AMENDMENT TO REQUEST FOR PROPOSAL
UAF Power Plant Superheater Tubing Replacement
Boilers #1 & #2

REQUEST FOR PROPOSAL NO. 11P0004RD
Procurement Officer: Rick Danielson
Issue Date: November 23, 2010

AMENDMENT NO. 1
Effective Date: December 14, 2010

ISSUED TO:
All Prospective Offerors

ISSUED BY:
University of Alaska Fairbanks
Procurement & Contract Services
PO Box 757940
Fairbanks AK 99775-7940

Dear Vendor:

The following clarifications, revisions, and changes have been made to Request for Proposal No. 11P0004RD for UAF Power Plant Superheater Tubing Replacement:

This amendment provides for a change in the solicitation closing date, from 12/16/2010, 5:00PM local time to Thursday, January 13, 2011, 5:00PM local time.

Informational Note: State Of Alaska, Department Of Labor has been contacted for a determination as to whether this service must be performed under the Alaska Little Davis-Bacon act.

This amendment requires acknowledgement, please see the final page.

Please note the revised link to the original solicitation:

Based on questions derived from the pre-proposal conference, the following information, modifications, and UAF’s response to questions and clarifications shall be incorporated as part of the above referenced proposal and its specification.

The following companies and organizations were represented at the pre-proposal conference:

Bert Martin Cole Industrial, Inc.
North West Cole Industrial, Inc.
Kevin Wars Bering Sea Environmental
Dan Hughes Jaffa Construction, Inc.
Bruce Jaffa Jaffa Construction, Inc.
Bret Burroughs Rotating Equipment
Darin Lewis National Steel Erection
The following section contains answers to questions either provided in writing prior to the pre-proposal conference, or during the pre-proposal conference:

**Question:** Will a Contractor with an “R” stamp (National Board of Boiler and Pressure Vessel inspection Code) and an ASME A stamp (Assembly of ASME Boilers) be deemed compliant with the Technical qualification in para. C, that requires an S Stamp (Design and fabrication of Power Boilers)? Alaska State rules for repair of Boilers require the R stamp.  
**Answer:** The S stamp is not required

**Question:** Will the Contractor be required to comply with the boiler repair rules of the State of Alaska?  
**Answer:** YES

**Question:** Will the Contractor be required to provide the boiler Authorized Inspection services?  
**Answer:** Yes, it is already in the scope

**Question:** Will the limits of re-insulation be defined? What are the limits and location of the asbestos that will be removed?  
**Answer:** The revised scope will handle this

**Question:** Who will be responsible for “surprise” asbestos? How will this affect the schedule?  
**Answer:** All insulation is considered asbestos and refractory should be considered to be contaminated with asbestos, unless testing shows it is not.

**Question:** Will the contractor be responsible for any asbestos that he feels must be removed beyond the areas defined by the owner.  
**Answer:** See above

**Question:** Will certified payrolls be required? Will the AS 36 “Little Davis-Bacon” apply?  
**Answer:** State Of Alaska, Department Of Labor has been requested to make a determination on this service.

**Question:** Will any extended break between boilers as shown on schedule be paid at the “reimbursable” rate item 3 of Rate response Form? Will this payment be the sole correction for any delays?  
**Answer:** The contractors bid should accommodate the indicated times for Owner work, including starting up and cooling down boilers. If the Owner causes delays beyond what is indicated in the schedule the Contractor can submit a request for additional payment and we may choose to use those rates or other method of negotiation.

**Question:** Please confirm that refractory repairs are performed by the Owner.  
**Answer:** Refractory repairs required to remove and reinstall the superheater tubes are to be performed by the contractor. Other refractory repairs in the boiler will be performed by UAF. The contractor should assume that the refractory is contaminated by asbestos.

**Question:** Drawing No. KSO-10584-L400 (Rev.1): Are the drain, gauge, vent, and other connections indicated in the plan view to be completed by another contractor? There are no weld symbols shown or connecting equipment/piping details.  
**Answer:** The drain, gauge vent connections are to be performed by the contractor. The valves are owner supplied as indicated in the scope.

**Question:** Specification Item #4 (page 20): Can we assume the only “exposed…steam components” needing insulation are those above the roof casing?  
**Answer:** The contractor will determine the extent of asbestos removal needed to perform the superheater work and will re-insulate.
Question: Specification Item #20 (page 21): How much of the existing steam line piping will require re-insulation?
Answer: See Above

Question: Specification Item #26 (page 21): Is the Owner supplying suitable (i.e. quality and temperature) water for the hydro test? Will the contractor need to supply a temporary hydro pump?
Answer: Owner will supply polished condensate in sufficient quantity for the hydro test. The contractor can assume that boiler feed water pumps can be used to pressurize the boilers. If that existing system does not meet the contractor needs, they will have to supply their own pumps, piping and appurtenances to conduct the hydro test in accordance with the specification.

Question: Specification Item #27 (page 21): How many man-hours should the contractor include for start-up assistance?
Answer: As required. Correction of problems with work performed or identified during start-up are unknown, but are the responsibility of the contractor for corrective action to meet specification.

The following items are clarifications to the specification or additions to the specification, and shall be considered part of the proposal specification:

Please note the following instructions relating to this amendment:

Attachment D, ACM REMOVAL SPECIFICATION: This attachment provides for the specification of ACM removal as part of the responsibility of the offeror (contractor). Your proposal submission should include all costs associated with this task on the rate response form, and your process and procedures should be included in your submission as part of your project methodology. Subcontracting is allowed. Site inspections by subcontractors can be accomplished by appointment.

All changes in the solicitation have been either highlighted, colored font, or strike through, and include the following actions:

Replace page 20-21 with the amended pages 20-21.
Addition of ATTACHMENT D; ACM REMOVAL SPECIFICATION (pages 1-29)

All other terms and conditions remain the same.

Sincerely,

UNIVERSITY OF ALASKA FAIRBANKS

[Signature]
Rick A. Danielson
Contracting Officer
ACKNOWLEDGMENT; Amendment #1, RFP11P0004RD, UAF Power Plant
Superheater Tubing Replacement, Boilers #1 & #2
This Amendment must be signed and returned with your proposal or otherwise
acknowledged prior to the closing date and time listed above. If you have already
submitted a proposal and need to make corrections, submit a corrected proposal prior to
the closing. The revised closing date is now Thursday, January 13, 2011, 5:00 PM

_________________________________ __________________________________
Offeror        Name & Title

_________________________________ __________________________________
Signature        Date
Specifications

Replace Superheater tubing, steam Inlet/Outlet and Intermediate headers in Boilers 1 & 2 which were manufactured by Erie City Iron Works. Boiler 1 & 2 are 50,000 lb/hr, coal fired stoker boilers.

1. Access plan for the tube installation to be determined by the contractor and submitted to the Owner for approval.

2. Remove boiler insulation(non-asbestos) and lagging and interior refractory as needed. Asbestos insulation will be removed by the Owner.

3. Repair any refractory damage as a result of superheater tube (and headers) demolition and installation as needed.

4. Provide and install calcium silicate insulation on all exposed high temperature steam components as described in attached “High Temperature Mechanical Insulation” specification.

5. Allow time in schedule for asbestos abatement by the others.

6. Concurrent activity by Owner will take place in the other areas of the boiler while this work is commencing.

7. Allow time in schedule for boiler internal tubing work by the Owner as outlined in the attached project schedule. Owner can work alternative shifts (nights) if needed.

8. Demolish and dispose of the existing tubes and superheater inlet/outlet, and intermediate headers.

9. All steam header handhole covers shall be salvaged and turned over to the Owner.

10. Install two (2) owner supplied sets of replacement superheater elements consisting of forty four (44) elements fabricated from 2” OD x .165” mwt SA-213 T-22 tubing. There are twenty two (22) platens required per boiler.

11. Install two (2) owner supplied superheater Inlet/Outlet headers fabricated from 10” sch. 80, SA -335 Gr. P11 pipe. Each header will be furnished complete with all connections and (22) 2” OD X 0.165” mw tube stubs, SA-213 Gr. T22 for field welding to new superheater elements. Eight (8) 2 1/2” OD X 0.120” mw tube stubs, SA-178 Gr. A will be included in each header for field welding to existing superheater supply tubes.

12. Install two (2) owner supplied superheater Intermediate headers fabricated from 10” sch. 80, SA-106 Gr. B pipes. Each header will be furnished complete with all connections shown and (22) 2” OD X 0.165” mw tube stubs, SA-213 Gr. T22 for field welding to new superheater elements. All machined type handholes will be eliminated.

13. Install six (6) per boiler, total of twelve (12), 1” owner supplied drain valves and reconnect to the existing piping.

14. Install one (1) per boiler, total of two (2), caps on the 1/2” steam sampler connection.

15. Install two (2) per boiler, total of four (4), owner supplied thermowells on the existing ¾” threadolets.

16. Install two (2) per boiler, total of four (4), 1” valves for pressure gauge connection.

17. Install two (2) per boiler, total of four (4), ¾” valves for vent connection.
18. Install **four (4)** per boiler, total of **eight (8)**, caps on the 1-1/2” inspection ports.

19. Re-connect 2” steam supply to soot blower steam line and re-insulate

20. Demolish, install and insulate eight (8) per boiler, total of sixteen (16), **Owner supplied, superheater supply tubes no. 22 fabricated from 2-1/2” X 0.120” MW, SA-178 Gr. A.**

21. Install Owner furnished 6” non return steam valve (2 total).

22. Contractor shall protect all the boiler components from damage.

23. All welding procedures shall be in accordance with the latest version of ASME Boiler & Pressure Vessel Code.

24. All inspections shall be done by an Authorized Inspector (AI). Contractor is required to arrange for the services of AI to perform inspection on all work within the scope of this contract.

25. After tubing and headers installation is completed the hydrostatic pressure test shall be conducted in accordance with the latest version of ASME Boiler & Pressure Vessel Code. Submit testing schedule and procedure to the Owner for approval.

26. Contractor shall assist in boiler start-up.

27. After completion of the work provide all the test and inspection reports to the Owner.
PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Work of the contract includes the selective removal, repair and handling of various, Asbestos Containing Materials (ACM). Work under this section shall address the means of control and handling of the ACM as specified herein, and as required for safe and functional completion of the superheater headers and tubing replacement project. This project is a boiler repair project and not asbestos abatement project.

B. Provide all labor, equipment, material and supervision to accomplish the removal, control, transportation, and disposal of asbestos-containing materials (ACM), in accordance with applicable local, state, and federal regulations.

C. The following are ACM and to be removed.
   1. All steam and condensate piping and pipe fitting insulation is considered friable ACM.
   2. All steam and condensate valve insulation is considered friable ACM.
   3. Boiler refractory insulation is considered ACM.

D. Asbestos abatement work on boiler #1 and #2 shall be done independently according to the attached schedule.

E. Contractor will determine the extent of ACM removal needed to perform the superheater tube replacement work.

F. Contractor will re-insulate all areas where asbestos insulation was removed on exposed, high temperature steam and condensate components with calcium silicate insulation as described in “Mechanical Insulation” specification.

G. Contractor shall field verify quantities of ACM to be removed prior to commencement of work.

H. All damaged insulation areas containing friable ACM during the performance of the contract are to be removed, disposed and patched by the Contractor at no expense to the Owner.

I. Hazardous materials resulting from removal work shall become the responsibility of the Contractor and shall be disposed of as hazardous waste.
J. Federal State or local agencies may require their representative(s) to be present to inspect operations. The Contractor shall comply with all such inspections requirements, and notify the Owner as soon as possible of any inspections.

1.02 SUMMARY OF REQUIREMENTS

A. Notify EPA, and ADOL of project.

B. Establish a written respirator program.

C. Notify Owner of DEC approved disposal site.

D. Provide proof of current medical examination for each employee involved with removal.

E. Provide proof of current medical examination for each

F. Maintain employee medical records.

G. Provide State of Alaska certified asbestos workers.

H. Designate a "Competent Person" to supervise the work.

I. Provide a detailed "Asbestos Control Plan".

1.03 AGENCY NOTIFICATION

A. Notification:

1. Contractor shall notify the EPA and AKDOL at least ten days before work begins of his intent to remove ACM in accordance with 40 CFR 61.146. Notification shall include:

   a. Estimated start and duration of project.
   b. One line description of work.
   c. Worker training plan.
   d. Worker training certification(s).

1.04 REGULATORY COMPLIANCE

A. All work under this contract shall be completed in strict accordance with all applicable Federal, State and Local regulations, standards and codes governing asbestos and any other trade work done in conjunction with the work.

B. The most recent edition of any relevant regulation, standard, document, or code shall be in effect. Where conflict among the requirements of these specifications exists, the most stringent requirements shall be utilized.
1.05 APPLICABLE REGULATIONS

A. Environmental Protection Agency (EPA) Title 40 CFR Part 61 - Hazardous Air Pollution.
   1. Subpart A. General Conditions.
      a. Section 61.141 - Definitions.
      b. Section 61.145 - Standards for demolition and renovation.
      c. Section 61.150 - Standards for Waste Disposal.
      d. Section 61.154 - Standards for Active Waste Disposal Sites.

B. Occupational Safety and Health Administration (OSHA) Title 29 CFR Part 1910.
      a. Section 1910.20 - Access to employee exposure and medical records.
      a. Section 1910.133 - Eye and face protection.
      b. Section 1910.134 - Respiratory protection.
   4. Subpart J. General Environmental Controls.
      a. Section 1910.133 - Eye and face protection.
   5. Subpart Z. Toxic and Hazardous Substances.
      a. Section 1910.1000 - Air contaminants.
      b. Section 1910.1001 - Asbestos.
      c. Section 1910.1200 - Hazard communication.

C. Occupational Safety and Health Administration (OSHA) Title 29 CFR Part 1926.

1.06 LICENSES AND QUALIFICATIONS

A. Contractor shall comply with the State of Alaska, Department of Labor, Division of Labor Standards and Safety for worker certification for asbestos removal work and HAZWOPER certification.
1.07 REQUIRED SUBMITTAL ITEMS

A. Contractor operating procedures, site specific to this project, are required for the following:
   1. Injury and accident procedures.
   2. Fire procedures-building evacuation.
   3. After hours emergency notification procedures and contact phone numbers.
   4. Asbestos Removal Work Plan, including the control of dust, which may be contaminated with asbestos fibers.

B. Contractor shall provide proof of compliance with the following permits, regulations, notifications and qualification documentation.
   3. Notification of Environmental Protection Agency.
   4. Provide copy of responses from EPA and ADOL once they are received.
   5. Employee's Department of Labor Asbestos certification.
   7. Qualifications of Supervisors.
   8. Employee's Commercial Driver's License (CDL).
   9. List of "Competent Persons" on the project.

C. Shop Drawings shall be provided detailing:
   2. Layout areas that maybe glove bagged.
   3. Layout of work area and containment barrier systems.
   4. Location and layout of differential pressure system.
   5. Location of decontamination units.

D. Construction Schedule: Comprehensive construction schedule shall be submitted detailing sequence and estimated time of work for each regulated area. The schedule shall include the following site specific items:
   1. Pre-removal work items for each item identified in Section 02075-1.3.
   2. Removal work specific for each item identified in Section 02075-1.3.
   3. Post removal work for each item identified in Section 02075-1.3.
   4. Initial exposure assessment.
   5. Demarcation of regulated areas and location of asbestos warning signs.
   6. Set up of each regulated area.
   7. Pre-removal inspection schedule for each regulated area.
   8. Gross removal schedule for each regulated area.
   9. Identification of each regulated area.
E. Contractor shall submit post-removal submittals specific to this project which shall include the following:

1. Project Information:
   a. Project Name and location.
   b. Description of Facility.
   c. Removal Firm.
   d. Facility Owner.
   e. Contract Amount.
   f. Scope of Work.
   g. Beginning date of asbestos removal work for each specific item as identified in Section 02075-1.03.
   h. Ending date of asbestos removal work ceased for each specific item as identified in Section 02075-1.03.

2. Copy of Insurance.
3. Copies of Notifications.
7. Copies of Manometer Daily Readings: Identify each day of data.
8. Copies of Bulk Samples.

1.08 DEFINITIONS

A. Removal: "Asbestos removal work" means any activity involving the demolition, removal, enclosure, renovation or encapsulation of friable and non-friable asbestos material.

B. Access: Only authorized persons shall enter regulated areas.

C. Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles or disintegrates intact ACM.

D. Air Lock: A system for ingress and egress without permitting air movement from a contaminated area to an uncontaminated area. Air locks are formed by fitting a curtained doorway to the entrance and exit of an area.

E. Air Monitoring: The process of taking air samples to monitor the number of airborne asbestos fibers in an area.

F. Amended Water: Water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
G. Area Monitoring: Air monitoring either within the containment area or the work area, which is, representative of the airborne concentrations of asbestos fibers, which may reach the breathing zone of an occupant of that area.

H. Asbestos: Includes chrysolite, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered. In addition, presumed asbestos containing material (PACM) is also treated as asbestos. PACMs include Thermal System Insulation (TSI) and surfacing material.

I. Asbestos Removal Control Plan: A detailed plan of the procedures proposed for use in complying with the requirements of the specification which includes: The location and layout of decontamination areas, the sequencing of asbestos work, the interface of trades involved in the performance of work, methods to be used to assure the safety to building occupants and visitors to the site, disposal plan including location of approved disposal site, a detailed description of the methods to be employed to control pollution, the use of portable HEPA ventilation system, closing out of the building's HVAC system, method of removal to prohibit visible emissions in work area and packaging of removed asbestos debris.

J. Asbestos-Containing Material (ACM): Any material containing more than one percent asbestos.

K. Asbestos-Containing Waste Material: Any material contaminated with an asbestos-containing material, which is to be removed from a work area for disposal.

L. Authorized Person: Any person with a valid State of Alaska asbestos certificate authorized by the OWNER and required by work duties to be present in regulated areas.

M. Authorized Visitor: OWNER or a representative of an agency/owner having jurisdiction over the project, or a visitor authorized by OWNER. Only visitors with a valid State of Alaska asbestos certificate shall be allowed in the work area during removal activities.

N. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

O. Breathing Zone: A hemisphere forward of the shoulders with a radius of approximately 6 to 9 inches.

P. Change Rooms and Shower Facilities - Rooms within the designated physical boundary around the asbestos control area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

Q. Class I Asbestos Work: Activities involving the removal of TSI and surfacing ACM and PACM.
R. Class II Asbestos Work: Activities involving the removal of ACM, which is not TSI, or surfacing ACM or PACM. This includes, but is not limited to, the removal of asbestos containing wallboard, floor tile and sheeting, roofing and siding shingles and construction mastic.

S. Clean Room: An uncontaminated room having facilities for the storage of employee's street clothing and uncontaminated materials and equipment.

T. Cleanable Surfaces: Smooth, hard, crack free, nonporous, nonabsorptive surfaces such as: painted gypsum board, marlite, glass, fiberglass and reinforced plastic panels as determined by OWNER.

U. Competent Person: A supervisor currently certified as an asbestos worker by the State of Alaska who is capable of identifying existing asbestos, tremolite, anthophyllite, or actinolite hazards contained in building materials in the workplace or job site and who has the authority to take corrective measures to eliminate them, as specified in CFR 1926.32 (f) and the specifications.

V. Containment Area: An area where asbestos removal operations are performed which is isolated by physical boundaries to completely prevent the spread of asbestos dust, fibers or debris.

W. Critical Barrier: Layers of flame resistant polyethylene sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

X. Curtained Doorway: A construction of two 6 mil overlapping flame resistant polyethylene sheets to allow ingress and egress from one area to another while permitting only minimal air movement between adjacent rooms.

Y. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area and clean room, which is used for the decontamination of workers, materials and equipment that are contaminated with asbestos.

Z. Demarcation: Critical barriers, negative-pressure enclosures and signs serve to demarcate the regulated area.

AA. Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing or stripping of asbestos products.

BB. Differential Pressure Equipment: A local, specially HEPA filtered, exhaust system from the containment area relative to the adjacent areas. Differential pressure shall prevent airborne fibers from infiltrating to other environments.
CC. Disturbance: Contact, which releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable or generate visible debris.

DD. Employee Exposure: Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

EE. Encapsulate: The process whereby an encapsulant is applied to ACM to minimize the release of asbestos fibers into the air.

FF. Encapsulate: A material that surrounds or embeds asbestos fibers in an adhesive matrix, to prevent release of fibers.
   1. Bridging Encapsulate: An encapsulate that forms a discrete layer on the surface of an in situ asbestos matrix.
   2. Penetrating Encapsulant: An encapsulant that is absorbed by the asbestos matrix without leaving a discrete surface layer.

GG. Encapsulation: Treatment of asbestos containing materials with an encapsulant.

HH. Enclosure: The construction of an air-tight, permanent barrier around asbestos containing material to control the release of asbestos fiber into the air.

II. Equipment Decontamination Station: A set of air locks adjacent to the work area having a wash-down station, a holding area, and a clean area and used only for the removal of materials and equipment from the containment area.

JJ. Equipment Room: A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

KK. Excursion Limit (EL): An airborne concentration of asbestos in excess of 1.0 f/cc as measured over a thirty minute time period. Contractor shall ensure that no employee is exposed to a level higher than this limit.

LL. Fibers: A particulate form of asbestos 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

MM. Friable Asbestos Material: Material that contains more than 1 percent asbestos by weight and which can be crumbled, pulverized or caused to release fibers by hand pressure when dry. Nonfriable material which becomes friable during removal shall be considered and handled as friable.

NN. Glovebag: Not more than 60-inch by 60-inch, impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through
which material and tools may be handled. The glovebag assembly is a manufactured or fabricated device, made of 6 mil plastic and seamless at the bottom.

OO. Ground Fault Circuit Interrupter: A device which automatically de-energizes any voltage system component which has developed a fault in the ground line.

PP. HEPA Filter: High Efficiency Particulate Air filter capable of trapping and retaining at least 99.97 percent of asbestos fibers of 0.3 micrometer diameter mono-disperse particles. Each filter shall bear the following: UL Label 586, manufacturer's name, serial number, air flow rating, efficiency resistance and direction of air flow.
QQ. HEPA Filter Vacuum Collection Equipment (or vacuum cleaner): High efficiency particulate air (absolute) filtered vacuum collection equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be of 99.97 percent efficiency for retaining fibers of 0.3 microns or larger.

RR. High-efficiency Particulate Air (HEPA) filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

SS. Holding Area: A chamber between the Wash-down Station and a Clean Room in the Equipment Decontamination and Removal Station. The Holding Area is an air lock.

TT. Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.

UU. Intact: That the ACM has not crumbled, been pulverized or otherwise deteriorated so that it is no longer likely to be bound with its matrix.

VV. Negative Air Glovebag: A sack constructed of 6 mil transparent polyethylene or polyvinylchloride plastic with two inward projecting long-sleeve gloves, which are designed to enclose an object from which an asbestos containing material is to be removed. The negative air glovebag assembly is a manufactured or fabricated device, made of 6 mil plastic and seamless at the bottom.

WW. Negative Air Glovebag Technique: A method for removing small amounts of friable ACM from HVAC ducts, short piping runs, valves, joints, elbows and other nonplanar surfaces in a work area that is not necessarily a containment area. The negative air glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process of ACM removal.

XX. Negative Exposure Assessment: A demonstration by the Contractor that employee exposure during an operation is or will be consistently below the PELs.

YY. Noncleanable Surface: A surface from which all fibers cannot be removed by wet cleaning or HEPA vacuuming.

ZZ. Non-friable Asbestos Material: Material that contains asbestos and which the asbestos fibers have been locked in by a bonding agent, coating, binder or other material so that the asbestos is well bound and will not release fibers during any appropriate use, handling, storage, transportation or processing. Nonfriable material that may become friable during demolition operations shall be considered friable.

AAA. PACM: "Presumed asbestos containing material".

BBB. Permissible Exposure Limit (PEL): Airborne concentrations of asbestos greater than 0.1 f/cc as measured over an eight hour time period. Contractor must ensure that no employee is exposed to a level higher than this limit.
CCC. Personnel Decontamination Station: A set of air locks adjacent to the work area consisting of an Equipment room, a Shower Room and a Clean Room and used only for the ingress and egress of personnel.

DDD. Personnel Air Monitoring: Sampling of the asbestos fiber concentrations in the air within the breathing zone of an employee.

EEE. Prior Experience: Experience of a Contractor on asbestos projects of similar nature and scope, evaluated to insure capability of performing the asbestos removal in a satisfactory manner. Similarities shall be in areas related to material composition, project size, number of employees and the engineering work practice and personal protection controls required.

FFF. Regulated Area: An area established by the Contractor to demarcate areas where Class I, II and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility that they may exceed, the permissible exposure limit.

GGG. Removal: All operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

HHH. Renovation: Overhauling, rebuilding, reconstructing or reconditioning of structures or substrates, including encapsulation or the repair of ACM or PACM attached to structures or substrates.

III. Shower Room: A room between the Clean Room and the Equipment Room in the Personnel Decontamination Station, with hot and cold running water, suitably arranged for complete showering during decontamination. The Shower Room is an air lock between contaminated and clean area.

JJJ. Surfacing ACM: Surfacing material which contains more than 1 percent asbestos.

KKK. Surfacing Material: Material that is sprayed, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing and other purposes.

LLL. Surfactant: A chemical wetting agent added to water to reduce surface tension, thus increasing the ability of water to "wet" ACM. Soap is not an acceptable surfactant.

MMM. Thermal System Insulation (TSI): ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

NNN. Thermal System Insulation ACM: Thermal system insulation which contains more that 1 percent asbestos.
OOO. Transport: All activities from receipt of the containerized asbestos waste at the generation site until it has been properly unloaded at the disposal site.

PPP. Threshold Limit Value: The maximum allowable eight-hour time weighted average concentration of a contaminant in a working atmosphere.

QQQ. Time Weighted Average (TWA): The sum of the fiber concentrations in f/cc multiplied by the sample durations in minutes divided by the sum of the sample durations in minutes.

RRR. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the use of instruments. This does not include condensed uncombined water vapor.

SSS. Wash-down Station: A room between the work area and the Holding Area in the Equipment Decontamination and Removal Station. The Wash-down Station is an air lock.

TTT. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops or other cleaning utensils which have been dampened with amended water or diluted removal encapsulant. Afterwards the cleaning supplies are thoroughly decontaminated or disposed of as asbestos-contaminated waste.

UUU. Work Area: The area where asbestos-related work or removal operations are performed which is defined and/or isolated to prevent the spread of asbestos dust, fibers or debris, and entry by unauthorized personnel. A Work Area is a Regulated Area as defined by 29 CFR 1926.

VVV. Work Site: The space available to the Contractor for performance of the asbestos work, either exclusively or in conjunction with other contractors performing work as part of the project.

1.09 ABBREVIATIONS

A. ACM: Asbestos Containing Materials.

B. ADEC: Alaska Department of Environmental Conservation.


D. CDC: Center for Disease Control.

E. CFM: Cubic Feet Per Minute.

G. EPA: Environmental Protection Agency.
H. f/cc: Fiber Per Cubic Centimeter.
I. HEPA: High Efficiency Particulate Air.
K. MSHA: Mine Safety and Health Administration.
M. NIOSH: National Institute for Occupational Safety and Health.
N. OSHA: Occupational Safety and Health Administration.
O. PACM: Presumes Asbestos Containing Material.
P. PEL: Permissible Exposure Limit.
Q. RACM: Regulated Asbestos Containing Material.
R. TLV: Threshold Limit Value.
S. TSI: Thermal Insulation System.
T. TWA: Time Weighted Average.

1.10 PERMISSIBLE EXPOSURE LIMIT (PELS)

A. Time-weighted Average Limit (TWA). The Contractor shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight-(8) hour time-weighted average (TWA).

B. Excursion Limit. The Contractor shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.

1.11 MEDICAL REQUIREMENTS

A. General:

1. Shall establish medical surveillance programs that cover all employees who: spend 30 or more days per year doing Class I, II or III work, are exposed at or above the PEL and wear negative-pressure respirators in accordance with 29 CFR 1926.1101.
2. Examination by a Physician.
   a. Must be performed by a licensed physician at no cost to employee.
   b. Anyone other than a licensed physician who administers the pulmonary function test shall complete a training course in spirometry.
   c. Medical examinations.

3. Examinations shall be conducted:
   a. Prior to beginning of work with a negative-pressure respirator.
   b. Within 10 working days following the 30th day of exposure in one year.
   c. Annually after initial exam.
   d. If examining physician determines that more frequent examinations are needed, Contractor shall provide for such examinations.
   e. No examination is required if employee records show that last examination was within the past 1-year period.
   f. The Contractor shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

B. Medical examinations shall include:
   1. Medical and work history with special emphasis on pulmonary, cardiovascular and gastrointestinal systems.
   2. On initial exam, a standardized questionnaire.
   3. Physical examination directed at the pulmonary and gastrointestinal systems and a pulmonary function test.
   4. Any other examinations or tests deemed necessary by the physician.

C. Physician's written opinion:
   1. Physician shall provide the Contractor with a written opinion containing the following information:
      a. Any medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos.
      b. Any recommended limitations on the employee or on the use of personal protective equipment.
      c. Statement that the employee has been informed by the physician of the results of the examination and of any medical conditions that may result from asbestos exposure.

2. Contractor shall provide a copy of the physician's written opinion to the employee within 30 days of its receipt.

D. Record keeping:
1. Exposure measurements.
   a. Contractor shall keep an accurate record of all measurements taken to monitor employee exposure. These records shall be maintained for at least 30 years.
      1) The record shall include at least the following information:
      2) The date of measurement.
      3) The operation involving exposure to asbestos which is being monitored.
      4) Sampling and analytical methods used and evidence of their accuracy.
      5) Number, duration, and results of samples taken.
      6) Type of respiratory protective devices worn, if any.
      7) Name, social security number and exposure of the employees whose exposure are represented.

2. Medical surveillance.
   a. Contractor shall maintain an accurate record of each employee's medical surveillance for the duration of employment plus 30 years.

3. Availability of records.
   a. Upon written request, the Contractor shall make all records available to OSHA, Owner.
   b. Exposure records shall be made available to affected employees, former employees, and OSHA, Owner.
   c. Medical records shall be made available to the affected employees and anyone with written consent from the employee, and OSHA, Owner.

4. Training records shall be maintained for 1 year beyond the last date of employment.
5. When Contractor ceases to do business and there is no successor to receive and retain the records for the prescribed period, the Contractor shall notify OSHA at least 90 days prior to disposal, and, upon request, transmit them to OSHA.

1.12 TRAINING AND CERTIFICATION

A. All employees of the Contractor, including supervisors and foremen, who are required to remove, encapsulate, or enclose asbestos or to transport or dispose shall be trained and certified asbestos workers as required by the State of Alaska Department of Labor in accordance with 8 AAC 61.600-790. All workers shall have had asbestos training in accordance with 29 CFR 1926.1101 (k) within the last 12 months.

B. Contractor shall maintain complete and accurate records of training for each employee. Records shall be maintained for a minimum of 1 year beyond the last date of employment.
1.13 PERSONNEL PROTECTION

A. Work Site Hazards: Contractor shall be responsible for providing personnel protection for all work site hazards. Subcontractor employees who may be exposed to asbestos fibers shall be provided the same personnel protection as Contractor's employees. Contractor is specifically advised of the following potential hazards:

1. Asbestos dust.
2. Lead.
3. Electric shock from standing water and high moisture levels.
5. Slipping, tripping and falling from scaffolds or ladders.

B. Respiratory Protection:

1. Contractor shall provide respirators, and ensure that they are used, under the following circumstances.

   a. All Class I work.
   b. Class II work where the ACM is not removed in a substantially intact state.
   c. Class II and III work performed without using wet methods.
   d. When employees are exposed above the PEL/EL.
2. Where respirators are required under this section, the Contractor shall select and provide, at no cost to the employee, the appropriate respirator. The Contractor shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

3. Disposable and/or paper-type respirators are not acceptable.

4. Minimum required level of respirator protection shall be in accordance with Table A of 29 CFR 1926.110.

5. Contractor's employee shall be allowed to choose powered air purifying respirator instead of dual HEPA cartridge differential pressure respirator at any time.


8. Should other atmospheric contaminants be present, all applicable safety precautions shall be taken. Adequate work area ventilation shall be provided. At no time shall the threshold limit value (TLV) for the substance exceed that TLV which is listed in the current edition of 29 CFR 1910.1000.

C. Respiratory Program:

1. Contractor shall institute a respiratory program whenever respirators are used.
2. Employees are permitted to change filters whenever an increase in breathing resistance is detected.
3. Employees are permitted to leave work areas to wash their faces and respirator face pieces whenever necessary to prevent skin irritation.
4. No employee shall be assigned to tasks requiring the use of respirators if, based upon his or her most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator.

D. Respirator Fit Testing:

1. The Contractor shall ensure that the respirator issued to the employee exhibits the least possible face piece leakage and that the respirator is fitted properly.
2. Either quantitative or qualitative face fit tests are required at the time of initial fitting and at least annually thereafter for each employee wearing a negative-pressure respirator. The qualitative fit tests may only be used for fitting half-mask respirators or full-face PAPRs where they are worn at levels at which half-face air purifying respirators are permitted.

E. Protective Clothing:
1. The Contractor shall provide at no cost to the employee and ensure that the employee uses appropriate protective work clothing and equipment such as, but not limited to coveralls or similar full-body work clothing; gloves, head coverings, and foot coverings; and face shields, vented goggles, or other appropriate protective equipment.

2. Laundering shall be done by an informed individual in a manner that prevents the release of fibers in excess of the PEL/EL.

3. Contaminated clothing shall be transported in sealed impermeable bags or containers and be labeled appropriately.

4. Inspection of protective clothing.
   a. Competent person shall examine work suits at least once per work shift.
   b. Rips and tears shall be immediately mended or the work suit shall be immediately replaced.

5. The Contractor shall ensure that employees remove work clothing contaminated with asbestos only in change rooms.

6. The Contractor shall prohibit the removal of asbestos from protective clothing and equipment by blowing or shaking.

7. The Contractor shall inform any person who launders or cleans protective clothing or equipment contaminated with asbestos of the potentially harmful effects of exposure to asbestos.

F. Hygiene facilities and practices:

1. Shall be in compliance with Federal Regulations.

2. Lunchrooms:
   a. The Contractor shall provide lunchroom facilities for employees who work in areas where their airborne exposure is above the TWA and/or excursion limit.
   b. The Contractor shall ensure that lunchroom facilities have a positive pressure, filtered air supply, and are readily accessible to employees.
   c. The Contractor shall ensure that employees who work in areas where their airborne exposure is above the PEL and/or excursion limit wash their hands and faces prior to eating, drinking or smoking.
   d. The Contractor shall ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface asbestos fibers have been removed from the clothing or equipment by vacuuming or other method that removes dust without causing the asbestos to become airborne.
   e. No smoking in work areas.

3. Protection and procedures:
a. Workers and authorized visitors shall, prior to entering or re-entering a containment area, remove all clothing in the Clean Room and put on an appropriate respirator, clean protective clothing and footwear before entering the Equipment Room or a containment area. Workers intending to rewear contaminated protective clothing stored in the Equipment Room shall enter the Equipment Room wearing only respirators.

b. Decontamination Entry Procedures:
   
   1) Enter through the clean room.
   2) Remove and deposit street clothing in lockers.
   3) Put on protective clothing and respirator before leaving clean room.
   4) Before entering regulated area, employees must pass through equipment room.

c. Decontamination Exit Procedures:
   
   1) Before leaving regulated area, remove all gross contamination and debris from protective clothing.
   2) Remove protective clothing in the equipment room.
   3) Respirators shall not be removed in the equipment room.
   4) Employees shall shower prior to entering the clean room.
   5) After showering, employees shall enter the clean room before changing into street clothes.

d. Workers removing waste containers from the Equipment Decontamination Station shall enter the Holding Area from outside wearing, at a minimum, power air purifying (PAPR) respirators and clean disposable full body suit. No worker shall use this station as a means to leave or enter the containment area except in emergencies.

e. Workers shall be fully protected with required respirators and protective clothing from the time of the first disturbance of asbestos-containing or contaminated materials until final cleanup is competed.

f. Provide and post, in the Equipment Room and in the Clean Room, the protection, decontamination and work procedures to be followed by workers, as approved by OWNER.

a. Warning Signs.

1) Warning signs shall be provided and displayed at each regulated area. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

2) Warning signs shall read "DANGER, ASBESTOS, CANCER AND LUNG DISEASE HAZARD, AUTHORIZED PERSONNEL ONLY, RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA".

b. Labels.

1) Warning labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers.

2) The labels shall comply with the requirements of 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard.

3) Labels shall read "DANGER, CONTAINS ASBESTOS FIBERS, AVOID CREATING DUST, CANCER AND LUNG DISEASE HAZARD".

4) Labels shall contain a warning statement against breathing asbestos fibers.

5) Labels shall be placed where they will be clearly noticed by employees, appropriately placed signs may be posted instead of labels as long as they contain all the necessary labeling information.

c. Comprehend.

1) The Contractor shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

1.14 COMPETENT PERSON

A. Contractor shall designate a competent person.

B. Competent person shall conduct frequent and regular inspections of job sites, material and equipment.

C. Competent person shall perform on-site inspections at least once during each work shift and at any time at Owner request.

D. Class I and II work sites requires a competent person to perform or supervise the following duties.
1. Set up the regulated area, enclosure or other containment.
2. Ensure the integrity of the enclosure or containment.
3. Set up procedures to control entry to, and exit from, the enclosure and/or area.
4. Supervise all employee exposure monitoring.
5. Ensure that employees wear protective clothing and respirators as required.
6. Ensure through on-site supervision, that employees set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements.
7. Ensure that employees use the hygiene facilities and observe the decontamination procedures.
8. Ensure that through on-site inspection, engineering controls are functioning properly and employees are using proper work practices.
9. Ensure that notification requirements are met.

E. Training for the competent person.

1. Training shall be equivalent to EPA asbestos supervisor training.

PART 2 - PRODUCTS

2.01 PREPARATION MATERIALS


B. Spray Adhesive: No. 75 Spray Adhesive manufactured by 3M Company or approved equal.

C. Tape: Capable of sealing joints of adjacent plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including wetting by amended water.

D. Framing: Metal: Sufficient size and strength to withstand all imposed loads.

E. Sheathing: Standard gypsum sheathing.

F. Barrier Tape: Yellow with warning notice.

G. Wood: Treated with flame-retardant coating in accordance with nationally recognized standards.

2.02 REMOVAL MATERIALS AND EQUIPMENT

A. Surfactant (Wetting Agent): Shall consist of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or approved equal, and shall be mixed with water to provide "amended water" with a concentration of one ounce of surfactant to 5 gallons of water, or as recommended by the manufacturer. Soap is not an approved surfactant and shall not be used as such.

B. Impermeable Containers: Containers must be both air and water-tight. The containers shall be labeled in accordance with OSHA Regulation 29 CFR 1910.1001.

C. Signs and Labels: Section 1.15.

D. HEPA Vacuum: Specially designed vacuum unit fitted with a HEPA filter. Wiring must include a 3 wire system.

2.03 ENCAPSULANTS

A. Encapsulation materials, including removal encapsulants, shall meet the following requirements and prior to application the encapsulants must be approved by Owner.

B. Encapsulants shall have a flame spread value of 25 or less and a smoke developed value of 50 or less.

C. Encapsulants shall be sprayed using airless spray equipment. Nozzle pressure should be adjustable within the 400 to 1500 psi range. Tip size and nozzle pressure shall be based on manufacturer's recommendations.

D. Encapsulants shall solidify on all friable asbestos surfaces.

E. Encapsulant shall be investigated by the Contractor in order to determine whether they are compatible with other materials to be used on the project.

2.04 DISPOSAL CONTAINERS

A. Containers for transport and disposal of ACM and asbestos contaminated waste shall be both air and water tight and shall consist of plastic bags or drums as follows:

B. Plastic Bags: Minimum doubled 6 mil thick plastic bags capable of being sealed.

C. Drums: 55-gallon capacity metal or fiber drums with tightly fitting lids.

PART 3 - EXECUTION

3.01 REGULATED AREAS

A. Establishment: The Contractor shall establish regulated areas.
B. Demarcation: Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to asbestos.

C. Access: Access to regulated areas shall be limited to authorized persons or to persons authorized by the Act or regulations issued pursuant thereto.

D. Provision of respirators: Each person entering a regulated area shall be supplied with and required to use a respirator.

E. Prohibited activities: The Contractor shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated areas.

3.02 METHODS OF COMPLIANCE

A. The Contractor shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and/or excursion limit.

B. Local exhaust ventilation: Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with good practices such as those found in the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems. ANSI Z9 2-1979.

C. Wet methods: Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers.

D. Provide a negative air environment for asbestos removal work as required by state and federal regulations

3.03 CONTAINMENT AREA PRECLEANING

A. Post asbestos hazard signs at all doors and other access points.

B. Clean all surfaces by HEPA Vacuuming and use wet cleaning methods on all surfaces that will not be damaged by water. Do not raise dust. Dry sweeping and vacuuming without HEPA filtered equipment shall not be allowed.

3.04 SEALING OF CONTAINMENT AREA

A. Seal off all openings to the work area with 6 mil flame resistant polyethylene sheeting and tape. Work shall include:

B. Seal all penetrations in the containment area.

C. Seal electrical outlets and switches with tape.
D. Seal all locations where asbestos fibers could become trapped. This includes, but is not limited to, seams, joints, cracks, spaces, holes and gaps.

3.05 ENCLOSURE AND ISOLATION OF CONTAINMENT AREA

A. Contractor may use 6-mil flame resistant polyethylene sheeting with spray adhesive, nailing strips and tape as needed to secure and seal flame resistant polyethylene sheeting in place. Contractor may choose to apply spray flame resistant polyethylene to provide the barriers described.

B. Cover all remaining noncleanable surfaces with two layers of 6-mil flame resistant polyethylene. Use framing, as required, for protection.

C. Spray polyethylene may be used instead of polyethylene sheets and tape, with approval of Owner.

3.06 BARRIERS AND ENTRY POINTS TO CONTAINMENT AREA

A. For separate parts of the buildings required to remain in use or not requiring removal from parts of the building that will undergo asbestos removal, use airtight barriers constructed as follows:

1. Build a suitable wood or metal framing.
2. On containment area side, cover framing with two layers of 6-mil flame resistant polyethylene sheeting sealed with tape. On nonwork area side, cover with at least one layer of 6-mil flame resistant polyethylene sheeting and seal with tape.
3. Provide ASBESTOS HAZARD signs on nonwork area side of barrier.

B. Entry Points: This section is applicable to all entry points shown on the plans.

1. All entry points to the containment area shall be clearly marked with asbestos warning signs. Entry points must not be located at times when needed as a means of building egress as determined by Owner.
2. Keep emergency exits from the containment areas clear of debris and equipment. Establish alternative exits satisfactory to Owner and fire protection authority. Arrows pointing to the Personnel Decontamination Station and emergency exits shall be provided in every room in a place easily seen. They shall be at least 1-foot long and 3-inch tall.

3.07 DECONTAMINATION STATIONS

A. In all cases, normal access between contaminated and uncontaminated rooms or areas shall be through personnel or equipment decontamination stations. Contractor shall provide both equipment and personnel decontamination stations.

1. Contractor may use any of the following for decontamination enclosures, provided the enclosure system comply with EPA and OSHA requirements:
2. Build suitable framing and line with 6 mil flame resistant polyethylene sheeting, double sealed with tape at all lap joints in the plastic. Floor shall be covered with three (3) layers of flame resistant polyethylene sheeting.

3. Use existing rooms connected with framed-in tunnels if necessary, and lined with 6-mil flame resistant polyethylene sheeting. Use double sealed tape at all lap joints in flame resistant polyethylene. Use of existing rooms and areas within the building shall be coordinated with Owner.

B. Use portable decontamination units acceptable to EPA and OSHA, connected to the work area with framed-in tunnels if necessary, and lined with 6 mil flame resistant polyethylene sheeting, double tape sealed at all lap joints in the plastic.

1. The following items shall be provided at decontamination stations:
2. Provide hot and cold water to the Personal Decontamination Shower.
3. Provide tempered water to the Equipment Decontamination Washdown Station.
4. Provide wastewater filtration for the shower and wash-down stations, and any other source of contaminated water, capable of filtration to 5.0 microns or less.
5. Provide adequate power, lighting and heat to decontamination areas.

C. Access: In all cases access between contaminated and uncontaminated rooms or area shall be through a decontamination station.

D. Personnel Decontamination Station: Provide or construct a Personnel Decontamination Station contiguous to the work area.

E. Equipment Decontamination Station: Provide or construct an Equipment Decontamination Station contiguous to the work area.

F. The tempered water to the Equipment Decontamination Station shall be connected to a 3/4-inch diameter hose bib. Sufficient 3/4-inch diameter hose and spray nozzle shall be provided to adequately decontaminate equipment.

3.08 ELECTRICAL POWER IN CONTAINMENT AREA

A. All electric lights, receptacles, and equipment in the containment area not protected by approved GFI devices shall be deactivated before any removal activities involving water or water based liquids begin.

B. Temporary electrical power for lights, receptacles and equipment in the containment and decontamination areas shall be provided only through circuits protected by approved GFI devices.

C. Contractor shall provide all required GFI devices.
3.09 FIRE PROTECTION IN CONTAINMENT AREA

A. Contractor shall provide an approved temporary fire protection system in the containment area.

B. Contractor shall have a minimum of four ten-pound, dry chemical fire extinguisher in containment area equally spaced. Carbon dioxide fire extinguishers shall not be used. Extinguisher location shall be plainly marked, in accordance with NFPA-10, "Portable Fire Extinguisher".

C. Contractor shall establish an approved system for alerting workers of a fire or another problem that may require evacuation of the work area, such as a compressed-air horn. All persons entering the work area should be familiar with the evacuation alarm signal and primary and secondary exits.

D. Contractor shall provide a written emergency action plan and fire prevention plan that meets OSHA requirements as detailed in 29 CFR 1910.38. and National Fire Protection Association NFPA-10. The essential items of the plans shall include:

1. The manner in which emergencies are announced.
2. Emergency escape procedures and emergency escape routes.
3. Procedures for employees who must remain to operate critical equipment which may take time to shut down.
4. Procedures to account for all employees after evacuation.
5. Rescue and medical duties.
6. Names and/or job titles of people to be contacted for additional information.
7. A list of the major workplace fire hazards.

3.10 ACM REMOVAL IN CONTAINMENT AREA

A. Maintenance of Containment Area:

1. Ensure that barriers and flame resistant polyethylene linings are effectively sealed and taped. Repaired damaged barriers and remedy defects immediately upon discovery.
2. Visually inspect enclosures at the beginning and end of each work period, and at a minimum of every four (4) hours during work operation.

B. Cleaning of Containment Area:

1. Maintain the work area free of accumulated asbestos-containing waste materials at all times. Keep waste materials wet until enclosed in sealed plastic bags.
2. Upon completion of gross asbestos removal work within the area, remove visible accumulation of asbestos material and debris. HEPA vacuum and wet clean all surfaces within the work area. Keep materials wet until enclosed in sealed plastic bags.
3. Clean all surfaces from which asbestos was removed with a mixture of four parts clean water and one part ethylene glycol, or other substance approved by OWNER.

4. Sealed plastic bags and/or drums and all equipment used in the work area shall be included in the cleanup and shall be moved at an appropriate time in the cleaning sequence from work areas via the Equipment Decontamination Station. All equipment and disposal containers shall be thoroughly cleaned before leaving the decontamination station.

5. In no case shall any barrier of other components of a barrier system or enclosure be removed without the authorization of OWNER.

6. When Contractor has the area cleaned to the standards required, he/she will call for a preclearance inspection.

C. Prohibitions:

1. High-speed abrasive disc saws not equipped with ventilator or enclosures without HEPA filtered exhaust air.

2. Compressed air, unless used in conjunction with an enclosed ventilation system designed to capture the dust cloud created.

3. Dry sweeping, shoveling or other dry clean-up methods.

4. Employee rotation as a means of reducing employee exposure.

3.11 WASTE LOADOUT AND DISPOSAL

A. This Section applies to the disposal of both friable and nonfriable asbestos from the containment area and work area.

B. Filters: The differential pressure equipment, HEPA vacuum equipment, respirators and wastewater filter equipment contain asbestos-contaminated filters. All filters shall be handled and disposed of as ACM waste.

C. ACM Waste: As the work progresses, remove sealed and labeled containers of ACM waste and dispose of such containers at an authorized solid waste disposal site in accordance with Title 40 CFR Part 257, Title 40 CFR Part 241 and the requirements of the disposal site.

D. Double Contained: All ACM waste prior to passing through the Equipment Decontamination Station or being removed from work area shall be double contained in clean, sound, marked, plastic bags, drums or a combination of bags and drums.

E. Waste containers shall not be stored outside the work area other than in a locked storage receptacle. If waste containers must be removed through areas of the work site occupied or accessible to other craftsmen or building occupants, the time of such movement shall be coordinated with Owner.
UNIVERSITY OF ALASKA FAIRBANKS
UAF POWER PLANT SUPERHEATER TUBING
REPLACEMENT-BOILERS #1 & #2

F. If a container should become damaged during disposal handling, the damage shall be mended with tape and the damaged container shall be placed within another 6-mil flame resistant polyethylene bag or drum, properly marked and sealed.

G. Enclosed Vehicle: Provide an enclosed vehicle constructed of an air-tight, impermeable, permanent wood or metal compartment to contain asbestos containing material, prevent the release of asbestos fibers into the air and to transport ACM waste from the work site to an approved disposal site. The bed shall be lined with 2 layers of 6-mil flame resistant polyethylene sheeting and the walls and ceiling lined with 1 layer.

H. Disposal: Sealed plastic bags, drums or enclosed units shall be placed, not dropped or thrown, in the burial site. Drums that contained damaged bags shall not be reused.

I. Protective Clothing and Equipment: Personnel shall wear protective clothing and have appropriate respirators available while handling the disposal containers at the work site and at the disposal site. HEPA vacuums shall be present and readily available at the work site when disposal containers are removed form the site.

J. Coordination: Coordinate the disposal operation with the asbestos disposal site authority and ensure ACM waste is protected until final disposal.

K. Documentation: All asbestos-containing waste materials shall be inventoried and documented on the Waste Shipment Record. Contractor shall confirm and sign the inventory. Landfill representative receiving waste shall also sign for receipt of these materials. Two copies of each receipt shall be furnished to Owner one week after disposal.

3.12 MINI-ENCLOSURE, IF NECESSARY

A. Construct a mini-enclosure and attached change room approximately 3 feet square by applying 2 layers of 6-mil plastic to a wood-framed or plastic pipe structure. Construct mini-enclosure of a size that is slightly larger than the work area and that allows the trained person to access the material by ladder if necessary. The change room or "airlock" serves as entry/exit to work area, an equipment room, and additional security in the event of increased fiber release. If applicable, extend mini-enclosure from floor to dropped ceiling and affix to sheetrock or suspended grid.

B. Operate a HEPA vacuum or fan unit in the mini-enclosure at all times. The vacuum may sit outside of enclosure and hose be extended into work area.

C. Thoroughly wet the area to be removed with amended water. Carefully remove and place material in 6-mil plastic bags.

D. HEPA vacuum ladder, inside surfaces of mini-enclosure, and outer layer of worker's Tyvek.
E. Use airlock for personal decontamination procedures. Place all waste, contaminated clothing, rags or tools, etc., in a 6-mil plastic bag. Thoroughly clean non-disposable tools. Wet pipe or HEPA vacuum outside of bag and place in second 6-mil plastic bag that bears proper label.

F. Before use, the mini-enclosure shall be inspected for leaks and smoke-tested to detect breaches, and any breaches sealed.

G. Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

H. During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

I. Dismantle the airlock and mini-enclosure. Dismantled plastic from airlock and mini-enclosure should be double-wrapped in 6-mil plastic and labeled. As last step, remove inner layer of Tyvek and double-bag. Remove all waste materials to temporary holding area.

3.13 WORK SITE CLEANING

A. Periodic Cleaning: Execute periodic cleaning to keep the work site and adjacent properties free from accumulations of waste materials, rubbish and debris resulting from work under this Contract.

B. On-site Container: Provide on-site containers for the collection of non-ACM waste, debris and rubbish.

C. Disposal: Removal non-ACM waste, debris and rubbish from the work site and dispose of at a legal disposal area approved by Owner.

END OF SECTION