list items, ESH issues, corrective actions, and status of these items. These minutes will become part of the FFDG project file. At the discretion of the FFDG Construction Management Office, the weekly progress meeting may be reduced or eliminated depending on safety, quality, and schedule of the project.

B. Quality Control Documentation reference article 3.3.

C. On-going punch list: During the duration of the project, the FFDG Construction Coordinator shall identify deficient items that do not adhere to the technical specifications/drawings. This list will be kept current through the duration the project by the Subcontractor's Field Superintendent and made part of the Weekly Progress Meeting Minutes. At a minimum, the subcontractor shall, within five (5) working days,

submit a proposed corrective action plan that details the mitigation method including a schedule for the correction of the noncompliance. Reference Attachment B.

D. Notification of punch list items: The FFDG Construction Coordinator will notify the Subcontractor of deficiencies and/or discrepancies in the quality of the construction. These notifications will include:
   1. Date Identified;
   2. Identifier;
   3. Location;
   4. Description, including specification or drawing reference.

E. As-Builts (Record Documents):
   1. The Subcontractor shall maintain a set of prints of the Subcontract drawings in the construction office at the project site;
   2. A daily record, in red, shall be kept on these prints of the work installed with all modifications or changes thereon. This set of prints shall be available to FFDG for inspection at all times and print copies provided upon request to FFDG within 24 hours of the request being made;
   3. The FFDG Construction Management Office and the Subcontractor's Field Superintendent should review the as-built drawings prior to the Monthly Construction Schedule Updates described elsewhere, in order to determine if the as-built mark-up set is current and accurate. The processing of the monthly payment request is contingent of the up-to-date status of the as-built documentation;
   4. Prior to Final Acceptance described elsewhere in article 3.4, the Subcontractor shall transmit the complete set of marked-up prints to FFDG.
   5. The Final Acceptance submittal shall include a statement from the Subcontractor that indicates that the work was installed as shown thereon;
   6. Final Acceptance of the work is contingent on the receipt and approval of the complete as-built documentation.

F. Final Acceptance Documentation: Final Acceptance of the work is contingent on the receipt and approval of the following documentation:
   1. As-built documentation as described elsewhere in the subcontract documents;
   2. Shop drawing record set as described in (Specifications and Drawings for Construction) in accordance with FFDG General Terms and Conditions for Construction;
   3. Warranty documentation;
   4. Spare stock (material and consumables), if required by the technical specifications/drawings;
   5. Operations and Maintenance manuals.

B.11 SUBCONTRACTOR’S REQUESTS FOR INFORMATION (RFI)

A. When the Subcontractor is unable to determine from the Contract Documents, the exact material, process or system to be installed; or when the items of construction are required to occupy the same space (interference); or when an item of work is described differently at two places in the Contract Documents; or when other clarification is required; FFDG shall be requested to make a clarification of the indeterminate or

interfering item through the RFI procedure given shall be the method for requesting the clarification.

B. RFIs shall be submitted on a form found in Attachment A or FFDG approved Subcontractor's form. Each RFI shall be given a discrete, consecutive number. Each page of the RFI and of attachments to the RFI shall bear the RFI number and Project number. Resubmitted RFIs with additional information shall be RFI number with a .01 prefix for the first resubmitted RFI, .02 for the second, and so on.

C. RFIs from sub-subcontractors shall be submitted through, reviewed by, given a number, and signed by the Subcontractor prior to submittal to FFDG. The Subcontractor shall keep a log of the RFIs. RFIs submitted directly by sub-subcontractors would be returned unanswered to the sender and the Subcontractor. Subcontractor shall be responsible for delays resulting from the necessity to resubmit an RFI.

D. Subcontractor shall carefully study the subcontract documents to assure that the requested information is not available therein.

E. In all cases where RFIs are issued to request clarification of coordination issues (e.g., pipe and duct routing, clearances, specific locations of work shown diagrammatically, apparent interference and similar items) the Subcontractor shall furnish all information required for FFDG to analyze and/or understand the circumstances causing the RFI in order to prepare a clarification or direction as to how Subcontractor shall proceed.

F. RFIs shall not be used for the following purposes:
   1. To request approval of submittals;
   2. To request approval of substitutions;
   3. To request changes which entail additional cost or credit;
   4. To request different methods of performing work than those indicated on the drawings and/or specified.

G. In the event the Subcontractor believes that a clarification by FFDG results in additional cost, Subcontractor shall not proceed with the work indicated by the RFI until authorized by FFDG Procurement Administrator to proceed by an approved Change Order.

H. FFDG will return RFIs to the Subcontractor within 10 calendar days of receipt. RFIs received after 12:00 noon shall be considered received on the next regular workday for the purpose of establishing the start of the 10-calendar day response period.

C. PRODUCTS - Not Used

D. EXECUTION

D.1 NOTICE TO PROCEED

A. The Notice To Proceed (NTP) represents the basis of the start of the project duration. The following describes the requirements for the NTP:
   1. The NTP is issued by the FFDG Procurement Administrator;
   2. The issuance of the NTP establishes the start of work on the Fermilab Site.

3. A project kickoff meeting may be required prior to the issuance of the NTP.

B. Submittals Required Prior to NTP. Within ten (10) business days after subcontract award, the Subcontractor shall submit the following to FFDG for acceptance. These items must be submitted and accepted by FFDG prior issuance of NTP.
   1. Insurance Certificates
   2. Payment and Performance Bonds
   3. Project Hazard Analysis (if NTP is waived, a project Hazard Analysis is still required prior to commencement of work);
   4. Cost-loaded Construction Schedule;
   5. Soil Erosion and Sediment Control Plan (if required in Article 1.9;
   6. Project-specific Quality Control Plan (if required in Article 3.3);
   7. Quality Control Plan (if required in Article 3.3);
   8. Reference **013100** for ES&H Submittals.

D.2 CONSTRUCTION SCHEDULE

A. This project includes the following milestones:
   1. Milestone 0 – 0 Calendar Days - NTP, This milestone marks the point where construction work may begin;
   2. Milestone 1 – 10 Calendar Days, Mobilize and start the project.
   3. Milestone 2 – 10 Calendar Days, Perform as per SOW (Scope of work)
   4. Milestone 3 – 10 Calendar Days, Project Complete

B. This Project Complete milestone marks the completion of the project including punch list items, clean-up and acceptance of as-built drawings and if required, submittals.

C. Weekly progress meetings will be held, unless the FFDG Construction Management Office reduces or eliminates the progress meetings, to coordinate the work with Subcontractor and FFDG. The roles and responsibilities of the participants are as follows:
   1. FFDG Construction Coordinator:
      a. Responsible for chairing the weekly progress meetings;
      b. Responsible for meeting documentation;
      c. Identification of the work completed since the previous progress meeting;
      d. Identification of deficiencies in the quality of construction.
   2. FFDG ES&H Safety Coordinator:
      a. Responsible for discussion on corrective action and preventative actions on ES&H items;
      b. Can provide guidance on safe work practices and answer questions related to ES&H by the subcontractor.
   3. FFDG Design Coordinator or FFDG Construction Coordinator:
      a. Submittal status;
      b. Status of Request for Information.
   4. FFDG Procurement Administrator
      a. Provide status on any sub-contractual changes;
      b. Any administration concerns related to the subcontract.
   5. Subcontractor's Field Superintendent:
      a. Prior to the weekly progress meeting, the Subcontractor shall submit a "two week look ahead" schedule that will present the status of

activities that are currently in progress or expected to begin within two (2) calendar weeks from the date of the weekly progress meeting;

b. Subcontractor's Environment, Safety and Health observations;
c. Submit Quality Control documents (if required by article 3.3);
d. Status of deficiency list of those items of the work that do not conform to the subcontract documents;
e. Providing a summary of the work-hours worked during the previous week;
f. Identification of any impact to the project cost or schedule due to the activities of Fermilab operations;
g. Identification of any work activities commenced or expected to commence that are outside the scope of the subcontract.

D. Monthly construction schedule update meetings shall accurately reflect the execution of the project. This is required for payment. The construction schedule update shall include the following:

1. Actual start and completion dates for activities that finished during the update period;
2. Percent complete and predicted completion date for those activities that are in progress;
3. Any necessary changes to the schedule required to accurately reflect the actual sequence of work;
4. Clear identification of the critical path work activities and logic ties;
5. The FFDG Construction Coordinator and the Subcontractor shall jointly review all construction schedule updates prior to formal submittal;
6. The date of the update will be selected by FFDG to coincide with accepted FFDG financial accounting periods;
7. The construction schedule shall reflect all subcontract changes that have been issued via supplemental agreement;
8. A revision summary of the changes shall be maintained on the schedule;
9. The Subcontractor shall submit a Schedule Variance (SV) report when any of the projected FFDG specified milestones are behind schedule by more than 5% (SV=0.95 or less) of the total remaining project schedule. This report shall identify those activities that are contributing to the schedule variance;
10. When the construction schedule indicates that an FFDG-specified milestone will be late by more than 5% of the total remaining schedule the Subcontractor shall submit a recovery schedule that will mitigate the schedule variance. This recovery shall identify those activities that are contributing to the schedule variance and the actions the Subcontractor is proposing to mitigate.

D.3 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. The Subcontractor is responsible for all activities necessary to manage, control, and document that work complies with the Subcontract documents. The Subcontractor's responsibility includes ensuring adequate Quality Control services are provided for work accomplished on- and off-site by his/her organization, suppliers, sub-tier contractors, technical laboratories, and consultants.

B. For critical projects, the Subcontractor shall furnish a project specific Quality Control plan which identifies the personnel, procedures, controls, instructions, test, records, and forms to be used specific to this project at Fermilab. Section 014100 provides additional guidance and expectations for this plan, as well as how to determine if a project is deemed critical from a Quality perspective.

C. The work activities include safety, submittal management, testing and inspection, and all other functions relating to the requirement for quality construction. Subcontractor is responsible to respond to Non-Compliance Notices that may be issued by the Subcontractor or by FFDG. Further, the Subcontractor shall contain procedures for tracking construction deficiencies from identification through acceptable corrective action. The Subcontractor shall track and log deficiencies on form found in Attachment B or FFDG approved Subcontractor's form.

D. Subcontractor shall perform periodic inspection for potential suspect counterfeit materials. The most common suspects counterfeit materials found at US Department of Energy facilities have been threaded fasteners fraudulently marked as high strength bolts. Also included are electrical circuit breakers with false certifications. If the subcontractor suspects any counterfeit material being utilized, contact the Construction Coordinator immediately. Suspect/Counterfeit Items (S/CI) should be removed from the material supply inventory, labeled as S/CI, and quarantined to prevent inadvertent use until the nature of the item has been determined.

E. If required by article 1.3, reference Section **014100** for additional quality requirements.

D.4 ACCEPTANCE

A. Authorization to Use and Possession (AUP) prior to completion: An interim inspection process used when FFDG assumes responsibility for portions of the work. The following details concern Authorization to Use and Possession:
   1. The Subcontractor shall provide a 10-day notice to the FFDG Construction Coordinator before this inspection is performed;
   2. The Subcontractor's punch list with status noted shall be attached to the AUP documentation;
   3. The FFDG Construction Coordinator will complete the AUP form;
   4. For further information, reference (Use and Possession Prior to Completion) of FFDG General Terms and Conditions for Construction.

B. Final punch list Inspection: An inspection of the uncompleted items of the subcontract documents. The following describes the punch list process:
   1. When the Subcontractor believes the work is substantially complete, the Subcontractor shall update the deficiency list for presentation to the FFDG Construction Coordinator;
   2. The Subcontractor shall provide a 10-day notice to the FFDG Construction Coordinator in order to make arrangements for the final inspection of the construction project with FFDG personnel;
   3. The FFDG Construction Coordinator will arrange for a final inspection visit of FFDG stakeholders to verify the accuracy of the Subcontractor's deficiency list and to add, as necessary, those items of work that are not complete;
   4. The FFDG Design Coordinator will develop a comprehensive punch list and issue it to the Subcontractor after the final inspection;

5. The Subcontractor and the FFDG Construction Coordinator will sign off on the completion of each punch list item.

C. Final Acceptance: This inspection will document the completion of the project scope. The following describes this process:
   1. The Subcontractor shall provide a five (5) day notice prior to the Final Acceptance inspection;
   2. The Subcontractor shall submit documentation that the work associated with the punch list is complete;
   3. The FFDG Construction Coordinator will coordinate the final inspection walkthrough with FFDG stakeholders;
   4. The FFDG Construction Coordinator will develop and issue the final acceptance documentation when the punch list items have been completed.

END OF SECTION

Fermilab

ATTACHMENT A

Fermilab

REQUEST FOR INFORMATION

Date:

Project Name:	RFI No.:
To:	Project No.:
Subject:	Submitted By:

Spec.. No.:	Article/Par.:	Drwg. No.:	Detail:

Request:

Response:

ATTACHMENT B

Fermilab

QA/QC Punch List Item Status

Item#	Room/ Location	Description	Author Initials	Subcontractor Responsible	Date Inspected	Date Due	Date Completed	Subs Initials	Closed/ Confirmed By	Notes
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

QA/QC Punch list Items Status					
<Subcontractor>	**Assigned Items**	**Closed Items**	**Open Items**	**% Closed**	**% Open**
	0	**0**	**0**	#DIV/0!	#DIV/0!
Totals					