

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
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2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. <i>(If applicable)</i>
6. ISSUED BY	CODE	7. ADMINISTERED BY <i>(If other than Item 6)</i>	CODE

8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i>	(X)	9A. AMENDMENT OF SOLICIATION NO.
		9B. DATED <i>(SEE ITEM 11)</i>
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED <i>(SEE ITEM 11)</i>
CODE		FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES <i>(such as changes in paying office, appropriation date, etc.)</i> SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER <i>(Specify type of modification and authority)</i>

E. IMPORTANT: Contractor is not, is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER <i>(Type or print)</i>	16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>
15B. CONTRACTOR/OFFEROR	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>	<i>(Signature of Contracting Officer)</i>

Item 14. Continued.

CHANGES TO THE SPECIFICATIONS

Replacement Sections - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0005 TO SOLICITATION NO. DACA63-03-B-0002:"

01355E	ENVIRONMENTAL PROTECTION
01421	BASIC STORM WATER POLLUTION PREVENTION PLAN
02051	REMOVAL, RECYCLING AND DISPOSAL OF REGULATED MATERIALS
02090	LEAD-BASED PAINT (LBP) ABATEMENT AND DISPOSAL
05410	COLD-FORMED STEEL STRUCTURAL FRAMING*
13121	PREENGINEERED METAL BUILDING FRAME
13280	ASBESTOS ABATEMENT

*Change is to paragraph 2.2

END OF AMENDMENT

SECTION 01355

ENVIRONMENTAL PROTECTION
AM #0005

PART 1 GENERAL

1.1 REFERENCES

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

U.S. AIR FORCE (USAF)

AFI 32-1053 Pest Management Program

U.S. ARMY (DA)

AR 200-5 Pest Management

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

33 CFR 328 Definitions

40 CFR 68 Chemical Accident Prevention Provisions

40 CFR 152 - 186 Pesticide Programs

40 CFR 260 Hazardous Waste Management System: General

40 CFR 261 Identification and Listing of Hazardous Waste

40 CFR 262 Standards Applicable to Generators of Hazardous Waste

40 CFR 279 Standards for the Management of Used Oil

40 CFR 302 Designation, Reportable Quantities, and Notification

40 CFR 355 Emergency Planning and Notification

49 CFR 171 - 178 Hazardous Materials Regulations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (Latest Version) U.S. Army Corps on Engineers Safety and Health Requirements Manual

WETLAND MANUAL Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1

1.2 DEFINITIONS

1.2.1 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 Contractor Generated Hazardous Waste

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and excess pesticides, and contaminated pesticide equipment rinse water.

1.2.4 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" shall occur. Land Application shall be in compliance with all applicable Federal, State, and local laws and regulations.

1.2.5 Pesticide

Pesticide is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant.

1.2.6 Pests

The term "pests" means arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

1.2.7 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters

that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.8 Waters of the United States

All waters which are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.9 Wetlands

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. Official determination of whether or not an area is classified as a wetland must be done in accordance with WETLAND MANUAL.

1.3 GENERAL REQUIREMENTS

The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations.

1.4 SUBCONTRACTORS

The Contractor shall ensure compliance with this section by subcontractors.

1.5 PAYMENT

No separate payment will be made for work covered under this section. The Contractor shall be responsible for obtaining and payment of fees associated with environmental permits, application, and/or notices for items such as paint booths, welding, brake and clutch service, oil water separator, fuel storage tank, on-site septic system, storm water construction permits, utilities, digging, Texas Department of Health (TDH) Demolition/Renovation Notification Form, and occupational safety and health..

In addition, the Contractor shall be responsible for all licenses and permits required for workers, sub-contractors, and transporters. All costs associated with this section shall be included in the contract price. The Contractor shall be responsible for payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G,

The environmental protection plan.

Storm Water Pollution Prevention Plan;

Submit a copy of the Contractor's Pollution Prevention Plan (SWPPP), including both narrative and the EROSION AND SEDIMENT CONTROL drawings, developed in accordance with PART 1 paragraph "Storm Water Pollution Prevention Plan" and the Environmental Protection Agency's storm water discharge regulations, and the Section 01421 BASIC STORM WATER POLLUTION PREVENTION PLAN.

SD-02 Shop Drawings

Hazardous Substance Reporting;

The Contractor shall submit a copy of the attached Emergency Planning and Community Right to Know notification and other reports to the Contracting Officer and to the Facility Emergency Coordinator (FEC) as specified in PART 3 paragraph EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW REQUIREMENTS.

1.7 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit an Environmental Protection Plan for review and approval by the Contracting Officer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, the Contractor shall meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.

1.7.1 Compliance

No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

1.7.2 Contents

The environmental protection plan shall include, but shall not be limited to, the following:

- a. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.
- b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.
- c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
- d. Description of the Contractor's environmental protection personnel training program.
- e. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan. Include name(s) and qualifications of person(s) responsible for monitoring compliance of erosion and sediment control for the duration of the construction until final acceptance by the Contracting Officer representative (COR).
- f. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.
- g. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.
- h. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.
- i. Drawing showing the location of borrow areas.
- j. The Spill Control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The Spill Control Plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:
 1. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer and Facility Fire Department, Facility Response Personnel, and Facility Environmental Office in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and

telephone numbers.

2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.

3. Training requirements for Contractor's personnel and methods of accomplishing the training.

4. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

5. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

6. The methods and procedures to be used for expeditious contaminant cleanup.

k. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris. The plan shall include schedules for disposal. The Contractor shall identify any subcontractors responsible for the transportation and disposal of solid waste. Licenses or permits shall be submitted for solid waste disposal sites that are not a commercial operating facility. Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during the construction. The Contractor shall attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. The report shall be submitted on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted and shall be for the previous quarter (e.g. the first working day of January, April, July, and October). The report shall indicate the total amount of waste generated and total amount of waste diverted in cubic yards or tons along with the percent that was diverted.

l. A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. The plan shall detail the Contractor's actions to comply with and to participate in Federal, State, Regional, and local government sponsored recycling programs to reduce the volume of solid waste at the source.

m. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site. Plan shall identify air permits required for a new facility or modification of an existing facility which may emit air contaminants. Permits shall be obtained in accordance with applicable Federal and state regulations for the user. (For Texas: reference Texas Natural Resource Conservation Commission (TNRCC) Rule 116.111 or exempt facility to 30 TAC Chapter 106.) Applications for permits, notifications, and registrations shall be reviewed by the authorized personnel of the permit facility. The Contractor, as owner and operator of construction equipment, shall identify if an Emission Reduction Plan was submitted to TNRCC for exemption of restrictions.

n. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the

intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of these materials. In accordance with EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time shall be included in the contaminant prevention plan. As new hazardous materials are brought on site or removed from the site, the plan shall be updated.

o. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, the plan shall include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, the plan shall include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented. If surface discharge will be the method of disposal, a copy of the permit and associated documents shall be included as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

p. A historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on the project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in the area are discovered during construction. The plan shall include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Contracting Officer.

q. A pesticide treatment plan shall be included and updated, as information becomes available. The plan shall include: sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (i.e. pounds of active ingredient applied), equipment used for application and calibration of equipment. The Contractor is responsible for Federal, State, Regional and Local pest management record keeping and reporting requirements as well as any additional specific requirements.

1.7.3 Appendix

Copies of all environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents shall be attached, as an appendix, to the Environmental Protection Plan. [AM#5] If fuel storage tanks are required in this contract, Contractor shall provide current license of tank installer, and pre-construction registration.

1.8 PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.9 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings, plans, and specifications which may have an environmental impact will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.10 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State, or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

1.10.1 Demolition

The Contractor shall notify EPA (per 40 CRF 61 Subpart M) or the appropriate regulatory agency, or in Texas, the Texas Department of Health, in writing, at least 10 working days prior to commencement of demolition work. The Contractor shall prepare the "Demolition/Renovation Notification Form" and obtain signature of an authorized person from the building (to be demolished) owner's environmental office. The Contractor shall allow at least 10 working days for obtaining signature from the authorized person. The Contractor is responsible to mail the signed notification form by certified mail with return receipt requested. A copy of the signed notification and a copy of the return receipt shall be provided to the Contracting Officer Representative (COR) and the authorized person. In Texas, in compliance the Texas Asbestos Hazard Protection Rules (TAHPA), Section 295.61, this notification process is necessary prior to demolition of building structures with or without Asbestos Containing Material. The notification form is available on

<http://www.tdh.texas.gov/beh/asbestos/1298newform.doc>

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

The Contractor shall be responsible for obtaining and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations.

3.2 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.2.1 Work Area Limits

Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.2.2 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.2.3 Erosion and Sediment Controls

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs). as specified in Section 01356 STORM WATER POLLUTION PREVENTION MEASURES. BMPs may

include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The Contractor's best management practices shall also be in accordance with the Storm Water Pollution Prevention Plan (SWPPP) which may be reviewed at the Fort Hood Environmental Office..

3.2.4 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.3 WATER RESOURCES

The Contractor shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the Contractor. For construction activities immediately adjacent to impaired surface waters, the Contractor shall be capable of quantifying sediment or pollutant loading to that surface water when required by State or Federally issued Clean Water Act permits.

3.3.1 Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating water pollution control standards of the Federal, State, and local governments.

3.3.2 Storm Water Pollution Prevention Plan

For project sites greater than 1 acre in size (including all temporary access roads, trailer sites, storage areas, and any other disturbed area associated with the project), the Contractor shall develop a Storm Water Pollution Prevention Plan (SWPPP) and complete a Notice of Intent (NOI) for Storm Water Discharges as required for an NPDES General Permit administered by the Environmental Protection Agency (EPA). The Contractor's detailed SWPPP shall be developed within the guidelines of the basic SWPPP provided in Section 01421 BASIC STORM WATER POLLUTION PREVENTION PLAN. The Contractor shall submit the NOI to Texas Commission on Environmental Quality (TCEQ) not later than 48 hours prior to start of work. A dated copy of the Contractor's SWPPP and NOI shall be submitted to the Contracting Officer prior to commencement of construction activities. In addition, the Contractor shall post a copy of the Corps' NOI, the Contractor's NOI, and a brief project description on the project bulletin board. For the project description, the Contractor may use Section 1.4 PROJECT DESCRIPTION of the SWPPP or write a brief description.

3.4 AIR RESOURCES

Equipment operation, activities, or processes performed by the Contractor shall be in accordance with all Federal and State air emission and

performance laws and standards.

3.4.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. The Contractor shall comply with all State and local visibility regulations.

3.4.1.1 Dust Control

See Section 01561 DUST CONTROL for additional requirements.

3.4.2 Odors

Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.4.3 Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the State of Texas rules.

3.4.4 Burning

Burning shall be prohibited on the Government premises.

3.5 SOLID WASTE AND CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.5.1 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport material and solid waste which is not accepted at the Fort Hood landfill site off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill shall be the minimum acceptable off-site solid waste disposal option. The Contractor

shall verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Acceptable wastematerials shall be hauled to the Government landfill site designated by the Contracting Officer. The Contractor shall comply with site procedures and Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.5.2 Chemicals and Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 6 inches of the top. Wastes shall be classified, managed, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

3.5.3 Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable State and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. The Contractor shall, at a minimum, manage and store hazardous waste in compliance with 40 CFR 262 and shall manage and store hazardous waste in accordance with the Installation hazardous waste management plan. The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. The Contractor shall segregate hazardous waste from other materials and wastes, shall protect it from the weather by placing it in a safe covered location, and shall take precautionary measures such as berming or other appropriate measures against accidental spillage. The Contractor shall be responsible for storage, describing, packaging, labeling, marking, and placarding of hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, State, and local laws and regulations. The Contractor shall transport Contractor generated hazardous waste off Government property within 60 days in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. The Contractor shall dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer and the Facility Environmental Office. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility. The disposition of Contractor generated hazardous waste and excess hazardous materials are the Contractor's responsibility. The Contractor shall coordinate the disposition of hazardous waste with the Facility's Hazardous Waste Manager and the Contracting Officer.

3.5.4 Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants and oil shall be managed and stored in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. Storage of fuel on the project site shall be accordance with all Federal, State, and local laws and regulations.

3.5.5 Waste Water

Disposal of waste water shall be as specified below.

- a. Waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. shall not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related waste water by collecting and placing it in a retention pond where suspended material can be settled out and/or the water can evaporate to separate pollutants from the water. The site for the retention pond shall be coordinated and approved with the Contracting Officer. The residue left in the pond prior to completion of the project shall be removed, tested, and disposed off-Government property in accordance with Federal, State, and local laws and regulations. The area shall be backfilled to the original grade, top-soiled and seeded/sodded.
- b. For discharge of ground water, the Contractor shall .surface discharge in accordance with the requirements of the NPDES or State STORM WATER DISCHARGES FROM CONSTRUCTION SITES permit.
- c. Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing shall be land applied in accordance with all Federal, State, and local laws and regulations for land application .

3.6 RECYCLING AND WASTE MINIMIZATION

The Contractor shall participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project.

3.7 NON-HAZARDOUS SOLID WASTE DIVERSION REPORT

The Contractor shall maintain an inventory of non-hazardous solid waste diversion and disposal of construction and demolition debris. The Contractor shall submit a report to the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that non-hazardous solid waste has been generated. The following shall be included in the report:

- a. Construction and Demolition (C&D) Debris Disposed in cubic yards or tons, as appropriate.
- b. Construction and Demolition (C&D) Debris Recycled in cubic yards or tons, as appropriate.
- c. Total C&D Debris Generated in cubic yards or tons, as appropriate.
- d. Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount) in cubic yards or tons, as appropriate.

3.8 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

If during excavation or other construction activities any previously unidentified or unanticipated historical, archaeological, and cultural

resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.9 BIOLOGICAL RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.10 INTEGRATED PEST MANAGEMENT

In order to minimize impacts to existing fauna and flora, the Contractor, through the Contracting Officer, shall coordinate with the at the earliest possible time prior to pesticide application. The Contractor shall discuss integrated pest management strategies with the IPMC and receive concurrence from the IPMC through the COR prior to the application of any pesticide associated with these specifications. Pest Management personnel shall be given the opportunity to be present at all meetings concerning treatment measures for pest or disease control and during application of the pesticide. For termiticide requirements see Section 02364 TERMITICIDE TREATMENT MEASURES FOR SUBTERRANEAN TERMITE CONTROL. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.10.1 Pesticide Delivery and Storage

Pesticides shall be delivered to the site in the original, unopened containers bearing legible labels indicating the EPA registration number and the manufacturer's registered uses. Pesticides shall be stored according to manufacturer's instructions and under lock and key when unattended.

3.10.2 Qualifications

For the application of pesticides, the Contractor shall use the services of a subcontractor whose principal business is pest control. The subcontractor shall be licensed and certified in the state where the work is to be performed.

3.10.3 Pesticide Handling Requirements

The Contractor shall formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions and shall use the clothing and personal protective equipment specified on the labeling for use during all phases of the application. Material Safety Data Sheets (MSDS) shall be available for all pesticide products.

3.10.4 Application

Pesticides shall be applied by a State Certified Pesticide Applicator in accordance with EPA label restrictions and recommendation. The Certified Applicator shall wear clothing and personal protective equipment as specified on the pesticide label. Water used for formulating shall only come from locations designated by the Contracting Officer. The Contractor shall not allow the equipment to overflow. Prior to application of pesticide, all equipment shall be inspected for leaks, clogging, wear, or damage and shall be repaired prior to being used.

3.11 PREVIOUSLY USED EQUIPMENT

The Contractor shall clean all previously used construction equipment prior to bringing it onto the project site. The Contractor shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. The Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

3.12 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.12.1 Storm Water Pollution Prevention Plan

For construction sites covered by a General Construction Permit for Storm Water Discharges, the Contractor's quality control organization shall inspect pollution control structures and activities a minimum of once every seven calendar days and within 24 hours after any storm event of greater than 13 mm (1/2 inch) until final stabilization is achieved. A sample Inspection and Maintenance Report form is included in Section 01421 BASIC STORM WATER POLLUTION PREVENTION PLAN. An inspection report for each inspection shall be retained on site by the Contractor. In addition, the Contractor shall furnish a copy of each report to the Contracting Officer. When the inspection reveals inadequacies, the pollution prevention measures in the Contractor's Pollution Prevention Plan must be revised and changes implemented within seven days after the inspection. After final stabilization has been achieved, the Contractor shall inspect the site once a month until final inspection and project acceptance by the Corps. After project acceptance, the Contractor shall halt all inspections and shall independently submit a Notice of Termination (NOT) to Texas Commission on Environmental Quality (TCEQ) for the general construction.

3.13 MILITARY MUNITIONS

In the event the Contractor discovers or uncovers military munitions as defined in 40 CFR 260, the Contractor shall immediately stop work in that area and immediately inform the Contracting Officer.

3.14 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Additional meetings shall be conducted for new personnel and when site conditions change. The training and meeting agenda shall include: methods of detecting and

avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.15 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

3.16 HAZARDOUS SUBSTANCE REPORTING

The Contractor shall comply with the requirements of Sections 301 through 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as Superfund Amendments and Reauthorization Act (SARA) Title III, as published in 40 CFR Part 355. The Contractor shall also comply with all state regulations and procedures which result from EPCRA and the hazard communication program requirements of COE EM 385-1-1. The following planning and reporting requirements involve the Contractor's reporting requirements but are not all inclusive; i.e. transport regulations are not addressed. It is the Contractor's responsibility to comply with all Federal, state, and local emergency planning and reporting requirements.

3.16.1 Definitions and Acronyms

3.16.1.1 CERCLA Hazardous Substance (CHS)

A CERCLA Hazardous Substance (CHS) is any substance listed in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, also referred to as Superfund; the list of substances also appears in Table 302.4 of 40 CFR 302.

3.16.1.2 Contracting Officer (CO)

For purposes of the Emergency Planning and Community Right-to-Know Act (EPCRA), the Contracting Officer (CO) will be considered the site owner or operator's construction representative.

3.16.1.3 Extremely Hazardous Substance (EHS)

An Extremely Hazardous Substance (EHS) is any substance listed in Appendices A and B of 40 CFR 355.

3.16.1.4 Facility Emergency Coordinator (FEC)

Facility Emergency Coordinator (FEC) is the representative of the facility Owner or Operator. The Contractor shall identify the FEC and notify the FEC as described below each time the Contractor brings a hazardous substance onto the construction site.

3.16.1.5 Hazardous Chemical Substance (HCS)

A Hazardous Chemical Substance (HCS) is any substance defined as hazardous under 29 CFR 1910.1200, with exceptions as listed in 40 CFR 370.2; generally any substance with a Material Safety Data Sheet (MSDS).

3.16.1.6 Reportable Quantity (RQ)

Reportable Quantity (RQ) is a specified minimum amount of a CHS or an EHS which, if released, must be reported immediately to the FEC. The RQ for a CHS is listed in Table 302.4 of 40 CFR 302; the RQ for an EHS is 0.45 kg (1 pound).

3.16.1.7 Threshold Planning Quantity (TPQ)

Threshold Planning Quantity (TPQ) is a specified minimum amount of an EHS which, if brought onto the construction site, must be reported within a stated time to the FEC. The TPQ for an EHS is listed in Appendices A and B of 40 CFR 355 or is the quantity published in state code, whichever is less.

3.16.2 Hazardous Substance Reporting

Whenever a HCS or an EHS substance is brought onto the construction site, the Contractor shall submit the attached reporting form to the FEC, the fire department with jurisdiction over the site, and the Contracting Officer as described below:

a. within 5 days for an EHS substance which (1) equals or exceeds its TPQ, or (2) is a solid or liquid weighing 225 kg (500 pounds) or more, whichever is less, or

b. within 10 days for a HCS substance which equals or exceeds 10,000 pounds for a solid or 55 gallons for a liquid .

3.16.3 Emergency Release Notification for Listed Hazardous Substances

The Contractor shall immediately notify the FEC and the Contracting Officer if there is a release of an EHS or a CHS substance whose quantity equals or exceeds its RQ.

3.16.3.1 Emergency Notification Information

Emergency notifications shall consist of the following information:

a. The Contractor's name, the name and telephone number of the person making the report, and the name and telephone number of the Contractor's contact person;

b. The chemical name and identification;

c. An estimate of the quantity released;

d. The location of the release;

e. The time and duration of the release;

f. The medium receiving the release (air, land, water);

g. Known acute or chronic health risks;

- h. Medical advice when necessary; and
- i. Recommended community precautions.

3.16.3.2 Follow-Up Notice

Within 5 days of the release, a written follow-up notice of the release shall be provided to the FEC and the Contracting Officer. The written notice shall update information provided in the initial report, provide detailed information on the response actions taken, and provide advice regarding medical attention necessary for exposed individuals.

3.16.3.3 State EPCRA Agency

The Contractor may call the following agency for information about EPCRA requirements:

Texas Department of Health
Hazard Communication Branch
West 49th Street
Austin, Texas 78756
Telephone Numbers: 1-800-452-2791 (inside Texas)
512-834-6603 (outside Texas)

3.17 FORMS

The EMERGENCY PLANNING COMMUNITY RIGHT TO KNOW NOTIFICATION form is attached to the end of this Section.

-- End of Section --

SECTION 01421

[AM#2] _____ BASIC STORM WATER POLLUTION PREVENTION PLAN
05/2003
AMENDMENT #0002 AMENDMENT #0005

PART 1 GENERAL

1.1 REFERENCES

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

CODE OF FEDERAL REGULATIONS (CFR)

- | | |
|------------|---|
| 40 CFR 110 | Protection of Environment: Subchapter D--WATER PROGRAMS, Discharge of Oil |
| 40 CFR 122 | EPA Administered Permit Programs: The National Pollutant Discharge Elimination System |
| 40 CFR 123 | State Program Requirements: The National Pollutant Discharge Elimination System |

FEDERAL REGISTER (FR)

- | | |
|-----------|--|
| 63 FR 128 | (6 July 1998) Water Pollution; Discharge of Pollutants (NPDES): Storm Water Discharges - Construction Activity; General Permits, 36490-36519 |
|-----------|--|

1.2 SUMMARY

[AM#2] DELETED

This Section provides a Basic Storm Water Pollution Prevention Plan (SWPPP) that meets the [National Pollutant Discharge Elimination System (NPDES) Texas Pollutant Discharge Elimination System (TPDES)][AM#2] _____ General Permit]. Both the Government and the Contractor meets the definition of operator for the construction activities. The Government has control over the construction plans and specifications. The Contractor has day-to-day control of field activities to ensure compliance with storm water construction permit. The Government or environmental project designer will prepare a Basic SWPPP. The Contractor shall prepare a field and operation specific SWPPP by meeting requirements in the [Am#5]_____ TPDES [AM#2] _____ General Permit, [AM#5] and this section [AM#5]_____. [AM#2] [AM#5] _____ A copy of the general permit for storm water discharge during construction, NOI & NOT forms, and instructions are available at the following web site: [AM#2] _____

<http://www.tnrcc.state.tx.us/permitting/waterperm/wvperm/tpdestorm.html> ([AM#2] PERMIT NO. TXR 150000 for large or small construction site)
[AM#2] _____

The SWPPP shall include both the narrative and drawings. The SWPPP narrative shall describe at least the following: description of project and construction activities, potential pollutants and sources, pollution control measures (both structural and non-structural), best management practices (BMP), schedule or sequence of major construction activities, temporary and permanent stabilization methods utilized at disturbed areas, requirements for notifications (i.e. NOI, NOT, MS4), and necessary attachments to implement SWPPP at the job site. The SWPPP site plans shall include project location vicinity map, facility layout, site features and grading, surface water flow direction, locations and types of structural storm water control devices, legend and site direction indicating north arrow, and construction detail of each structural control device. The SWPPP prepared by the Contractor shall be submitted to the Government for approval prior to submittal of NOI to the regulatory agency. There is no separate payment for work required in this section.

1.2.1 Editable Copy

An editable version of this Section is located on the Contract award CD-ROM disk. It is in the Corps of Engineers' Specsintact software format.

1.3 PROJECT IDENTIFICATION

PROJECT TITLE:[AM#2] Fixed Wing Aircraft Parking Apron Phase II

LOCATION:[AM#2] Ft. Hood, Texas [AM#2] _____

1.4 PROJECT DESCRIPTION

[AM#2] DELETED

The scope of this project includes construction of new [AM#2] buildings, storm sewer, sanitary sewer, parking lots, access drives, sidewalks, lighting, security fence, communication system, and [AM#2] Taxiway rehab. In addition, this project shall include demolition of [AM#2] existing buildings and pavement. The total project area of the new construction site includes off-site material storage, [AM#2] _____ is roughly [AM#2] _____ [AM#5] 45 acres. The total project area of the remote demolition site is roughly [AM#2] 15 acres. The total disturbed area including the new construction and remote demolition sites in this contract is roughly [AM#2] 60 acres.

1.5 Bid Options

There are [AM#2] _____ Bid Options for this project. They are:

[AM#2] Aircraft Parking Apron (MOG #7)

1.6 STANDARD INDUSTRIAL CLASSIFICATION (SIC)

[AM#2] DELETED

[AM#2] _____

[AM#2] _____

[AM#2] _____

1542 - General Contractors - Non-Residential Building, other than

Industrial Buildings and Warehouses (i.e. administrative buildings)

[AM#2] _____

[AM#2] _____

[AM#2] _____

1771 - Concrete Work (includes asphalt, i.e. access drives and parking lots, culvert construction)

[AM#2] _____

4581 - Airports, Flying Fields, and Airport Terminal Services

[AM#2] _____

[AM#2] _____

[AM#2] _____

[AM#2] _____

[AM#2] _____

9711 - National Security (a general category for military facilities)

1.7 LOCATION

[AM#2] DELETED

The new facility project site is within the [AM#5] _____ boundary of [AM#2] West Ft. Hood and is in [AM#2] Bell County. [AM#2] _____ The new facility project center is located approximately at [AM#2] 31 degrees [AM#2] 2 minutes [AM#2] 15 seconds latitude, [AM#2] 97 degrees [AM#2] 48 minutes [AM#2] 15 seconds longitude. [AM#2] The project site is west of the cantonement area, South of U.S. Highway 190, northeast of Rober Gray Drive. [AM#2] _____.

1.8 RECEIVING WATERS

[AM#2] DELETED

[AM#2] Storm drainage from the airfield will outfall to tributaries of Reece Creek, west of the site. Drainage flows east and southeast to Reece Creek, then south to Lampasas River and eventually into Stillhouse Hollow Lake. [AM#2] _____.

PART 2 SITE DESCRIPTION

2.1 EXISTING CONDITIONS

[AM#2] DELETED

[AM#2] The existing conditions of each project area are depicted in the Survey Control Sheet (sheet C-103). [AM#2] _____.

2.2 FUTURE CONDITIONS

[AM#2] DELETED

[AM#2] After construction, Storm runoff from the Base Operations building will drain southeast to an existing earthen channel at approximate 5% grade.

The new pallet Warehouse and associated pavement will drain southwest to an existing tributary. The drainage runoff will vary from 0.5% on concrete pavement to 20% on existing hillside.

The new aircraft parking apron pavement will drain southwest to an existing tributary. The drainage runoff will vary from 0.5% on concrete pavement to 25% on grass sideslopes. [AM#2] _____.

2.3 CONSTRUCTION PHASING

[AM#2] DELETED

The Contractor shall establish storm water control structures prior to conducting any site disturbing activities. Then subsequent construction activities includes clearing, grubbing, grading, constructing site drainage devices and utilities, foundation, and paving. The Contractor shall maintain temporary and permanent site stabilization at each portion of site in accordance with Section 3.0 EROSION AND SEDIMENT CONTROLS. Storm water control structures shall not be removed after final stabilization and approval of the COR. Final stabilization is established at the disturbed site when a vegetative cover with a density of 70% of the native undisturbed area. It is a Federal and state requirement that the Contractor shall record date of these major construction site activities and dates of stabilization (see paragraph ATTACHMENTS). Construction of this project will start tentatively on [AM#2] October 2003 and will be completed on [AM#2] October 2006.

2.4 SOILS DATA

[AM#2] DELETED

[AM#2] The following soils data are from the Soil Survey of Coryell County, Texas, issued in March 1977, by the United States Department of Agriculture, Soil Conservation Service.

This site contains one soil type. The Topsy-Urban land complex association is characterized by deep and gently sloping land with slopes ranging from 3 to 8 percent, with an average of 4 percent. Typically, the surface layer is dark grayish brown clay loam and is approximately 178 millimeters deep. The subsoil measures approximately 559 mm and is grayish brown clay loam containing calcium carbonate concentrations and shale fragments. The underlying material consists of stratified layers permeability is moderately slow and occurs at the rate of 15 to 51 mm per hour. Availability of water is medium. Runoff is medium to rapid, and erosion is severe. The root zone is easily penetrated by plant roots. Unified soil classification of this soil type is C. Potential for shrink-swell is moderate. Soil reaction (PH) ranges from 7.9 to 8.4.

2.5 DRAWINGS

[AM#2] DELETED

- Sheet [AM#2] C-101 PROJECT LOCATION AND VICINITY PLAN
- Sheet [AM#2] CA-108 [AM#2] SWPPP PROTECTION PLAN DEPLOYMENT CENTER [AM#2]
- Sheet [AM#2] CC-107 [AM#2] SWPPP PROTECTION PLAN BASE OPERATIONS BUILDING [AM#2]
- Sheet [AM#2] CE-119, 120 [AM#2] SWPPP PROTECTION PLAN AMMO UPLOAD ROAD
- Sheet [AM#2] CH-115, 116 [AM#2] SWPPP PROTECTION PLAN AIRCRAFT PARKING APRON [AM#2]
- [AM#2] Sheet C-520 SWPPP PROTECTION PLAN DETAILS

PART 3 EROSION AND SEDIMENT CONTROLS

3.1 TEMPORARY STABILIZATION

[AM#2] DELETED

When construction activities cease for periods longer than 14 days, when there are contract delays in turfing operation and a quick cover is required to prevent erosion, or when seasonal conditions preclude immediate permanent stabilization measures, the Contractor shall provide temporary soil stabilization. The disturbed areas eligible for temporary stabilization consists of all unpaved, graded, and disturbed portions of the site and no further field work is scheduled beyond 14 days. However, if the earth disturbing activities will be resumed in 21 days, temporary stabilization measures are not required to be initiated. [AM#2]

3.2 PERMANENT STABILIZATION

[AM#2] DELETED

Permanent stabilization on disturbed, unpaved, and graded areas shall be initiated no more than 14 days after construction activities have ceased permanently. Final or permanent stabilization shall be in accordance with specification sections 02300 EARTHWORK, [AM#2] _____ 02919 TOPSOILING, [AM#2] _____ and 02925 [AM#2] _____ ESTABLISHMENT OF TURF.

3.3 SEDIMENT BASIN

[AM#2] DELETED

[AM#2] A temporary sediment basin is not feasible for this project. [AM#2]

3.4 STRUCTURAL CONTROLS

[AM#2] DELETED

[AM#2] The Contractor shall used structural control details on sheet No. C-520 and other applicable structural controls approved by the Contracting Officer Representative to minimize erosion at each construction area. The Contractor's detailed SWPPP shall identify erosion and sediment control locations and type of structural controls required at each construction area including material borrow, stockpiled, construction entrances and egress, staging, and disposal areas.

3.4.1 Silt Fence

Silt Fence is used for construction site perimeter control. Silt Fence

shall not be used in stream or swale. Sediment at 1/3 height of the fence shall be removed. The Contractor shall verify field conditions, inspect integrity, remove accumulated silt, and maintain silt fence.

3.4.2 Straw Bale Dike

Straw Bale Dike is used for perimeter control and around unpaved perimeter of curb and surface inlet, new manhole, and trenched material from utility construction. Straw Bale Dike shall not be used in stream or swale. Straw Bale Dike shall only be used where the effectiveness is required for less than 3 months. Sediment at 1/2 height of the bale barrier shall be removed. The Contractor shall inspect Straw Bale Dike locations and ensure the bales are intact and eliminating sediment from storm runoff.

3.4.3 Stabilized Construction Ingress/Egress

The Contractor shall establish, inspect, and maintain the stabilized construction ingress/egress at the juncture between the unpaved new access road and the existing paved roadway. The Contractor shall determine locations for stabilized construction entrance/egress on the Contractor's field and operation specific SWPPP. The stabilized construction entrance/egress shall be away from waterways. The minimum width and depth of entrance is 15 feet and 20 feet, respectively for site 1 acre or larger.

For sites over 10 acres, the minimum width and depth of entrance is 25 feet and 50 feet, respectively. If possible, small entrance shall be incorporated into small lot construction.

3.4.4 Contractor Staging, Parking, Material Storage, Borrow and Disposal Areas Protection Device

The Contractor shall establish storm water control structures around the staging, parking, material stockpiled areas, borrow and disposal areas [AM#2] _____. A graveled stabilized area or sediment log is acceptable. The Contractor's SWPPP shall show these locations on the vicinity map and/or site drawings and identify the applicable storm water control devices. The Contractor shall inspect and maintain the control structures at these locations.

3.4.5 Rock Berm or Check Dam

Rock Berm or Check Dam is acceptable control structure along stream or steeply sloped or barren swales. The control structure shall have open graded rock of 4 to 8 inches diameter. The graded rock shall be secured with woven sheath of 1-inch diameter opening (maximum) and wire diameter of 20 gauge (minimum). Sediment at 1/3 height of the berm or dam shall be removed.

3.4.6 New and Existing Inlet Protection Device

Sediment Log or gravel filter bags with gravel (size 3 to 5 inch diameter) shall be placed along side with concrete block to prevent sediment from entering new curb and surface inlets at the paved areas, and at existing surface or curb inlet downstream from the disturbed site.

3.4.7 Sand Bag Berm

Sand Bag Berm is acceptable for perimeter control, embankment for sediment basin, sediment barrier for toes of slopes, contributing drainage area greater than 5 acres, slope that is in appropriate for silt fence and straw

bale, and as a diversion dike. The Contractor shall inspect sand bag berm after each rain, and the sand bags shall be reshaped or replaced to eliminate sediment in runoff.

3.4.8 Outlet Protection Device

Outlet protection device shall be placed at existing and new drainage outlets to minimize soil scouring by absorbing flow energy to produce non-erosive velocity. See Paragraph, OUTLET PROTECTION OR OUTFALL VELOCITY DISSIPATION DEVICE, this section.

3.4.9 Pipe Slope Drain

Pipe Slope Drain is acceptable for drainage area not to exceed 10 acres. The Contractor shall inspect outlet pipe for erosion and check the pipe for breakage.

3.4.10 Excavated Sediment Trap

Excavated Sediment Trap is acceptable for drainage area of less than 1 acre and with slope of 5 percent or less, where overflow capacity is needed, and in area of heavy flow of 0.5 CFS or greater. The recommended volume of the sediment trap is 35 cubic yard per acre disturbed. The Contractor shall remove and dispose of sediment when it accumulates to 1/2 of the filter stone (3 to 5 inches diameter of at least 1 foot depth) height.

3.4.10 Diversion or Earth Dike

Diversion Dike shall be placed parallel to existing contours for perimeter control by diverting run-on water away from disturbed area. The dike height shall be at least 1 foot greater than the flow depth for the 10-year storm event. Dike side slopes shall be less than 3 to 1 (0.33 percent grade).

3.4.11 Interceptor Swale

Interceptor Swale shall be placed to divert runoff from disturbed upland area. The flow shall be conveyed to a sediment trapping device. Swale stabilization is required when slope exceeds 2 percent grade.

3.4.12 Geotextile Net

Geotextile net (or fabric) shall be placed along disturbed embankment slope, disturbed area along curbs and gutters, perimeter of disturbed construction site, and disturbed adjacent area of concrete or asphalt pavement. The material shall protect topsoil from wind and water erosion, and promote seed germination. The geotextile net (or fabric) is composed of 100 percent biodegradable material, free of weed seed, and ultra violet light resistant.

3.4.13 Sediment Log

Sediment Log is a sediment control device in lieu of silt fence, straw bale, and rock check dam. It is composed of biodegradable or non-biodegradable material and is weed seed free. The Sediment Log is porous, reusable, holds its shape, and it filters the sediment when storm water pass through the log diameter. It shall be placed in ditch bottoms, swales, waterways, over bare soils turf reinforcement blankets, and around catch basin, storm inlets, drainage outlets, and to retain sediment in the

stockpiled area. The standard size Sediment Log is 12-inch diameter or less. For concentrated flow area, a minimum of 20-inch diameter Sediment Log shall be used.

PART 4 STORM WATER MANAGEMENT AND CONTROLS

[AM#2] DELETED

4.1 RUNOFF COMPUTATIONS

The storm drainage design is based on a 10-year storm frequency and 10 -minutes duration with [AM#2] 126.6 mm (4.2 inches) per hour rainfall intensity.

4.2 [AM#2] DELETED

4.3 [AM#2] DELETED

4.4 [AM#2] DELETED

PART 5 BEST MANAGEMENT PRACTICES (BMP)

[AM#2] DELETED

The Contractor (and the subcontractors) shall be responsible for eliminating pollutants in storm runoff from the project site. The Contractor (and subcontractors) shall be responsible for installing and maintaining BMP to minimize storm water pollution. The Contractor operation specific SWPPP shall, as a minimum, identify BMP on Construction Practices (Dewatering Operations, Paving Operations, Structure Construction and Painting); Material Management (Material Delivery and Storage, Material Use, Spill Prevention and Control), Waste Management (Solid Waste Management, Hazardous Waste Management, Contaminated Soil Management, Concrete Waste, Sanitary/Septic Waste Management), Vehicle and Equipment Management (Vehicle and Equipment Cleaning, Vehicle and Equipment Fueling, Vehicle and Equipment Maintenance), Dust Control for Various Site Conditions (Non-Traffic Disturbed Areas, Disturbed Areas Subject to Traffic, Material Stock Pile Stabilization, Clearing/Excavation, Demolition, Truck Traffic on Unpaved Road, Mud/Dirt Carry-Out), and Contractor Training (Employee and Subcontractor Training).

5.1 CONSTRUCTION PRACTICES

Dewatering Operations: The Contractor (and subcontractor) shall prevent discharge of sediment by methods of sediment control, containment, and disposal. In project areas suspected of potential toxic or petroleum products contamination, the water shall be tested to determine method of disposal.

Paving Operations: The Contractor (and subcontractor) shall avoid discharge of pollutants to storm drains by avoiding paving in wet weather or anticipation of such event, storing material in covered containers, covering and berming storage areas, establish control structures, cover on-site storm grates, and worker and subcontractor training.

Structure Construction and Painting: The Contractor (and subcontractor) shall prevent pollutants in storm runoff by covering, or berming material storage areas, keeping job site clean and orderly, using safer alternate products, stabilizing adjacent disturbed areas, storing material in

secondary containment, protecting on-site storm drain, establish control structures, and training of workers and subcontractor.

Solid Waste Materials: Trash and uncontaminated construction debris shall be placed in appropriate covered waste containers. Waste containers shall be emptied regularly; they shall not be allowed to overflow. The disposal area of excavated material from project construction shall not be utilized for waste disposal. Routine janitorial service shall be provided for all construction buildings and surrounding grounds. No construction waste materials, including concrete, shall be buried or otherwise disposed of on-site. The Contractor shall brief all on site personnel on good housing keeping and waste minimization.

5.2 MATERIAL MANAGEMENT

Material Delivery and Storage Practice: The Contractor (and subcontractor) shall prevent or reduce discharge of pollutants to storm water by minimizing and on-site storage of hazardous and toxic (HT) materials, storing HT in clearly labeled, corrosion-resistant containers with secondary containment at designated and COR-approved area, conducting frequent inspection, keeping current inventory of construction materials on site, training of workers and subcontractor. The storage of reactive, ignitable or flammable liquids shall comply with applicable fire codes of the project area. The Contractor shall contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements.

Material Use and Inventory: The Contractor (and subcontractor) shall use less hazardous, alternate or environmental friendly material, if possible. The Contractor shall have (1) a list of construction material used on site, (2) the material associated potential pollutants, and (3) method of storage and containment in the Contractor operation specific SWPPP. The Material Safety Data Sheet for each construction material on-site shall be in the Contractor's field and operation activity specific SWPPP and will be available on request by regulator agency visitors, safety officers, or COR.

The following materials are commonly on-site, pesticides and herbicides, fertilizers, detergents, concrete material, petroleum-based products, fertilizers, tar, asphalt, steel reinforcing bars, other hazardous chemicals such as acid, lime, solvents, curing compounds, sealants, paints, glues, fertilizers, steel reinforcing bars, etc.

Spill Prevention and Control: The Contractor (and subcontractor) shall store HT material in covered containers and inside a fenced area, place readily accessible spill clean-up materials, have protocol for stop work immediately, notification, clean-up, labelling, storage and packaging, transportation, disposal, record-keeping, closure activities, and provide training to workers and subcontractor for response to spills.

5.3 WASTE MANAGEMENT

Solid Waste: Solid waste materials (i.e. excess fresh concrete, grout, mortar or uncontaminated debris) shall be placed in covered containers, and recycled, if possible. Trees and shrubs from site clearing shall be used as mulching material, if possible. Packaging materials such as wood, plastic, and paper shall be recycled to the maximum extent possible and not be disposed of in a landfill. The Contractor shall designate waste containers for segregating waste (domestic, metal, aluminum or plastic). Dry paint cans shall be recycled. The Contractor shall designate waste disposal area, have routine janitorial service for all structures and

surrounding grounds, and have routine schedule to service waste containers.

The disposal area of excavated material from project construction shall not be utilized for waste disposal. Personnels on the job site shall be briefed on minimizing disposal to landfill by waste segregation and recycling.

Hazardous and Toxic Waste: All excess on-site material such as paints, solvents, petroleum products (fuel, oil, and grease), herbicides, pesticides, acids for cleaning masonry, concrete curing compounds, sealants, paint strippers, wastes from oil-based paint, and glues could become HT waste. Containers of excess material shall be labeled and managed according to the labels and as recommended by the product manufacturers. If no instruction is provided, the Contractor shall turn in contained waste to the installation DRMO, the local household hazardous waste drop-off, or recycling program.

[AM#2] DELETED

[AM#2] DELETED

Contaminated Soil: If suspicious of soil contamination during soil moving activities, the Contractor (and subcontractor) shall stop work, notify COR, and establish containment to prevent soil transport or runoff from that location. For removal of contaminated soil, a WORK PLAN shall be prepared for COR approval prior to handling and management of the material. The WORK PLAN shall at least include the following: containment, sampling & analyses, notification to regulatory agencies, transportation, worker safety, training & environmental monitoring, disposal, and documentation and record-keeping.

Construction and Concrete Waste: Construction waste or surplus materials, demolition building debris, scrap metal, rubber, plastic, glass, concrete, and masonry products shall be segregated and recycled to minimize landfill disposal. No construction waste shall be buried or disposed of on-site. Concrete waste shall be controlled and minimized by appropriate storage methods for dry and wet materials, and controlling amount of concrete and cement mixed on site. Sweepings from exposed aggregate concrete shall be collected and returned to aggregate stockpile and they shall not be washed into streets or storm drains. Washout of concrete truck shall be at a designated location that is (1) at least 50 feet from storm drains, open ditches, or water bodies, and (2) surrounded by a containment berm with a temporary pit or sediment trap for containment and settling of washout. Settled solids and set concrete from the pit or trap shall be removed and disposed of properly. Sediment shall be removed and disposed of in accordance with local regulations, and water from the pit or trap shall be pumped to a sanitary sewer with written approval from the COR.

Sanitary/Septic Waste: On-site sanitary facilities shall be established at a convenient location. Facility location, design, maintenance, and waste collection practices shall be approved by COR and are in accordance with local regulations. The Contractor (and subcontractor) shall have a routine schedule for waste pump out by a licensed hauler. Septic waste treatment system shall have a pre-construction permit from the local health regulating agency and have contract service with a licensed company. Temporary sanitary facilities discharging to sanitary sewer system shall be approved by the operator of the system and properly connected to avoid illicit discharges. Wastewater from water-based paint shall not be discharged as sanitary waste.

Building Exterior Cleaning or High-pressure Wash: Storm drains shall be protected by approved storm water control device. Wash onto dirt area, spade in, settle solids in pit, collect (mop up) and discharge to sanitary sewer (with approval from sewer operator). If the exterior paint contains lead exceeding the levels stated in the Consumer Safety Standard, mercury or mildewcide, the wash water shall be collected and disposed of as HT waste.

Street/Pavement Cleaning: Water used for this activity shall be minimized and sediment basin shall be used to contain wastewater. At completion of construction, the silt shall be removed and disposed of in accordance with applicable regulations, and water from the basin shall be pumped to a sanitary sewer with written approval from the COR.

5.4 VEHICLE AND EQUIPMENT MANAGEMENT

Off-site Vehicle Tracking and Dust Control: The Contractor is required to keep vehicles from tracking soils from the project, borrow, and disposal sites. Temporary parking area(s) to be used 30 calendar days or more for the Contractor's equipment or personal vehicles shall be [AM#2] _____ a stabilized gravel area with storm water control device. The temporary parking areas shall be removed by the Contractor upon project completion and restored to the satisfaction of the COR. Sprinkling, chemical treatment, light bituminous treatment, or similar methods shall be used for dust control; see Sections 01355 ENVIRONMENTAL PROTECTION and 01561 DUST CONTROL [AM#2] _____. Materials to be transported by truck or other equipment that promote fugitive particle emissions shall be covered and/or sprayed. Use of sprinkling shall be controlled to prevent runoff.

Vehicle and Equipment Cleaning: Washing shall be performed off site at a commercial washing facility that has an oil/water separator as pre-treatment prior to sanitary sewer connection. If washing must occur on site, the wash area shall have written approval from the COR. The on-site wash area shall be bermed from contact with storm drainage system, and detergent shall be bio-degradable. Wastewater shall drain into a lined sediment basin constructed by the Contractor. After project completion, the Contractor shall clean the basin, test and dispose of sediment, in accordance with applicable regulations and to the satisfaction of the COR. Steam cleaning is prohibited on site because it generates significant pollutant concentrations.

Vehicle and Equipment Fueling: Fueling shall be off-site. If fueling must occur on-site, a written approval shall be obtained from COR. If fueling is allowed by the COR, it shall be at a designated area, at least 50 feet away from drainage courses. Fueling operations shall avoid topping of fuel tank, avoid mobile fueling of mobile construction equipment. Fueling locations shall use secondary containment such as drip pan or drop cloth to catch spill or leak, have a stockpile of cleanup material, and absorbent material for immediate clean-up of small spills. A permit shall be obtained from state or local regulatory agency for all on-site fuel storage tanks. In case of spill, avoid hosing down or burial of spilled fuel. The fuel containers shall meet the industrial standard, labeled and stored in accordance with applicable Federal, state, and local codes.

Vehicle and Equipment Maintenance: Outdoor vehicle or equipment maintenance is a significant potential source of storm water pollution. Activities include engine repair, changing fluids, etc. shall be prohibited on job site.

Vehicle and Equipment Parking: All vehicle or equipment parked on-site shall have drip pan or drip cloth to catch spill or leak. Vehicle or equipment (the Contractor and the subcontractor) shall regularly inspect for leaks and schedule routine maintenance to reduce the potential for leaks.

5.5 EMPLOYEE AND SUBCONTRACTOR TRAINING

The Contractor is responsible to provide training for all workers (including the subcontractor) on the job site. The objectives in training are to provide a clear concept of activities or problems that generate pollutants to storm water, identify solutions (BMPs), promote ownership of the problems and solutions, and integrate feedback into training and BMP implementation. A certificate shall be signed by all trained personnel.

5.6 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

The complete edited section is the Basic SWPPP and the Contractor shall revise it to a field and operation specific SWPPP. The SWPPP shall be retained at the job site at all times and readily available to inspector in case of site inspection conducted by the regulating agency. The Construction Site Notice shall indicate the location of SWPPP. The SWPPP shall be completed before filing for NOI. It shall be implemented prior to start of soil disturbing activities. It shall be updated, as necessary, to reflect changing site conditions, BMP practices, new operations or areas of responsibility. The SWPPP REVISION RECORD shall be an attachment to the SWPPP.

5.7 SPILL CONTROL AND REPORTING

In case of spill of hazardous, toxic, and radiological waste (HTRW), the Contractor shall stop work, contain spill, notify the COR and Safety Office, and execute spill control per the SPILL CONTROL PLAN as required in specification SECTION 01355 ENVIRONMENTAL PROTECTION. Spill containment, notification, clean-up, restoration, reporting, record-keeping, etc. shall be in accordance with 40 CFR 110, other applicable Federal, state, and local regulations, and to the satisfaction of the COR.

PART 6 TIMING OF CONTROLS AND ACTIVITIES.

[AM#2] DELETED

The Contractor shall (1) sequence soil disturbing activities to preserve existing vegetation, (2) minimize area of disturbance, (3) establish storm water control devices, (4) do not disturb an area until it is necessary to proceed with field work, (5) stabilize disturbed areas as soon as practicable, (6) delay construction of infiltration measures until the end of project when upstream drainage areas are stabilized and established, (7) maintain storm water control devices until stabilized disturbed areas have achieved final stabilization. Final stabilization depicts soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of all native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as use of rip rap, gabions, or geotextiles) have been employed.

The Contractor's field and operation specific SWPPP shall (1) sequence major construction activities, (2) discuss erosion and sediment control measures, and (3) sequence temporary or permanent stabilization.

- Install silt fences [AM#2] _____ around perimeter & down slope of construction site.
- Construct stabilized construction entrances.
- Install controls around contractor staging, stockpiled storage, parking, borrow, and disposal area[AM#2]s for on-site and off-site locations.
- Clearing and Grubbing]
- Install inlet protections at all existing storm grates (i.e. curb inlets surface inlets, manholes, etc.)
- Install controls (i.e. rock berm/check/check dam, sediment log, diversion/earth dike) at outfall locations and natural drainage ways down stream from the construction site.
- Regulated Material Abatement from structures to be demolished
- Demolition of structures
- Grading
- Implement Temporary Stabilization on graded areas that have no scheduled field work beyond 14 days
- Construct storm water treatment unit or interceptor
- Construct permanent storm water management structures
- Trenching and excavation for utilities, trenching and excavation
- Cover all excavated or other soil stockpiles with soil retention blankets at the end of each work day and at the threat of precipitation.
- Install inlet protections at all new storm grates (i.e. curb inlets surface inlets, manholes, etc.)
- Backfill the utility trenches in a timely manner to minimize erosion.
- [AM#2]- Monitor weather using National Weather Services reports to track conditions and alert crews to forecast rainfall or dust storm event and avoid paving, concrete saw cutting, dust or pollutant generating activities.
- [AM#2]- Stabilize disturbed soil before rainfall events.
- [AM#2]- Paving and other flatwork.
- [AM#2] _____
- Implement permanent stabilization.
- Routinely inspect and maintain erosion and sediment structural control structures; evaluate BMP & revise SWPPP for change conditions or field activities; assess and certify non-storm water discharges; maintain field records and training logs [AM#2] _____.
- [AM#2] Maintain (i.e. water, fertilize, [AM#2] _____ mow, reseed (if necessary) the temporary and permanent stabilized area [AM#2] until final project acceptance [AM#2] _____.
- Remove all controls when the project area has achieved final stabilized and all construction is completed and accepted by the Contracting Officer, after site work completion and prior to project acceptance perform I & M of storm control conducted monthly.]

PART 7 COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS

[AM#2] DELETED

[AM#2] _____ [AM#5] The Contractor shall verify the following information in the detailed SWPPP to be submitted. This project is in compliance with the National Environmental Policy Act of 1969, as amended. A Preliminary Assessment Screening and Record of an Environmental Consideration was prepared in June 2000 and signed in July 2000, respectively. This proposed action for project construction is qualified

for Categorical Exclusion A-7, Appendix A, AR 200-2.

There are several historic buildings in the immediate area and that would not be impacted by this project. The State Historic Preservation Office has concurred that the project can proceed with no expected impact to archeological sites. No hazardous materials have been stored in the surrounding area. The area has never been part of a firing range so there is no reason to expect unexploded ordinance. No signs of contamination were observed during the site visits conducted by representatives of Fort Hood DPW Environmental Division. The site is adjacent to, but not in a threatened and endangered species habitat area and the project is not located in a floodplain. Under section 404 of the Clean Water Act, the proposed project site is in compliance with the terms and conditions of nation-wide permit 14 (Linear Transportation Crossings). All disturbed sites will be adequately mitigated.

Based on comments from Fort Hood DPW-Environmental at final design review, the site layout has been rearranged to minimize impacts to bird habitats because of demolishing trees at the Alert Holding Area site.

Army Regulation 200-1 requires that all Department of Defense installations and Contractors shall comply with Federal environmental protection statutes, which include a provision to observe state, and local environmental regulations. In compliance with Clean Water Act, Section 402, the Contractor and the subcontractor shall conform with all applicable NPDES, and TPDES [AM#2] _____ General Permit. In addition, the Contractor (including the subcontractor shall comply with applicable requirements and implement the Storm Water Pollution Prevention Plan and BMP measures prior to commencing soil disturbing activities.

PART 8 MAINTENANCE AND INSPECTION PROCEDURES

The Contractor shall designate a Storm Water Inspector on-site to perform SWPPP quality control. All BMP and control structures shall be inspected at least once every seven (7) days and within twenty-four (24) hours following any storm producing 0.5 inch or more of rainfall. The Contractor Designated SWPPP Inspector shall have a basic knowledge of the engineering principles in reducing pollutants in storm water, past experience and thoroughly understand the requirements of the Storm Water Discharge Construction Permit, BMP, Government contractual, and SWPPP requirements, worker training, storm control device inspection and maintenance, SWPPP revision, documentation and record-keeping.

Inspection of erosion and soil loss from the outfall and perimeter of the site. Temporary erosion control measures shall be inspected for bare spots and washouts. Discharge points shall be inspected for signs of erosion or sediment. Locations where vehicles enter and leave the site shall be checked for signs of off-site sediment tracking, including erosion control structure at contractor staging, material borrow, disposal, and stockpiled areas. The Contractor shall continually review the Best Management Practices (BMP) and effectiveness of SWPPP program. All deficiencies shall be corrected and recorded in [AM#2] ____ [AM#2] SECTION 01421R - SWPPP INSPECTION AND MAINTENANCE REPORT and a current copy shall be provided to the COR. Corrections to these problems shall be implemented within seven (7) calendar days. After final stabilization has been achieved, the Contractor shall inspect the site once a month until final inspection and project acceptance by the COR.

PART 9 LIST OF ON-SITE MATERIALS AND OTHER POLLUTANT SOURCES

[AM#2] All materials or substances brought on-site during construction shall have a Material Safety Data Sheet (MSDS) available to the Contracting Officer. [AM#2] _____.

[AM#2] DELETED

PART 10 PROHIBITION ON NON-STORM WATER DISCHARGES

In accordance with the Federal Register, Volume 63, No.128, July 6, 1998 Notices, non-storm water discharge is prohibited during construction of the project, except for a list of non-storm water discharges. The following list of non-storm water discharges from active construction site is allowed and is developed based on the above guideline.

- fire fighting activities,
- fire hydrants flushings,
- vehicle wash waters which do not contain detergent or leaked fluids
- dust control runoff to minimize off-site tracking of vehicles,
- potable water sources including waterline flushings,
- routine external building wash down which does not use detergents and the exterior paint that does not contain mercury, lead, cadmium, and mildewcides,
- pavement wash waters where spills or leaks do not contain hazardous, toxic, radiological material or detergent,
- air conditioning condensate,
- uncontaminated spring or ground water,
- foundation and footing drains which do not contain contaminated process materials such as solvents

The Contractor designated SWPPP Inspector shall perform routine inspection and record findings in the NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION.

PART 11 CONTRACTOR COMPLIANCE

[AM#2] DELETED

11.1 SWPPP AND NOTICE OF INTENT (NOI)

[AM#2] DELETED

The Contractor shall use this section to prepare a field and operation activity specific SWPPP that includes both narrative and drawings (preferable size 11" by 17") and also in electronic format compatible with the contract requirements. The Contractor SWPPP (both narrative and revised drawings) shall be submitted for review and approval. The Contractor's SWPPP shall, as a minimum, include the following: (1) each area of construction, describe each physical location & LATITUDE and LOGITUDE of each area; (2) the project start and completion dates; (3) sequence of construction activities and pollution control measures; (4) Best Management Practices (BMP); 5) list of on-site construction materials, methods of storage, & pollution control measures; (6) each construction area runoff coefficient; (7) revise SWPPP drawings depict storm control devices (i.e. perimeter, down grade, inlet & outfall controls, site stabilized entrance/exit, Contractor staging & parking, stockpiled, borrow, and disposal areas), limit of clearing and grubbing, haul route, surface water flow direction arrows, site direction arrow, and legend; (9) name and qualification of a Designated SWPPP Inspector to inspect, maintain/repair erosion control structures, record findings and

subsequent actions, evaluate BMP and revise SWPPP, assess non-storm or monitor concrete/asphalt plant discharges; (10) record start/stop dates for temporary/permanent ceasing of major construction activities (clearing & grubbing; grading, trenching & excavation; dirt moving, etc.); start dates of temporary and permanent stabilization; repair dates for control structures; release dates of reportable quantities (RQ) for oil and hazardous substances per 40 CFR Parts 110, 117 and 302; repair date of control device; (11) Contractor on-site training to workers; (12) SWPPP revision date for changed site conditions, operation, and BMP; (13) prepare [AM#2] and submit Contractor's NOI, and pay for NOI fee. The Contractor shall [AM#2] _____ submit [AM#2] NOI and wait [AM#2] ____ at least 2 days prior to [AM#5] start soil disturbing activities [AM#2] in the State of Texas and Louisiana. The waiting period for the State of New Mexico is at least 7 days after submittal of NOI.: (14) prepare [AM#2] _____ Government's [AM#2] NOI and obtain authorized signature from Government. [AM#2] _____ . The mailing addresses for NOI submittal are:

[AM#2] DELETED
TEXAS

Mailing Address:

Texas Commission On Environmental Quality (TCEQ)
Storm Water & General Permits Team; MC-228
P.O. Box 13087
Austin, TX 78711-3087
(Use for regular and certified mail)

NOI Payment Address (by regular U.S. Mail):

Texas Commission on Environmental Quality (TCEQ)
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

NOI Payment Physical Address:

Texas Commission on Environmental Quality (TCEQ)
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753
(Use for overnight express carrier deliveries (U.S. Post Office Express Mail, fed ex, UPS, etc.))

[AM#2] DELETED

[AM#2] DELETED

The Contractor shall provide SWPPP (including the revised Storm Water Control Plans) and all necessary attachment [AM#2] (see PART 12) for approval.

[AM#2] _____

11.1.1 On-Site Construction Document And Record-Keeping

A copy of each of the following shall be maintained at the project site at all times: [AM#2] USACE approved [AM#2] _____ SWPPP and all attachments, TPDES [AM#2] TXR 150000 [AM#2] _____ General Permit, [AM#2] and the Project Site Notice [AM#2] _____ .

The Contractor shall post a Site Notice near the main entrance of each construction access point. The Site Notice shall have the following information: a copy of NOI that has an authorization number issued by TCEQ (for each co-permittee, the Government and the Contractor), a brief project description, name and telephone number of an operator's representative (for each Contractor & the Government), and the location of SWPPP.

All records pertaining to TPDES [AM#2] _____ permit shall be maintained for a minimum of three (3) years from the date that a NOT is submitted.

11.1.2 TPDES [AM#2] _____ General Permit Fees And Fines For Non-Compliance

The Contractor is responsible for all fees pertaining to the storm water construction permit for both the Contractor and the Government (including applicable annual water quality or monitoring fees [AM#2] _____). Any fines levied by regulatory agencies regarding non-compliance with TPDES [AM#2] _____ regulations or the requirements of this Section shall be paid by the Contractor.

11.2 NOTICE OF TERMINATION (NOT)

[AM#5] _____ At completion of final stabilization and approval by the COR, the Contractor shall prepare copies of the Notice of Termination (NOT) separately, for the Contractor and the Government. The Contractor shall provide the filled out Government NOT to the COR for a signature from an authorized person, and then submit it to Texas Commission on Environmental Quality (TCEQ)[AM#2] _____. A copy of the Government NOT and the Contractor NOT shall be provided to the COR.

11.3 NOTIFICATION TO MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

A copy of each NOI & NOT (for large construction site), a copy of NOC (Notice of Change is required when relevant information of the initial NOI needs changes), a copy of Construction Site Notice (applicable for small construction site) shall be sent to MS4. For some projects, there is a possibility of more than one MS4. The Contractor shall notify all MS4 within the project site.

[AM#2] _____.

[AM#2] _____.

[AM#2] _____.

III Corps & Fort Hood
Attn: AFZF-PW-ENV (Riki Young)
Fort Hood TX 76544-5028
Telephone: 254-387-8712

[AM#2] _____.

[AM#2] _____

PART 12 ATTACHMENTS

The Contractor shall provide the following attachments in the Contractor [AM#2] _____ operation [AM#2] _____ specific SWPPP. The list of attachments shall include CONSTRUCTION SITE NOTICE, CONTRACTOR NOTICE OF

INTENT (NOI), GOVERNMENT NOTICE OF INTENT (NOI), CONTRACTOR NOTICE OF TERMINATION (NOT), GOVERNMENT NOTICE OF TERMINATION (NOT), CONTRACTOR STORM WATER CONTROL INSPECTION AND MAINTENANCE REPORT, TRAINED CONTRACTOR PERSONNEL LOG, OPERATOR (CONTRACTOR/ SUBCONTRACTOR) CERTIFICATION OF COMPLIANCE FOR [AM#2] _____ TPDES, RECORD OF SWPPP REVISION, RECORD OF MAJOR CONSTRUCTION ACTIVITIES (Grading, Temporary/ Permanent Ceasing/Resuming Construction, stabilization) CONTRACTOR DESIGNATED SITE SWPPP INSPECTOR, CONTRACTOR CERTIFICATION FOR SWPPP, SCHEUDLE OF SITE RESPONSIBLE PARTIES FOR POLLUTION PREVENTION MEASURES [AM#2] (identify the Contractor Storm Water Pollution Prevention site inspector name and qualifications, other responsible parties such as the subcontractors), NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION, AUTHORIZED SIGNATORY, NOTE: if applicable, CONCRETE BATCH FACILITIES - DISCHARGE MONITORING REPORT.

[AM#5] _____.

-- End of Section --

SECTION 02051

REMOVAL, RECYCLING AND DISPOSAL OF REGULATED MATERIALS
AMENDMENT #0001 AMENDMENT #0005

PART 1 GENERAL

1.1 REFERENCES

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

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 82	Protection of Stratospheric Ozone
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 273	Standards for Universal Waste Management
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions
49 CFR 171	General Information, Regulations and Definitions
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

TEXAS ADMINISTRATIVE CODE (TAC)

Sections 335.91 - 335.94	Standards Applicable to Transporters of Hazardous Waste
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U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1

Safety and Health Requirements Manual
(September 1996)

1.2 DEFINITIONS

1.2.1 Regulated Materials

Regulated materials are arsenic (As), cadmium (Cd), cesium, creosote, ethylene glycol, lead (Pb), mercury (Hg), diesel, ozone depleting chemicals (ODC), polychlorinated biphenyls (PCB), trichlorobenzene (TCB), diethylhexyl phthalate (DEPH), and tritium.

1.2.2 Arsenic

A solid and poisonous element that is commonly metallic, steel-gray, crystalline, and brittle. A poisonous trioxide of arsenic is used especially as an insecticide or weed killer. Typically, wood utility poles are treated with arsenic trioxide.

1.2.3 Ballast

A ballast is a device used to give starting voltage and/or stabilizing current to a fluorescent light tube. Ballast is a metal case filled with a solid or semisolid asphalt/tar substance that contain a capacitor. The capacitor may contain the following regulated materials: PCB, TCB or DEPH.

PCB was prohibited 1979 per 40 CFR 761. Approximately half of the ballasts made before 1979 contained PCB. "No PCBs" labels have been used to identify ballasts without PCB since 1 July 1978. Therefore all ballasts without "No PCBs" labels, with labels of fabrication on or before 1979 and no known date of fabrication are assumed as PCB ballasts. PCB-ballasts are regulated and disposal at a landfill is prohibited.

Ballasts from 4-foot lighting fixtures made before 1985 and from all other sizes of fixtures made before 1991 contained wet capacitors. The replacement dielectric fluid for PCBs in these wet capacitors is mineral oil and solvents. The hazardous solvents are typically TCB or DEPH. Unless the non-PCB ballasts are made after 1992, they are presumed to contain TCB or DEPH and shall be recycled at a permitted facility.

1.2.4 Cadmium

A bluish, white, malleable, ductile, toxic, bivalent, and metallic element. It is especially used in protective plating, bearing metals, and electrodes for batteries.

1.2.5 Cesium

A silver white soft ductile element of the alkali metal that is the most electropositive element known and is especially used in photoelectric cells that is typically in smoke detector. Cesium ignites spontaneously in moist air; causes burns in contact with skin; may explode in contact with sulphur or phosphorus; reacts violently with oxidizing materials. Cesium 137 is a radioactive poison.

1.2.6 Not Used

1.2.7 Creosote

A brownish oily liquid, consisting chiefly of aromatic hydrocarbons. It is obtained by distillation of coal tar and used especially as a wood preservative (i.e. wood utility poles).

1.2.8 Emergency Lights

The emergency lights are operated by a back-up power source such as a battery. Mercury, cadmium, and lead are typically used in batteries.

1.2.9 Fluorescent Light Tube

A light bulb (or tube in rod, circular, and U-shaped) of a fluorescent lighting fixture.

1.2.10 Lead

A heavy, soft, malleable, ductile, plastic but inelastic, bluish white, and metallic element. It is found mostly in combination and used especially in pipes, cable sheaths, batteries, solder, and shield against radioactivity.

1.2.11 Lighting Fixture

A unit containing a fluorescent light tube, light reflector, casing and ballast.

1.2.12 Mercury (Hg)

Mercury is a metal that is liquid at room temperature with a small vapor pressure. Mercury-containing items addressed in this specification are thermostats switches, fluorescent light tubes, rechargeable battery, and exterior mercury vapor lights.

1.2.13 Mercury Bulb Thermostat

A temperature control device containing a mercury ampule attached to a bimetallic sensing element.

1.2.14 Ozone Depleting Chemicals (ODC)

ODC include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halon, tetra (and tri) chloroethane, carbon tetrachloride and all isomers of methyl chloroform. A complete list of ODC are in \-40 CFR 82-\ Subpart A, Appendixes A and B. Items potentially containing ODC's are refrigeration equipment for HVAC systems, freezers, refrigerators, drinking fountains, ice machines, beverage and refrigerated food dispensers, halon fire extinguishers, and biomedical equipment.

1.2.15 Polychlorinated Biphenyls (PCBs)

PCB are defined in \-40 CFR 761-\ . They are oily in pure form. PCBs can enter the body through lungs, gastrointestinal tract, skin, can circulate through throughout the body, and can be stored in the fatty tissue. Available animal studies indicate an oncogenic potential. PCBs can cause adverse reproductive effects and developmental toxicity in humans. Items containing PCBs in this specification are ballasts and transformers (see

definition of Ballast below).

1.2.16 Retorting Mercury

The retorting of mercury is a process whereby mercury is distilled from other materials by using heat. During the fluorescent light tube recycling process, mercury is retorting from phosphor powder that coats the inside of the glass tube.

1.2.17 Transformer

A device employing the principle of mutual induction to convert variations of current in a primary circuit into variations of voltage and current in a secondary circuit. It contains PCB, TCB and/or DEPH. It is pole-mounted or pad-mounted.

1.2.18 Tritium

It is a low radioactive gas, radioactive isotope of hydrogen with atoms of three times the mass of ordinary light hydrogen atoms. It has very low radiotoxicity and is typically used in luminous instrument dials such as lighted exit signs.

1.2.19 Utility Pole

It is typically used for mounting power cable, panel, lighting, control switch, or electrical device such as transformers. An exterior wood pole is typically preserved by pressure treatment with application of arsenic trioxide or creosote.

1.2.20 Heating and Chilling Water

This type of system is used in military installations. It typically contains ethylene glycol (antifreeze), a regulated substance.

1.3 DESCRIPTION OF WORK

Work in this section is to be performed for the project, Fixed Wing Aircraft [AM #5] Parking Apron Phase II at Fort Hood, Texas. Work in this project shall be executed [AM #5] in accordance with abatement schedules on the Regulated Material Survey drawings (Sequence Number G007, G008 and G009), entitled Estimated Quantities of Other Regulated Material. Prior to the start of demolition [AM #5] or renovation work, all items containing regulated materials shall be removed from the buildings. They shall be salvaged and recycled (including vehicle scale 90071) to the maximum extent possible or incinerated. Final disposal of regulated materials in a landfill shall be in accordance with applicable Federal, state, and local regulatory agencies, and when all means of recycling and reuse are exhausted. The Contractor shall be responsible for necessary licenses, permits, manifest, removal, disposal, worker's training, and any associated fees or other costs incurred in this section.

1.4 CONTRACTOR'S QUALIFICATIONS

The Contractor and subcontractors shall have at least 2 years experience with batteries and thermostats will be familiar with the Universal Waste Rules in accordance with \-40 CFR 273-\ and Mercury-Containing and Rechargeable Battery Recycling Act, Public Law 104-142, effective since May 13, 1996. The Contractor and subcontractors shall have at least 2 years

experience with PCB-containing items and familiar with 40 CFR 761. The Contractor and subcontractors shall have at least at least 2 years experience in purging and reclaiming ODC and certified in accordance with 40 CFR 82. They shall also be familiar with 40 CFR 262, 263, 264, 268 and 49 CFR 171, 173, 178 and other applicable Federal, state and local regulations for work to be performed in this specification.

1.5 SUBMITTALS

Government approval is required for SUBMITTALS with a "GA" designation; SUBMITTALS having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Contractor's Qualifications; GA.

Documentation of work experience in removal, recycling and/or disposal of items containing regulated material in accordance with paragraph, Contractor's Qualification. This document shall be submitted 30 days before start of work.

Certifications; FIO.

A copy of each ODC recovery and recycling equipment's certification in accordance with 40 CFR 82.158.

A copy of certification from each technician reclaiming ODC in accordance with 40 CFR 82.161 and 40 CFR 82.164.

Licenses and Permits; FIO.

A copy of the recycling/destruction facility license for handling, treatment and/or destruction of transformers containing PCB, TCB and/or DEPH.

Proof of state registration or a copy of permit for pumping, hauling and transporting waste (purged liquid from chiller, Purged liquid from diesel fuel tank) in accordance with TAC 334 and 335.91 - 335.94, and EPA permit per 40 CFR 263 if transporting to other state.

Disposal facility permit or written authorization from TNRCC to receive wood utility poles typically treated with arsenic or creosote.

Plans; FIO.

A written Spill Prevention Plan shall be prepared in accordance with EM 385-1-1 and paragraph, SPILLS AND SAFETY of this section shall be submitted at least 30 days before start of work.

Environmental Pollution Insurance; FIO.

A copy of the current environmental pollution liability insurance policy from the Contractor (subcontractors) and the recycling and/or destruction facilities.

SD-08 Statements

Closure Report; GA.

A report in accordance with paragraph, CLOSURE REPORT shall be prepared and submitted in 15 working days after completion of work in each site or before final payment.

1.6 WASTE MINIMIZATION, SALVAGE AND RECLAMATION

The Contractor shall segregate wastes to salvage and reclaim all items to their maximum extent and practice waste minimization. The Contractor shall not dispose of any item in its entirety to the landfill or by incineration.

Regulated materials shall be manifested in accordance with 40 CFR 262, unless exemption is justified.

1.7 VERIFICATION OF REGULATED MATERIALS

Prior to initiation of work in this section, the Contractor shall field verify the actual locations, quantities and categories of items containing regulated materials. The Contractor shall notify the Contracting Officer of any discrepancies or conflicts before performing work.

1.8 REMOVAL, HANDLING AND PACKAGING

1.8.1 Ballasts

The Contractor shall remove all ballasts from the lighting fixtures, inspect the label and segregate as non-PCB or PCB (see paragraph 1.2.3 Ballast), and place them into containers for shipping in accordance with 49 CFR 173. Leaking ballasts shall be placed in containers with absorbent material such as vermiculite or other suitable fire-retardant materials. Containers shall have affixed labels "Leaking PCB or Non-PCB with TCB or DEPH Ballasts". Intact ballasts shall be packed and labeled as "PCB or Non-PCB with TCB or DEPH Ballasts". A typical container shall not hold more than 220 ballasts or the total weight of each container shall not exceed 400 kilograms (or 882 pounds). PCB ballast shall be managed in accordance with 40 CFR 761. The Contractor shall coordinate with DPW Classification yard (phone: 254/288-7627) for turn-in of ballasts.

1.8.2 Lighted Exit Signs, Smoke Detectors, Emergency lights and Rechargeable Batteries

The Contractor shall field verify locations of these items. They shall carefully remove these items and inspect the labels on the lighted exit sign and smoke detector. Lighted exit sign with a yellow label "H3" and smoke detector with yellow label "AM241" typically contains radioactive substances. The Contractor shall contact the Mr. Mike Scott or Mr. Lynn (phone 254/287-3323) at Radiological G1 Safety to inspect the removed lighted exit signs and smoke detector. Containers with radioactive elements shall be removed by the Contractor to an approved radioactive substance storage area. Lighted exit signs and smoke detector containing radioactive elements shall be ultimately managed/recycled by Fort Hood. The Contractor shall be responsible for recycling or ultimate disposal of non-radioactive unit. Separate labeled container shall be used for each type of item. The container voids shall be filled with vermiculite or other suitable fire-retardant materials. Emergency lights with used batteries shall be placed in separate container labeled as "Emergency Lights with Used Batteries (Potential Hazard: lead, cadmium, mercury)". Other rechargeable batteries shall be placed in a separate container labeled as "Used Batteries (Potential Hazard: lead, cadmium, mercury)".

The containers shall be vented and voids shall be filled with vermiculite or other suitable fire-retardant materials. The Contractor shall coordinate with DPW Classification yard (phone 254/288-7627 for turn-in of batteries).

1.8.3 Fluorescent Light Tubes and Lighting Fixtures

The Contractor shall remove the intact fluorescent light tubes from the lighting fixtures and place in the same boxes that held the replacement light tubes or other similar size containers that have box spacers to prevent breakage. Broken tubes shall be placed in containers in accordance with 49 CFR 173 and labeled as "Broken Fluorescent Light Tubes with Mercury". The containers with broken light tubes shall be manifested for transport and disposal in accordance with 40 CFR 262, 40 CFR 263, and 40 CFR 264. Metallic components of the lighting fixtures shall be recycled as scrap metal with other metallic components of the building structure. Plastic components of the lighting fixtures shall be segregated and recycled. The Contractor shall coordinate with DPW Classification yard (phone 254/288-7627) for turn-in of fluorescent light tubes and lighting fixtures.

1.8.4 Mercury Bulb Thermostats

The Contractor shall remove and handle mercury bulb thermostats in accordance with 40 CFR 273. Leaking or broken ones shall be placed in a container with absorbent such as vermiculite and labeled as "Broken Mercury Bulb Thermostats". They shall be manifested for transportation and disposal in accordance with 40 CFR 262, 40 CFR 263, and 40 CFR 264. Intact bulb thermostats shall be packed and labeled as "Intact Mercury Bulb Thermostats". The Contractor shall coordinate with the DPW Classification Yard (phone 254/288-7627) for turn-in mercury bulb thermostats.

1.8.5 ODC Units

The Contractor shall purge the used units (coolers of drinking water fountain, compressors of HVAC, refrigerator, freezer, window A/C, ice maker, etc.), and handle ODC in accordance with 40 CFR 82 Subpart F prior to removal from existing locations. The purged regulated refrigerants (ODC) shall be recycled and disposed of off post by the Contractor. The salvaged refrigerant R-22 (currently used on base) shall be stored in a separate retrievable container and turn-in to DPW Supply. The Contractor shall coordinate with DPW Environmental (phone 254/287-8712).

1.8.6 Diesel Engine and Fuel tank

Unless indicated otherwise by the COR, the diesel engine and fuel tank shall be disposed of with this Contract. Diesel fuel shall be purged to a separate retrievable container and turn-in to DPW Supply. The tank shall be decontaminated and disposed of in accordance with Section 02115 - Hydrant Fueling System Removal, and Sections 01450 and 01351 (see paragraph 1.5 Submittals).

1.8.7 Transformers

The Contractor shall verify the locations of transformers and obtain data plates information for the transformers to be removed. The Contractor shall perform sampling and analyses for PCB. Disconnection of electrical services shall be approved by DPW and coordinated with the COR. The Contractor shall provide a copy of analytical laboratory results and data

plate information to DPW-Environmental Management Office (phone 254/287-8712). The Contractor shall prepare manifests (TNRCC-0311) with DPW Classification yard for both PCB-contaminated transformers (with PCB levels greater than 50 parts per millions (ppm) but less than 500 ppm) and PCB transformers (with PCB levels equal to or greater than 500 ppm). In accordance with 40 CFR 761.20, the Contractor shall provide containment at the staging area approved by the COR to prevent storm water pollution. The Contractor shall be responsible for final disposition of PCB-contaminated and PCB transformers (most likely Fort Hood will not have this type of transformer). The Contractor shall provide Certification of Destruction from a permitted facility to COR and the DPW-Environmental Office. Non-PCB transformer shall be disposed of by DRMO. Non-PCB transformers that are in good conditions shall be turn-in to DPW. Shipping description (which consists of RQ designation, shipping name, hazard class, UN identification number, packing group, and supplemental information) shall be in accordance with 49 CFR 173.

1.8.8 Utility Poles

The Contractor shall verify locations and sizes of wood poles. The Contractor shall coordinate with the DPW to verify utility poles to be removed with the demolition structures in this project. Utility poles shall be salvaged to the maximum extent possible by the Contractor. However, if they are disposed as waste material, the disposal facility receiving those wood poles shall have permit or written authorization by the Texas Natural Resource Conservation Commission (TNRCC) to receive wood poles which are typically contaminated with arsenic and/or creosote.

1.8.9 Heating and Chilling Water System

The Contractor shall purge, triple rinse or pressure wash the system prior to dismantling. The purged fluid and contaminated rinse water shall be contained and labeled for recycling or disposal at a permitted facility. The Contractor shall provide Certificate of Destruction from the receiving treatment facility to the COR. The chiller shall be salvaged, recycled or disposed of by the Contractor (see paragraph 1.5 Submittals), unless is indicated otherwise by the COR.

1.8.10 Not Used

1.9 LABELING AND RECORD KEEPING

Labeling and record keeping of regulated materials to be salvaged, recycled, incinerated or placed in a landfill shall be in accordance with 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and all other applicable Federal, State and local regulations. Bill of lading shall be prepared for each item to be shipped to recycling and/or destruction. Information shall include initial date of storage, generator's name and address, destination address and telephone number and the shipping weight.

1.10 SPILLS AND SAFETY

The Contractor shall prepare, maintain and implement a Spill Prevention Plan. The plan shall establish policies and procedures to prevent spills, minimize spill impact on its surroundings and methods to cleanup. The plan shall encompass all activities including at the site, transportation to recycling and/or destruction facilities. It shall address all the safety and health concerns in accordance with 29 CFR 1926 in event of a spill. It shall address clean-up requirements in accordance with 29 CFR 1910.120

paragraphs (b) through (o). Clean-up personnel shall meet the training requirements of 29 CFR 1910.38 (a); 1910.134; and 1910.1200. As a minimum, the following items shall be addressed in the plan: cleanup of spill by the Contractor; verification and approval of final clearance by the Contracting Officer; personal protective equipment (PPE) and decontamination procedures; equipment and material required for cleanup; reporting required to notify state, local, and the Contracting Officer verbally and in writing. The plan shall be kept on-site. Spills of one pound or more of PCBs (typically from 16 or more ballasts) shall be reported within 24 hours to National Response Center (1-800-424-8802), the Contracting Officer and cleaned up immediately. The Contractor shall assume full responsibility for compliance with all Federal, state, and local regulations for workers protection, work practices, site safety, transportation and disposal.

1.11 STORAGE

A temporary storage area shall be provided by the Contractor and approved by the Contracting Officer. Storage time limits are 30 days for ballasts containing PCBs (40 CFR 761) and 1 year for thermostats containing Hg (40 CFR 273). All regulated materials must be removed from the site before final acceptance of this project by the Government.

1.12 TRANSPORTATION

Items containing regulated materials shall be transported by a licensed, hazardous waste hauler. The Spill Prevention Plan shall be enforced by the Contractor to prevent spillage in accordance with 49 CFR 171 and 40 CFR 173. The hauler shall not store regulated materials longer than 10 days in accordance with 40 CFR 263 and 40 CFR 273. Vehicle loading, vehicle placarding, waste tracking, notification and record keeping shall be in accordance with all applicable Federal, State and local regulations.

1.13 RECYCLING/DESTRUCTION FACILITY

The Contractor shall use EPA permitted recycling, destruction facility in accordance with 40 CFR 261, 40 CFR 264 and 40 CFR 268 and/or state permitted or registered facility which holds current environmental pollution liability insurance coverage.

1.14 CLOSURE REPORT

The report shall contain: (1) A signed cover letter certifying completion of work described herein, (2) A signed Statement of Compliance, appended herein, (3) A brief narrative of worker protection and waste removal, segregation, packaging, transportation, and ultimate method of disposal (i.e. recycled/reuse, incinerated, landfill, etc.), (4) A description of accidents, ruptures, leaks, subsequent response procedures and cleanup, and (5) A copy of final disposition document (or Certificate of Destruction) of each item including at least the following: notification, signed manifest of waste, signed certificates or receipts (Bill of Lading) from each recycling or destruction facility.

STATEMENT OF COMPLIANCE

I hereby certify that:

- (1) the appropriate state manifest form has been completely and properly filled out;
- (2) the packing, marking, labeling and placarding of the waste meets all applicable regulations;
- (3) the waste transportation, recycling, destruction and disposal meets all applicable Federal, State and local regulations.

Name _____

Title _____

Date _____

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION 02090

LEAD-BASED PAINT (LBP) ABATEMENT AND DISPOSAL
AMENDMENT #0002 AMENDMENT #0005

PART 1 GENERAL

1.1 REFERENCES

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

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restrictions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 178	Specifications for Packagings

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD-01	(1996) Lead-Based Paint: Guidelines for the Availability and Control of Lead-Based Paint Hazards in Housing
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ENGINEERING MANUALS (EM)

EM 385-1-1	(1992) U.S. Army Corps of Engineers Safety and Health Requirements Manual
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NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (1996) Methods of Fire Test for
Flame-Resistant Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH OSHA Booklet 3142 Lead in Construction

UNDERWRITERS LABORATORIES (UL)

UL 586 (1996) High-Efficiency, Particulate, Air
Filter Units

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Equipment List; GA.

A list of equipment items to be used in the work, including brand names, model, capacity, performance characteristics, quantities and other pertinent information.

SD-08 Statements

Lead-Based Paint (LBP) Inventory; GA.

A written inventory shall be prepared that identifies the LBP containing debris for disposal. The LBP schedule on environmental drawing will be the basis of the inventory. Areas and materials identified as containing LBP shall be managed per paragraph 1.4 DESCRIPTION OF WORK, in this section. If the Contractor's inventory identifies additional LBP containing items for disposal, the Contractor shall analyze these items for TCLP-lead and make an amendment to the inventory. Costs of sampling and analysis to verify or add to the Contractor's LBP Inventory shall be approved by the Contracting Officer in advance.

Lead-Based Paint (LBP) Management Plan; GA.

The Contractor shall prepare a detailed LBP Management Plan that identifies the work procedures, health, and safety measures to be used in LBP abatement. Two copies of this plan shall be submitted 20 days prior to the pre-construction conference. One of the is for Rosemarie Olney, Industrial Hygienist, Fort Hood-DPW. The plan shall address the various sources of lead and the methods to be undertaken to abate the lead hazards to include the following key elements:

- a. Description and location of LBP containing components keyed to project drawings.
- b. Abatement methods for each LBP containing component.

- c. Not Used.
- d. Training requirements as required by Federal, state, and local regulations.
- e. Unique problems associated with the LBP abatement project.
- f. Sketch of LBP control areas and decontamination areas.
- g. Eating, drinking, smoking, and rest room procedures.
- h. Sequencing of LBP related work.
- i. Personnel protective equipment; respiratory protection program and controls.
- j. Engineering controls, containment structures and safety measures.
- k. Worker exposure assessment procedures.
- l. Work Practice controls.
- m. Housekeeping.
- n. Hygiene facilities and practice.
- o. Medical surveillance, including medical removal protection.
- p. Sampling, testing and analytical methods to include personal air sampling requirements of 29 CFR 1926 Section .62 for work in this section. Personal sampling shall be in accordance with NIOSH pub. 84-100 Method 7082 for lead. When specified or where required, dust wipe sampling (pre-abatement, during abatement and post abatement), soil sampling (pre-abatement, during abatement, and post abatement), and toxicity characteristic leaching procedure (TCLP-lead, EPA Method 1311/6010) of the waste material in accordance with 40 CFR 261 shall be used. Analytical procedures must include frequency, locations, and sampling and analytical methods to be used.

Emergency Contingency Plan; GA

An emergency contingency plan shall be prepared in accordance with 40 CFR 261. Procedure must address the following LBP abatement hazards as appropriate to the project:

- a. Negative air pressure system failure.
- b. Major breach of containment barriers.
- c. Detection of unexpected lead levels on adjacent grounds.
- d. Spilling of lead debris bags or containers.
- e. Phone numbers for project manager, local fire, police and medical personnel.

Waste Management Plan, Waste Handling and Site Storage Plan; GA.

A Waste Management Plan shall be prepared that complies with applicable requirements of Federal, state, and local LBP waste regulations and addresses:

- a. Identification or documentation of potential LBP wastes associated with the work.
- b. Estimated quantities of wastes to be generated and disposed of.
- c. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes; the facility location, phone number, and name of a 24-hour point of contact shall be included. If applicable, two copies of EPA, state, and local LBP waste permit applications, permits, and EPA identification numbers.
- d. Names and qualifications (experience and training) of personnel who will be working on-site with LBP waste.
- e. List of waste handling equipment to be used in performing the work to include cleaning, volume reduction, and transport equipment.
- f. Spill prevention, containment, and clean-up contingency measures to be implemented.
- g. Work plan and schedule for waste containment, removal, and disposal. Waste shall be cleaned up and containerized daily.
- h. Cost for LBP waste disposal according to this plan.

A Handling and Site Storage Plan shall be prepared that addresses the handling and storage of LBP debris in accordance with the requirement of 40 CFR 262 and 40 CFR 265. If manifesting is required, the Contractor shall confirm that an EPA identification number has been obtained so that proper manifesting of the waste will be addressed. The Contractor shall ensure site storage limitations, including the time of storage, container requirements, contingency plan, and personnel training have been complied with.

Waste Disposal Plan; GA.

A Waste Disposal Plan shall be prepared that will include but not be limited to the following:

- a. A written confirmation that the debris will be treated and disposed of in accordance with the requirements of 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 264 and 40 CFR 268.
- b. A written confirmation that transportation of the debris will be in accordance with 40 CFR 263.
- c. Waste subcontractor's name, address, telephone number, and landfill location, including copies of licenses and signed agreements.
- d. Landfill name, address, and telephone number. A copy of the landfill's state and locally issued license, and a signed agreement that the landfill will accept the LBP wastes.

- e. Detailed delivery tickets prepared, signed, and dated by an agent of the landfill, certifying the amount of LBP containing materials delivered to the landfill, within 3 days after delivery.

SD-09 Reports

Sampling Result and Final Disposition Report; GA.

A daily log of the personal, and if applicable, the environmental air sampling test results shall be reviewed by the Competent Person and submitted to the COR, in written form, no more than 48 hours after completion of the sampling cycle. The log shall list each sample result, sampling time and date, sample type, identification of personnel monitored, flow rate and duration, air volume sampled, yield of lead, cassette size, analytical method used, analyst's name and company, and interpretation of results. Results shall be reported in micrograms of lead per cubic meter (ug/m3) of air. Documentation of results that exceed specified limits (personal air samples that exceed 30 ug/m3 or as required by Federal, state or local requirements shall be highlighted in the log in such a manner to make them easily distinguishable from monitoring results that do not exceed specified or regulatory limits.

Final Disposition Report, including work performed and air monitoring results, in this section shall be provided prior to final payment. Separate copy of the daily air monitoring results and the Final Disposition Report shall be provided to the Environmental Management Office at DPW, Environmental Management Branch, B/4219, 77th St., Fort Hood, TX 76554-5028

SD-13 Certificates

Quality Assurance; GA.

Certificates shall meet the requirements of paragraph QUALITY ASSURANCE. The statements shall be signed and dated by a certifying officer after the award of this contract and contain the following:

- a. Contractor's name and address.
- b. Project name and location.
- c. The specified requirements that are being certified as stated in paragraph 1.3.1 Qualifications, subparts a through f.

1.3 QUALITY ASSURANCE

1.3.1 Qualifications

- a. Contractor: Certification that the Contractor has prior experience on LBP abatement projects similar in nature and extent to ensure the capability to perform the abatement in a satisfactory manner.
- b. Competent Person: Certification that the Contractor's full-time on-site Competent Person meets the competent person requirements of 29 CFR 1926 Section .62 and is experienced in administration and supervision of LBP abatement projects, including work practices, protective measures for building and personnel, disposal procedures, etc. This person shall have completed a Contractor Supervisor LBP abatement course by an EPA Training Center or an

equivalent certification course, and have had a minimum of 2 years on-the-job experience.

- c. Not Used.
- d. Industrial Hygienist: Certification that the Industrial Hygienist meets the Office of Personnel Management Standard for the Industrial Hygiene Series GS-690, and has a minimum of two years experience in LBP abatement.
- e. Testing Laboratory: The name, address, and telephone number of the independent testing laboratory selected to perform sampling and analysis for personal and environmental air samples, lead dust wipes, bulk sample analyses, and TCLP analysis. Documentation that the laboratory performing the analysis is an EPA National Lead Laboratory Accreditation Program (NLLAP) accredited laboratory and that it is rated proficient in the NIOSH/EPA Environmental Lead Proficiency Analytical Testing Program (ELPAT). Certification shall include accreditation for heavy metal analysis, list of experience relevant to analysis of lead in air, and a Quality Assurance and Quality Control Program. Currently, the American Association for Laboratory Accreditation (ASLA) and the American Industrial Hygiene Association (AIHA) are the EPA recognized laboratory accreditors. Documentation shall include the date of accreditation or reaccreditation.
- f. Blood Lead Testing Laboratory. The name, address and telephone number of the blood lead testing laboratory; the laboratory's listing by OSHA and the U.S. Public Health Service Center for Disease Control (CDC); and documentation that the laboratory certified in the state where the work site is located.

1.3.2 Respiratory Protection Devices

Manufacturer's certification of NIOSH or the Mine Safety and Health Administration (MSHA) approval for respiratory protection devices utilized on the site.

1.3.3 Cartridges, Filters, and Vacuum Systems

Manufacturer's certification of NIOSH approval of respirator cartridges (organic vapor, acid gas, mist, dust, high efficiency particulate); High Efficiency Particulate Air (HEPA) filtration capabilities for all cartridges, filters, and HEPA vacuum systems.

1.3.4 Medical Records

Certification that employees who are involved in LBP abatement work have received medical examinations and will receive continued medical surveillance, including biological monitoring, as required by 29 CFR 1926 Section .62 and by the state and local regulations pertaining to such work. Records shall be retained, at Contractor expense, in accordance with 29 CFR 1910 Section .20.

1.3.5 Training

Training certification shall be provided prior to the start of work involving LBP abatement, for all of the Contractors' workers, supervisors and Competent Person. Training shall meet the requirements of 29 CFR 1926

Section .62, 29 CFR 1926 Section .59 and 49 CFR 172, and that required by EPA or the state LBP course for the work to be performed. Training shall be provided prior to the time of job assignment and, at least, annually. Training may cover all abatement methods or focus only on those methods specified in the LBP Management Plan. The project specific training shall, as a minimum, include the following:

- a. Specific nature of the operation which could result in exposure to lead.
- b. Purpose, proper selection, fitting, use, and limitations of respirators.
- c. Purpose and description of the medical surveillance program and the medical removal protection program, including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant).
- d. Relevant engineering controls and good work practices.
- e. The contents of any compliance plan in effect.
- f. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.
- g. The employee's right of access to records under 29 CFR 1910Section .20.

1.3.6 Licenses and Permits

Copies of licenses and permits as required by applicable Federal, state, and local regulations shall be obtained at least 20 working days before the start of the LBP abatement project. The Contractor shall prepare the necessary document and obtain signature from the DPW-Environmental personnel who has signature authority. The Contractor shall provide a copy of the signed document to the Contacting Officer annotated with the date of mailing to the regulatory agency.

1.4 DESCRIPTION OF WORK

Work in this section shall be performed at Fort Hood, Texas for the project Fixed Wing Aircraft Park. It includes Base Bid Work for [AM#2] abatement of lead-based paint [AM#2] [AM#5] safety stripe markings on [AM#2] B90071 (vehicle scale), [AM#2][AM#5] concrete airfield apron and fuel pit [AM#2] _____; [AM#5] safety stripe markings on concrete at Building 90050 (Fire Station, 11646 SF); and [AM#5] components with LBP in Building 90049 (Control Tower and Ops Bldg., 23812 SF) [AM#2] as noted on demolition drawings and attached detailed report of lead paint inspection.

Lead-based Paint (LBP) Survey with x-ray fluorescent (XRF) analyzer was performed by COE for the above structures (reference [AM#1] _____ drawing [AM#1]s [AM#1] and attached detailed report of Lead Paint Inspection for physical locations of structures). XRF sample locations of painted surfaces are shown on the environmental drawings and XRF readings and TCLP-lead results are appended herein.

No lead based paint is detected in B/90079 and 90080 [AM#5] _____. The

demolition debris from 90079 and 90080 shall be disposed of as construction debris at the Fort Hood Landfill. However, [AM#5] abated LBP [AM#5] debris (from airfield apron, hydrant fueling pits, and 90071) by removal of paint from the substrate [AM#2] shall be disposed of [AM#5] the Fort Hood Landfill. The TCLP-lead result of yellow paint chips from concrete (of 90071), based on COE survey, has non-detected level of leachable lead in (mg/l). The Contractor shall obtain a composite sample of debris to analyze for TCLP-lead analysis and verify disposal at Fort Hood Landfill. The Contractor shall salvage, to the maximum extent possible, bulk scrap metal and glass for recycling.

LBP abatement in B/90050, shall include (1) removal of wood components, with dark brown paint (soffit fascia board), light gray paint (from wall, post and doors, etc.), and concrete vehicle bumper with yellow paint, (2) removal of yellow safety striping paint (see [AM#1]_____ [AM#1]report). The XRF readings of the dark brown paint are 7.5 mg/sq. cm. The XRF readings of light gray paint are ranged from 1.5 to 6.2 mg/ sq. cm. The XRF readings of the yellow paint is 2.2 mg/ sq. cm. The TCLP-lead result of dark brown paint is 12.5 mg/l, and is hazardous. The Contractor shall segregate the dark brown wood components and disposed of as hazardous waste. A composite sample of the dark brown wood debris shall be obtained and analyzed for TCLP-lead prior to disposal at a permitted treatment and disposal facility off post. The Contractor shall prepare waste manifest and obtain signature from authorized personnel at the DPW-Environmental. No waste analysis for TCLP-lead was performed on the light gray wood component or the yellow paint in the COE survey. A composite sample of debris from the light gray wood component and yellow paint shall be obtained for TCLP-lead analysis by the Contractor to verify disposal at Fort Hood Landfill.

Soil sampling is required for B/90050, reference paragraph 3.4.5 Soil Sampling.

Post LBP abatement and recycling (of glass and metal) the whole structure (90050) shall be disposed of as construction debris. Since a weighted composite sample of building material simulating debris of B/90050 was obtained by COE at survey and the TCLP-lead result is 0.622 mg/l.

LBP abatement in B/90049, shall include component removal of (1) double wood door frame in basement, (2) wood door on the Control Tower 5th floor (see environmental drawings on sheet no. H-3). The wood door frame in basement hallway has total lead content of 2110 mg/kg (which is not classified as LBP) and no abatement is required. Post LBP abatement and recycling (of glass and metal) the whole structure (90049) shall be disposed of as construction debris at Fort Hood Landfill. The XRF readings of all building materials indicating an insignificant level of lead. A composite sample of demolition debris shall be obtained by the Contractor for TCLP-lead analysis and verify disposal at Fort Hood Landfill.

Asbestos-containing materials (Section 13280) and other regulated material (Section 02051) are present in these structures. The Contractor shall phase work in this section with the Contracting Officer Representative (COR).

The Contractor shall provide worker protection in accordance with 29 CFR 1926 Section .62 and perform initial assessment and worker exposure monitoring for all work in this section. The Contractor shall establish engineering controls, work and hygiene practices to minimize lead dust exposure to workers and environment when performing work in this section.

The Contractor shall submit required plans in accordance with paragraph 1.2 SUBMITTALS and provide results to COR during abatement within 48 hours after completion of sampling. Disposal procedures are discussed in paragraph 3.6.6 DISPOSAL.

The Contractor shall be responsible for necessary licenses, permits, manifest, removal, disposal, worker's training, and any associated fees or other costs incurred in this section.

1.5 SITE VISIT

Contractor shall visit, investigate the site, review the drawings and specifications, assess the amount of LBP abatement and debris, and become familiar with conditions which will affect the work.

1.6 LIABILITY INSURANCE FOR LBP

LBP abatement liability insurance shall be obtained without additional expense to the Government. The Contractor shall assume full responsibility and liability for the compliance with Federal, state, and local regulations pertaining to training, work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.

1.7 PROTECTION OF EXISTING WORK TO REMAIN

Abatement, storage, transportation, and disposal work shall be performed without damaging or contaminating adjacent work and areas. Where such work or areas are damaged or contaminated, the Contractor shall restore work and areas to the original condition.

1.8 COORDINATION WITH OTHER WORK

Abatement and disposal work shall be coordinated with existing work and/or concurrent work being performed in adjacent areas. Employees in adjacent work areas shall be removed, if possible, during lead abatement activities.

1.9 SAFETY AND HEALTH REGULATORY REQUIREMENTS

Work shall be performed in accordance with requirements of EM 385-1-land applicable regulations including, but not limited to 29 CFR 1910, 29 CFR 1926, especially Section .62. Matters of interpretation of the standards shall be submitted to the appropriate agency for resolution before starting work. Where these requirements vary, the most stringent shall apply. All employees in adjacent work areas shall be removed where possible during lead abatement activities.

1.10 PRECONSTRUCTION MEETING

The Contractor and the Competent Person shall attend a preconstruction meeting prior to starting any work involving LBP abatement. Items required to be submitted will be reviewed for completeness, and where specified, for acceptance.

1.11 ACCIDENT PREVENTION PLAN

1.11.1 Preparation and Implementation

The Accident Preparation Plan (APP) shall be prepared in accordance with EM

385-1-1, Appendix A. Where topic in Appendix A is not applicable, the APP shall justify its omission or reduced level of detail, and establish that adequate consideration was given to the topic. The APP shall cover on-site work by the Contractor or subcontractors. The Competent Person shall be responsible for development, implementation, and quality control of the content and actions required in the APP. For each anticipated work task, the APP shall establish hazards and control measures. The APP shall be easily readable and understandable by the Contractor's work force.

1.11.2 Acceptance and Modifications

The APP shall be prepared, signed and dated by the Contractors Competent Person and submitted 20 calendar days prior to the preconstruction meeting.

Deficiencies in the APP shall be discussed at the Preconstruction Safety Conference and the APP shall be revised to correct the deficiencies, and resubmitted for acceptance. On-site work shall not begin until the APP has been accepted unless otherwise authorized by the Contracting Officer. One copy of the APP shall be maintained in the Contractor's jobsite file, and a second copy shall be posted where it will be accessible to personnel on the site. As work proceeds, the APP shall be adapted to new situations and conditions. Changes to the APP shall be made with concurrence of the Competent Person and Site Superintendent, and acceptance of the Contracting Officer. Should an unforeseen hazard become evident during performance of the work, the Competent Person shall bring such hazard to the attention of the Superintendent and the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, the Contractor shall take necessary action to re-establish and maintain safe working conditions; and to safeguard on-site personnel, visitors, the public, and the environment. Disregard for provisions of this specification, or the accepted APP, shall be cause for stopping of work until the matter is rectified.

1.11.3 Activity Hazard Analyses

An Activity Hazard Analysis (AHA) shall be prepared prior to beginning each major phase of the work and submitted for review and acceptance. Format shall be in accordance with EM 385-1-1, Section 1, Figure 1-1. A major phase of work is defined as an operation involving hazards not experienced in previous operations, or where a new work crew is to perform. The analysis shall define the activities and the sequence in which they are to be performed, specific hazards anticipated, and control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the Activity Hazard Analysis has been accepted and a preparatory meeting has been conducted by the Contractor to discuss content of the AHA with everyone engaged in the activity, including the Government's on-site representative. The AHA shall be continuously reviewed and modified when appropriate to address changing conditions or operations. The accepted AHA shall be appended to and become part of the APP.

1.12 RESPIRATORY PROTECTION PROGRAM

A respiratory protection program shall be established as required by 29 CFR 1926 Section .103 and .62 and in accordance with 29 CFR 1910 Section .134. An approved respirator shall be furnished to each employee and visitor required to enter a LBP work control area. A fit test shall be conducted in accordance with 29 CFR 1926 Section .62, Appendix D.

1.13 HAZARD COMMUNICATION PROGRAM

A Hazard Communication Program shall be implemented in accordance with 29 CFR 1926 Section .59.

1.14 SAFETY AND HEALTH OVERSIGHT

The Competent Person shall be the on-site person responsible for coordination, safety, security and execution of the work. The Competent Person shall be able to identify existing and predictable lead hazards and shall have the authority to take corrective measures to eliminate them. The Competent Person shall be responsible for the initial assessment, worker exposure monitoring during abatement, and sampling required for abatement work, unless it is specified otherwise in the Contractor's LBP Management plan.

1.15 PREPARATORY INSPECTION MEETING

The Contractor, the Contractor's Competent Person, and the Contracting Officer's representative shall arrange and hold a preparatory inspection meeting immediately prior to beginning any LBP abatement. The APP, Activity Hazard Analyses, and the Contractor's LBP Management Plan, including containment, engineering controls, worker protection, training, and monitoring, will be reviewed for completeness.

1.16 TRAINED AND COMPETENT PERSONNEL

Work shall be performed by Competent Persons, qualified and trained in the abatement, enclosure, encapsulation, monitoring, testing, storage, treatment, hauling, and disposal of contaminated LBP debris material, and in subsequent cleanup of the affected environment. Workers shall comply with the appropriate Federal, state, and local regulations which mandate training requirements and work practices and shall be capable of performing the work under this contract.

1.17 POSTED WARNINGS AND NOTICES

The following regulations, warnings, and notices shall be posted at the work site in accordance with 29 CFR 1926 Section .62.

1.17.1 Regulations

Two copies of applicable Federal, state, and local regulations and NIOSH OSHA Booklet 3142 shall be maintained. One copy shall be posted at the work site and one copy shall be on file in the project office.

1.17.2 Warning Signs and Labels

Warning signs shall be provided at building entrances and approaches to LBP control areas containing airborne LBP debris. Signs shall be located at a distance from the LBP control areas that will allow personnel to read the sign and take the necessary protective actions required before entering the LBP control area.

1.17.2.1 Warning Signs

Warning signs shall be in English and Spanish and be of sufficient size to be clearly legible and display the following:

WARNING

LEAD WORK AREA
POISON
NO SMOKING OR EATING
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

1.17.2.2 Warning Labels

Warning labels shall be in English and Spanish and be of sufficient size to be clearly legible and display the following:

CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE OR LOCAL REGULATIONS.

1.17.3 Worker Information

Right-to-know notices shall be placed in clearly visible areas of the work site in compliance with Federal, state, and local regulations.

1.17.4 Air Monitoring Results

Daily air monitoring results shall be prepared so as to be easily understood by the workers, and shall be placed in a clearly visible area of the work site.

1.17.5 Emergency Telephone Numbers

A list of telephone numbers shall be posted at the site. The list shall include numbers of the local hospital, emergency squad, police and fire departments, Government and Contractor representatives who can be reached 24 hours per day, and professional consultants directly involved in the project.

1.18 EQUIPMENT AND MATERIALS

Sufficient quantities of health and safety materials required by 29 CFR 1926 Section .62, and other materials and equipment needed to complete the project, shall be available and kept on the site.

1.18.1 Respirators

Air-purifying respirators shall be approved by NIOSH for use with dust, fumes, and mists having permissible exposure limits less than 0.05 milligrams per cubic meter (i.e., have high-efficiency particulate air (HEPA) filters) and for other hazardous airborne contaminants that may be encountered, as determined by the Competent Person. Respirators shall comply with the requirements of 29 CFR 1926 Section .62 and shall be used in accordance with 29 CFR 1926 Section .103 and 29 CFR 1910 Section .134.

1.18.2 Respirator Cartridges

A sufficient supply of respirator cartridges shall be maintained at the work site to provide new cartridges to employees, authorized visitors, and Government personnel throughout the duration of the project. Cartridges shall be replaced according to the manufacturer's recommendations, when breathing becomes difficult, or if the cartridge becomes wet.

1.18.3 Protective Clothing

The Contractor shall furnish, at no cost to personnel, equipment/clothing for protection from airborne and waterborne LBP debris. An adequate supply of these items shall be available for worker, authorized visitor, and Government personnel use. Workers and visitors shall not take protective clothing and equipment off the work site at any time. Protective clothing includes:

- a. Coveralls (Whole Body Protective Coverings): Full-body coveralls and head covers shall be worn by workers in the work area. Sleeves shall be secured at the wrist and pants legs at the ankle with tape. Permeable clothing shall be provided in heat-stress conditions. Where non-disposable coveralls are provided, these coveralls shall be cleaned after each wearing. Cleaning of coveralls and other non-disposable clothing shall be in accordance with the provisions for cleaning in 29 CFR 1926 Section .62.
- b. Boots: Work boots with non-skid soles or impermeable work boot covers shall be worn by workers. Where required by OSHA, safety boots (steel toe or steel toe and shank) shall be worn. Paint the uppers of boots red with waterproof enamel. Do not allow boots to be removed from the work area for any reason after being contaminated with LBP debris. Dispose of boots as LBP contaminated waste at the end of the work.
- c. Gloves: Inner gloves, appropriate for items and hazards encountered, and disposable outer work gloves shall be provided to each worker and shall be worn while the worker is in the work area. Glove material shall be appropriate for the specific chemical exposure. Gloves shall not be removed from the work area, and shall be disposed of as LBP contaminated waste at the end of the work.
- d. Hard Hats: Head protection (hard hats) shall be provided as required by OSHA and EM 385-1-1 for workers and authorized visitors. Protective plastic strap suspension hats shall be used. Hard hats shall be worn at all times that work is in progress. Hats shall remain in the work area until the project is completed. Hats shall be thoroughly cleaned, decontaminated, and bagged before being removed from the work area at the end of the project.
- e. Eye Protection: Fog-proof goggles for personnel engaged in LBP abatement operations shall be worn when the use of a full face piece respirator is not required.
- f. Work Clothing: Cloth work clothes shall be provided for wearing under the disposable protective coveralls and foot coverings.

1.18.4 Expendable Supplies

1.18.4.1 Polyethylene Sheet and Bags - General

Polyethylene sheet and bags shall be minimum 6 mils thick. Bags shall have pre-printed labels, and 5 inch (minimum) long plastic ties, pointed and looped to secure the filled bags. Polyethylene sheets shall be in roll sizes to minimize seams.

1.18.4.2 Polyethylene Sheet - Flame Resistant

Where a potential for fire exists, flame-resistant polyethylene sheets shall be provided. Polyethylene film shall be frosted and shall conform to the requirements of NFPA 701.

1.18.4.3 Polyethylene Sheet - Reinforced

Reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the LBP control area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

1.18.4.4 Tape and Adhesive Spray

Tape and adhesive shall be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive shall retain adhesion when exposed to wet conditions, including amended water. Tape shall be minimum 2 inches wide, industrial strength.

1.18.4.5 Containers

Impermeable containers shall be used to receive and retain lead contaminated material until disposal. Containers shall be labeled in accordance with EPA, DOT and OSHA standards.

1.18.4.6 Chemicals

Chemicals, including caustics and paint strippers, shall be properly labeled and stored in leak-tight containers.

1.18.5 Vacuum Systems

HEPA filtered vacuum systems shall be used during abatement operations which generate dust. The systems shall be suitably sized for the project, and filters shall be capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

1.18.6 Heat Blower Guns

Heat blower guns shall be flameless, electrical, paint-softener type with controls to limit temperature to 1,100 degrees F. Heat blower shall be DI (non-grounded) 120 Vac, and shall be equipped with cone, fan, glass protector and spoon reflector nozzles.

1.18.7 Chemical Paint Strippers

Chemical paint strippers shall contain no methylene chloride and shall be formulated to prevent stain, discoloration, or raising of the substrate materials.

1.18.8 Chemical Paint Stripper Neutralizer

Neutralizers for paint strippers shall be used on exteriors only and shall be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

1.19 STORAGE OF MATERIALS

Materials shall be stored in a place and manner which protects them from damage and contamination. During periods of cold weather, plastic materials shall be protected from the cold. No flammable or hazardous materials shall be stored inside any building. Regularly inspect materials to identify damaged or deteriorating items. Damaged or deteriorated items shall not be used and shall be removed from the site as soon as they are discovered. Any materials which become contaminated with LBP waste shall be disposed of consistent with the requirements of 40 CFR 148 and these specifications. Stored materials shall not present a hazard or an inconvenience to workers, visitors, and/or other occupants and employees of the building.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 NOT USED

3.2 WORK PROCEDURES

LBP abatement and related work shall be performed in accordance with the accepted Contractor's LBP Management Plan. Procedures and equipment required to limit occupational and environmental exposures to lead during LBP removal shall be in accordance with 29 CFR 1926 Section .62, and as specified herein. Paint chips and associated waste shall be disposed of in compliance with Federal, state, and local regulations.

3.2.1 Personnel Protection Procedures

Personnel shall wear and use protective clothing and equipment as specified. Eating, smoking, drinking, chewing tobacco and chewing gum, and applying makeup shall not be permitted in the LBP control area. Personnel of trades not engaged in the abatement and disposal of LBP shall not be exposed at any time to airborne concentrations of lead equal to or in excess of 30 micrograms per cubic meter (ug/m³) of air. Electrical service shall be disconnected when wet removal is performed, and temporary electrical service protected by a ground fault circuit interrupter shall be provided.

3.2.2 Safety and Health Procedures

The Competent Person shall be present on the work site throughout the abatement project to supervise, monitor, and document the project's health and safety provisions. A daily log shall be maintained showing the results of sampling tests throughout the project area.

3.2.3 Safety and Health Responsibilities

The Competent Person shall:

- a. Verify that training meets applicable requirements.
- b. Review and approve LBP Management Plan for conformance to the applicable referenced standards.
- c. Inspect LBP removal work for conformance with the accepted LBP Management Plan.

- d. Ensure that worker exposure air monitoring activities are in accordance with 29 CFR 1926 Section .62.
- e. Ensure work is performed in strict accordance with specifications.
- f. Minimize exposure to personnel and to the environment.

The Competent Person shall be responsible for directing personal and environmental air monitoring, and lead dust wipe sampling (if necessary).

3.2.4 Medical Surveillance Procedures

Medical surveillance shall be implemented in accordance with the approved Contractor's LBP Management Plan, and shall comply with the requirements of 29 CFR 1926 Section .62, including the provisions for biological monitoring, medical removal protection and a physician's written opinion, signed by the physician performing the employee examination. The Contractor shall provide a copy of the written opinion for Contractor's employees 2 days prior to each employee's commencement of work.

3.2.5 Engineering Controls and Containment Structures

3.2.5.1 LBP Control Area

The LBP control area is where LBP abatement work occurs and as such shall be considered contaminated, and shall be isolated to prevent LBP containing dust or debris from passing into adjacent or open areas. The control area shall be decontaminated at the completion of the LBP abatement and disposal work.

3.2.5.2 Boundary Requirements

Physical boundaries shall be provided around exterior LBP control areas by roping off the area indicated in the LBP Management Plan. Interior projects shall be isolated by curtains, portable partitions, or other enclosures to ensure that concentrations of lead dust outside the LBP control area will not equal or exceed the pre-abatement level.

3.2.5.3 Control Barriers

The LBP control area shall be separated from other portions of the building and the outside with control barriers. The polyethylene sheeting will have all openings masked and sealed, and shall be erected according to the Contractor's LBP Management Plan. Polyethylene sheeting shall be mechanically supported, independent of duct tape or spray adhesive.

3.2.5.4 Preabatement Lead-Dust Wipe Samples

Preabatement lead-dust wipe samples shall be taken outside the LBP controlled area, in accordance with HUD-01. Samples shall be taken within 10 feet of the abatement structure at 20 percent of the area planned for abatement.

3.2.5.5 Masking and Sealing

- a. Interior LBP control area requirements: Openings shall be sealed where the release of airborne LBP dust is expected. A control area shall be established with the use of curtains, portable partitions, or other systems in order to prevent the escape of

dust from the contaminated control area. The control area shall be provided with protective covering of two layers of polyethylene sheeting over floors. Penetrations of the floor, walls, and ceiling shall be sealed with polyethylene sheeting and duct tape. Polyethylene sheeting shall be firmly attached to the structure. Joints shall be sealed with spray adhesive and duct tape. Openings shall be provided for the supply and exhaust of air for the negative air pressure system. Personal monitoring during the work shift shall be in accordance with 29 CFR 1926 Section .62.

3.2.5.6 Personnel Decontamination Unit Procedures

Decontamination units shall be constructed when required for the abatement procedures. Materials fabricated or delivered to the site before the shop drawings have been returned to the Contractor will be subject to rejection by the Contracting Officer. Specifications and drawings of portable prefab units, such as a trailer unit, if utilized, must be submitted for review and approval before start of construction. Submittal shall include, but not be limited to, a floor plan layout showing dimensions, materials, sizes, thicknesses, plumbing, and electrical outlets. Access between contaminated and uncontaminated rooms or areas shall be through an airlock.

Access between any two rooms or room and trailer within the decontamination unit shall be through a plastic sheeting curtained doorway.

A separate equipment decontamination unit shall be provided. Each work area shall have an emergency exit. The personnel decontamination unit's clean room shall be the only means of entrance and exit, except for emergencies, from the LBP control area. Materials shall exit the LBP control area through the equipment decontamination area.

3.2.5.7 Clean Room Procedures

The clean room shall have only one exit to non-contaminated areas of the building or site. An airtight seal shall be constructed of polyethylene between the clean room and the rest of the building. Surfaces of the clean room shall be protected with sheet polyethylene. A temporary unit with a separate equipment decontamination locker room and a clean locker room shall be provided for personnel who are required to wear whole body protective clothing. One locker shall be provided in each locker room for each LBP abatement worker, and each Contractor's representative. Lead-free personal clothing and shoes shall be kept in the clean locker. Hand wash station/showers shall be located between the equipment decontamination locker room and the clean locker room, and employees shall wash or shower before changing into personal clothes. An adequate supply of clean disposable towels shall be provided. LBP contaminated work clothing shall be cleaned. Clean rooms shall be physically attached to the LBP control area for areas inside the building but may be directly adjacent to the LBP control area outside of the building. Joint use of this space for other functions, such as offices, equipment storage, etc., is prohibited.

3.2.5.8 Hand Wash Station/Shower Room Procedures

An operational shower and hand washing station shall be provided between the work area and the clean changing room. Workers shall wash and/or shower before entering the clean changing room. Shower room shall be separated from other rooms by air tight walls fabricated from polyethylene sheeting. Water shall be hot and cold or warm. Shower heads and controls, soap dish, continuing supply of soap, and clean towels shall be provided. The shower shall be maintained in a sanitary condition. Waste water shall be pumped to drain and through waste water filters that meet state and/or

local requirements. These filters shall be located inside the shower unit and filters shall be changed regularly. Spent filters shall be discarded as LBP contaminated waste.

3.2.5.9 Equipment Decontamination Unit Procedures

The Equipment Decontamination Unit shall be used for removal of equipment and materials from the LBP control area, and shall include a wash room, holding room, and an enclosed walkway. The unit shall be constructed from wood framing material and polyethylene sheeting. Workers shall not enter or exit the LBP control area through the Equipment Decontamination Unit. A washdown station, consisting of an enclosed shower unit, shall be located in the work area outside the Wash Room. The washdown station shall be used to clean equipment, bags and containers. Bagged or containerized LBP wastes shall be passed from the work area and cleaned in the Wash Room. The Wash Room shall be separated from the work area by a polyethylene sheeting flap. Wastewater shall be filtered and filters shall be changed as required for the shower unit and the Wash Room. Filters shall be disposed of as LBP contaminated wastes. The Holding Room shall be used as a drop location for bagged LBP passed from the Wash Room. This room shall be constructed so that bagged materials cannot be passed from the Wash Room through the Holding Room to the enclosed walkway. The walkway shall be separated from adjacent rooms by double flaps of 1/16 inch thick single ply rubber roofing materials of EPDM or Neoprene. The enclosed walkway shall isolate the Holding Room from the building exterior and shall be constructed of wood framing and polyethylene sheeting. The walkway shall provide access to the Holding Room from the building exterior. The enclosed walkway shall be separated from the exterior by a single flap of polyethylene sheeting.

3.2.5.10 Maintenance of Decontamination Units

Barriers and polyethylene sheeting shall be effectively sealed and taped. Containment barriers shall be visually inspected at the beginning of each work period. Damaged barriers and defects shall be immediately repaired upon discovery. Smoke methods shall be used to test effectiveness of barriers when directed by the Contracting Officer.

3.2.5.11 LBP Control Area Exiting Procedures

Personnel exiting a LBP control area shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

- a. Vacuum all protective clothing before removing.
- b. Remove protective clothing in the decontamination room, and place this clothing in an approved impermeable disposal bag.
- c. Wash or shower.
- d. Change to clean clothes prior to leaving the physical boundary designated around the lead-contaminated work site.

3.2.6 Furnishings

The Government will remove furniture and equipment from the work area before LBP removal work begins. The Contractor shall coordinate this effort with the COR.

3.2.7 Building Ventilating Systems

Any building ventilating system or any other system bringing air into or out of the LBP control work area shall be shut down and isolated by lockable switch; disconnecting wires; removing circuit breakers; isolated by airtight seals, or other positive means that will prevent spread of contamination through the system. Airtight seals shall consist of 2 layers of polyethylene. Individual seals shall be applied to ventilation openings (supply and exhaust), lighting fixtures, clocks, windows, doorways, elevator doors, stairs, ramps, speakers, and other openings into the work area. Seals shall be maintained until project decontamination is completed. After decontamination work has been completed and final air sample testing proves that the area is decontaminated, seals shall be removed and the ventilating systems may be operated again.

3.2.8 Temporary Utilities

Temporary equipment to provide adequate power, light, heat, and water shall be installed to accomplish the abatement operations properly and safely. The Contractor shall maintain the security and maintenance of the utility system in the LBP control areas. In the event of a failure of any utility system, the Government will not be responsible for any loss of time or other expense incurred by the Contractor. Wiring and electrical service shall be as specified in to Section 16415 Electrical Work, Interior or Section 16370 Electrical Distribution System, Aerial. In addition, the Contractor shall provide:

- a. Backflow protection on all water connections. Fittings installed by the Contractor shall be removed after completion of work with no damage or alteration to existing water piping and equipment.
- b. Heavy-duty abrasion-resistant hoses to provide water to each work area and decontamination area.
- c. A hot water heater, if hot water is not supplied through the building's existing water supply to the decontamination showers.
- d. Electrical service to work areas. Electrical service shall comply with NEMA, NECA, and UL standards. Warning signs shall be posted at power outlets which are other than 110-120 volt power. Only grounded extension cords shall be used. Incandescent lamps and light fixtures shall be of adequate wattage to provide good illumination in LBP control areas.
- e. Temporary heating units, when needed, that have been tested and labeled by UL, FM, or another recognized trade association related to the fuel being consumed. Forced air or fan type units shall not be utilized inside a work area. Units shall have tip-over protection.
- f. Sufficient quantity of single-occupant, self-contained chemical toilets, properly vented and fully enclosed, if permanent toilets are not available.

3.3 LBP ABATEMENT METHODS

3.3.1 Whole Component Removal

The painted wood components shall be removed and disposed of in their entirety.

3.3.2 Not Used

3.3.3 Not Used

3.3.4 Not Used

3.3.5 Not Used

3.3.6 Not Used

3.3.7 Chemical Stripping

The Contractor shall have choice of LBP removal method for the yellow safety striping from concrete substrate. The choice of LBP removal method shall be identified on the Contractor's LBP Management Plan. Chemical strippers containing methylene chloride are prohibited. Chemical stripping shall take place on-site. Stripping shall be done according to manufacturer's recommendations and the accepted Contractor's LBP Management Plan. Substrates shall be thoroughly washed and neutralized. Waste generated by the stripping process shall be handled in accordance with the accepted Contractor's Waste Management Plan, Waste Handling and Site Storage Plan. Adjacent finishes (i.e beams, walls and floors) shall be protected to prevent contamination.

3.3.8 Not Used

3.3.9 Vacuum Blasting

The Contractor shall have choice of LBP removal method for the yellow safety stripping on metal substrate (hydrant fueling pit). The choice of LBP removal method shall be identified on the Contractor's LBP Management Plan. The vacuum blasting system shall have HEPA filter. Work shall be performed in a LBP control area using negative pressure full containment with HEPA filtered exhaust. Paint residue shall be handled in accordance with the accepted Contractor's Waste Management Plan, Waste Handling and Site Storage Plan.

3.3.10 Needle Gun

The Contractor shall have choice of LBP removal method for the safety stripping on metal substrate. The choice of LBP removal method shall be identified on the Contractor's LBP Management Plan. The needle gun shall be fitted to HEPA vacuum systems. Work shall be performed in a LBP control area using negative pressure full containment with HEPA filtered exhaust. Paint residue shall be handled in accordance with the accepted Contractor's Waste Management Plan, Waste Handling and Site Storage Plan Waste Management Plan.

3.4 MONITORING

During the entire LBP removal and disposal operations, a Competent Person shall be on-site directing the monitoring/sampling and inspecting the work to ensure that the health and safety requirements of this contract are satisfied.

3.4.1 Personal Air Monitoring

Airborne concentrations of lead shall be collected and analyzed in accordance with 29 CFR 1926 Section .62. Results shall be reported in micrograms per cubic meter of air. The Competent Person shall use personal air monitoring results to determine the effectiveness of engineering controls, the adequacy of PPE and to determine if proper work practices are being employed. The Contracting Officer shall be notified if any personal air monitoring result equals or exceeds 30 micrograms per cubic meter of air. The Contractor shall take steps to reduce the concentration of lead in the air.

3.4.2 Wipe Sampling

Wipe sampling for surface lead dust concentrations shall be conducted in accordance with ASTM E1792 for wipe sample materials and HUD-01. Wipe sampling shall be conducted at:

- a. Preabatement to establish a baseline when performing LBP abatement.
- b. Not Used.
- c. Post abatement to determine if specified clearance criteria has been met. The clearance standards are:

Floors: 100 ug/sq. ft.
Exterior: 800 ug/sq. ft.

3.4.2.1 Preabatement

Preabatement wipe samples shall be collected outside the LBP control area in accordance with paragraph Preabatement Lead-Dust Wipe Samples. Samples outside the LBP control work area shall be collected at critical barriers, in the clean room of the decontamination unit and in traffic control areas such as personal and equipment entrances.

3.4.2.2 to 3.4.2.4 Not Used

3.4.2.3 Post Abatement

Post abatement samples shall be collected in accordance with paragraph Final Clearance Testing.

3.4.3 Not Used

3.4.4 Waste Sampling and Testing

Sampling and testing of all waste in the paragraph 1.4 DESCRIPTION OF WORK shall be in accordance with 40 CFR 261.

3.4.5 Soil Sampling

Soil sampling is necessary to determine if total lead content in soil adjacent to B/90050 is affected by LBP soffit fascia board or during abatement. Soil contamination during abatement or from accidental spillage shall be the responsibility of the Contractor, therefore, soil removal, testing, and disposal shall be conducted by the Contractor at no additional cost to the government.

3.4.5.1 Pre-abatement or Background Soil Sampling

Baseline total lead level in soil shall be obtained by composite soil sampling within the drip line of B/90050. Five (5) small portions of surface soil shall be scooped with a fresh 50 mL plastic centrifuge tube and composited in the tube. This will represent a single composite sample. The laboratory shall utilize procedures in EPA Method 6010 for Total Lead analysis.

3.4.5.2 Post Abatement

Post abatement soil samples shall be collected in the same manner as the pre-abatement sample for B/90050 or at any spillage location. If soil samples has Total Lead levels at or above 400 mg/kg, the Contractor will be required to perform soil excavation to a depth of two inches in the area. The soil shall be removed, tested, and disposed as specified in paragraph CLEANUP AND DISPOSAL.

3.5 ADJACENT AREAS

Damage to adjacent areas shall be repaired to the approval of the Contracting Officer.

3.6 CLEANUP AND DISPOSAL

3.6.1 Cleanup

3.6.1.1 Daily

Surfaces in the LBP control area shall be maintained free of accumulations of paint chips and dust. Spread of dust and debris shall be restricted; waste shall not be distributed over the work area. Dry sweep or compressed air shall not be used for cleanup. At the end of each shift, the area shall be cleaned of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner and wet mopping the area. LBP abatement work shall cease during the cleanup.

3.6.1.2 Prior to Clearance

Upon completion of the lead paint abatement and a satisfactory visual inspection by the Contracting Officer in a given work area, a preliminary clean-up shall be performed by the Contractor. This clean-up includes removal of any contaminated material, equipment or debris including polyethylene sheeting from the work area, except for critical barriers. The polyethylene sheeting shall be sprayed or misted with water for dust control, abatement debris removed and then the sheeting removed by folding it in upon itself. Polyethylene sheeting used for critical barriers shall remain in place until final clearance criteria. The following methodology shall be utilized during the cleanup prior to clearance.

- a. Lead-contaminated debris shall be containerized in accordance with paragraph Contaminated Waste. Waste bags shall not be overloaded, shall be securely sealed and stored in the designated area until disposal.
- b. Non-contaminated debris shall be containerized; removed from the work area and stored in the designated area until disposal in accordance with paragraph Non-Contaminated Waste.
- c. Removal of surface polyethylene sheeting shall begin from upper

levels such as cabinets and shelves. Removal of floor polyethylene sheeting shall begin at the corners and folded in the middle to contain the dust. Polyethylene shall be disposed of as specified for debris.

- d. Cleaning. Once the polyethylene sheeting, except critical barriers is removed from the work area, cleaning shall begin. It shall be done in the following sequence: HEPA Vacuum; Tri-Sodium Phosphate (TSP) wash (or equivalent cleaner); and HEPA Vacuum.
- e. HEPA Vacuum. Vacuum all surfaces. Begin with ceilings and proceed down the walls, including window, doors, door trim and ending with floors. Begin vacuuming at the furthest corner from the entrance to the work area.
- f. Wet Wash. Wash or mop the surfaces vacuumed in the same sequence. Contractor shall utilize a tri-sodium phosphate (TSP) detergent solution or other equally effective cleaning agent and allow surface to dry.
- g. Cleaning Equipment. The Contractor shall prepare and use detergents containing five to ten percent TSP or other equally effective cleaning agent which shall be used in accordance with the manufacturers instructions. The waste water from cleaning shall be contained and disposed of according to applicable Federal, state, county and local regulations and guidelines. The waste water shall not be disposed of in storm sewers or sanitary sewers without specific and written Government approval.

3.6.2 Visual Inspection

Upon completion of the final cleaning, the Contractor shall notify the Contracting Officer and request a final visual inspection with the Contracting Officer's representative with the criteria in the final cleaning/visual inspection example format sheet located at the end of this section. If the area does not pass the visual inspection, the Contractor shall re-clean the area as required by paragraph CLEANUP AND DISPOSAL, at no additional expense to the Government. Final clearance testing shall not proceed until the Contracting Officer has accepted the final cleaning by the Contractor.

3.6.3 Final Clearance Testing

Final clearance surface dust sampling shall be conducted for the paint abatement task, after a thorough cleanup has been completed in accordance with the following:

On-site paint removal in limited areas. Three samples shall be taken from the floor in each area abated and one sample outside the containment area (within ten feet). Pre-abatement wipe samples shall be compared to determine if dust from the abatement process has contaminated non-abated areas. The Contractor shall cleanup these areas if contamination from the abatement process occurs.

Retests. If laboratory results indicate that the wipe test clearance level is exceeded, the Contractor shall re-clean the affected area, at no additional cost to the Government. The Contractor shall utilize specified cleaning methods. Retesting will then be performed to determine if

specified clearance criteria was met. The Contractor shall pay for additional testing and shall provide, at no additional cost, a recleaning of an affected area until the clearance level is achieved. See paragraph 3.4.2 Wipe Sampling, for clearance standards.

3.6.4 Certification

The Competent Person shall certify in writing that inside the LBP control area and the area external to the LBP control area met final clearance requirements.

3.6.5 Removal of Control Area

After approval of the final clearance certification, and when authorized by the Contracting Officer, the LBP control area, containment barriers, and control structures roped-off boundary and warning signs shall be removed.

3.6.6 Disposal

3.6.6.1 Toxicity Characteristic Leaching Procedure (TCLP) Results

The results of the TCLP analysis, in accordance with 40 CFR 261, performed during abatement shall be used to determine disposal procedures.

Hazardous waste, has TCLP-lead result greater than or equal to 5 mg/l, shall be treated at a hazardous waste treatment facility and prior approval by TNRCC is required.

Class I waste, has TCLP-lead result greater than or equal to 1.5 mg/l but less than 5.0 mg/l, shall be managed as special waste and disposed of in a Type I municipal landfill with a dedicated special waste trench or a permitted industrial landfill. Class I waste shall require approval by TNRCC prior to disposal.

Class II waste, has TCLP-lead result less than 1.5 mg/l, shall be managed as construction debris and disposed of in a Type I/IAE, Type IV, or a permitted industrial landfill without prior approval by TNRCC.

Fort Hood Landfill at Turkey Run Road and Clarke Road will accept waste with TCLP lead result of less than 5.0 mg/l.

3.6.6.2 Contaminated Waste

Lead-contaminated waste, scrap, and debris shall be disposed of as follows:

- a. Lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing, which may produce airborne concentrations of lead particles shall be stored in U.S. Department of Transportation 49 CFR 178 approved 55 gallon drums. Each drum shall be labeled to identify the type of waste as defined in 49 CFR 172 and the date lead-contaminated wastes were first put into the drum. The Uniform Hazardous Waste Manifest forms from Federal and state agencies shall be obtained and completed. Land disposal restriction notifications shall be as required by 40 CFR 268. The Contracting Officer shall be notified at least 14 days prior to delivery to arrange for job site inspection of the drums and manifests. Lot deliveries of hazardous wastes shall be made as needed to ensure that drums do not remain on the work site longer than 90 calendar days from the

date affixed to each drum. Contractor shall prepare a Waste Management and Site Storage Plan to identify interim storage location.

- b. Lead-contaminated waste shall be handled, stored, transported, and disposed of in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Land disposal restriction notification shall be as required by 40 CFR 268.
- c. Lead-contaminated soil shall be handled, stored, transported, and disposed of in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Land disposal restriction notification shall be as required by 40 CFR 268. Removed lead-contaminated soil shall be stockpiled at an approved location by the COR and a representative soil sample shall be obtained from each 40 cubic meters and analyzed for TCLP-lead for disposal.

3.6.6.3 Non-Contaminated Waste

Non-contaminated waste, scrap, and debris from the building structure shall be disposed of as construction debris.

3.6.7 Disposal Documentation

Written evidence shall be provided that the hazardous waste treatment, storage, or disposal facility is approved for lead disposal by the EPA and state or local regulatory agencies. One copy shall be submitted of the completed manifest; signed, and dated by the initial transporter in accordance with 40 CFR 262.

3.6.8 Title to Materials

Materials resulting from demolition work, except as specified otherwise, shall become the property of the Contractor, for the duration of this contract, and shall be disposed of in accordance with Section 02220 DEMOLITION, except as specified herein.

3.6.9 Payment

Payment for disposal of waste will not be made until a Final Disposition Report is submitted and accepted by the COR, and a signed copy of the manifest or disposal receipt from the treatment or disposal facility certifying the amount of lead-containing materials delivered is returned and a copy is furnished to the Government.

CERTIFICATION OF FINAL CLEANING AND VISUAL INSPECTION

Individual abatement task as identified in paragraph,
Description of Work _____

In accordance with the clearing and decontamination procedures specified in the Contractor's lead hazard abatement plan and this contract, the Contractor hereby certifies that he/she has thoroughly visually inspected the decontaminated regulated work area (all surfaces, including pipes, beams, ledges, walls, ceiling, floor, decontamination unit, etc.) and has found no dust, debris, or lead containing material residue.

BY: (Contractor's signature) _____
Date _____
Print name and
title _____

(Contractor's On-site Supervisor signature) _____
Date _____
Print name and
title _____

(Contractor's Competent Person signature) _____ Date _____
Print name and
title _____

CONTRACTING OFFICER ACCEPTANCE OR REJECTION

The Contracting Officer hereby determines that the Contractor has performed final cleaning and visual inspection of the decontaminated regulated work area (all surfaces including pipes, beams, ledges, walls, ceiling, floor, decontamination unit, etc.) and by quality assurance inspection, finds the Contractor's final cleaning to be:

_____ Acceptable

_____ Unacceptable, Contractor instructed to re-clean the LBP control work area

BY: Contracting Officer's Representative

Signature _____
Date _____
Print name and
title _____

-- End of Section --

SECTION 05410

COLD-FORMED STEEL STRUCTURAL FRAMING

[AM #0005]

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI-01 (1996) Cold-Formed Steel Design Manual

AISI-02 (1996) Specification & Commentary for the Design of Cold-Formed Steel Structural Members (Part V of the Cold-Formed Steel Design Manual)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 653/A 653M (1997) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

AMERICAN WELDING SOCIETY (AWS)

AWS D1.3 (1989) Structural Welding Code - Sheet Steel

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Calculations; G.

Design calculations, as necessary, shall indicate compliance with load-bearing requirements for the following:

- a. Framing.
- b. Studs.
- c. Joists.
- d. Runners.
- e. Connections.

SD-04 Drawings

Cold-Formed Steel Framing; G.

Detail drawings shall indicate all member gages, spacings, and sizes; shop and field assembly details including cut and fastenings; type and locations of welds, bolts, and fastening devices; and panel fabrication, with individual panel drawings for each condition including configuration, dimensions, materials, attachments, structural calculations, and panel locations.

SD-06 Instructions

Cold-Formed Steel Framing; G.

Installation procedures; G.

1.3 DELIVERY AND STORAGE

Materials shall be delivered to the site in undamaged condition and stored off the ground in a well drained, ventilated, dry location; protected from damage; protected from rain or snow by impervious covering or shelter; properly supported on a level platform; and shall be easily accessible for inspection and handling. Handle materials carefully to prevent damage. Replace damaged items with new.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Steel Studs

Steel studs shall be formed from steel sheets conforming to ASTM A 653/A 653M except that the steel shall have a minimum yield point of 345 MPa (Grade D) for 0.10 inches, 0.07 inches, and 0.06 inches thicknesses and 228 MPa for 0.05 inches and 0.04 inch thicknesses. Studs shall be C-shaped, sized, and be hot dipped galvanized. Stud flanges shall be not less than 1.38 inches wide, and each flange shall, in addition, have a stiffening lip bent parallel to the stud web. Stiffening lips shall be at least 0.51 inches wide with turned or folded edges. Where required for utility lines and/or wires, stud webs shall have preformed holes or knockouts not larger than 2.95 square inches spaced not less than 5.91 inches on centers. Holes or knockouts shall be centered on the longitudinal axis of the web and shall be not more than 1.57 inches across the longitudinal axis. Studs shall be 16 gauge minimum thickness.

2.1.2 Runner Channels, Bridging, and Accessories

Ceiling and floor runner channels, bridging, and accessories shall be formed from 0.10 inches standard commercial steel sheets with a minimum yield point of 228 MPa, and shall be galvanized. Track shall be C-shaped with web dimension to receive stud ends, and with flange dimension not less than 1.26 inches.

2.1.3 Bridging

Unless otherwise shown on the drawings, horizontal bridging shall be spaced not greater than 4.92 feet center for wind loaded walls and 3.28 feet on center for axial loaded walls.

2.1.4 Protective Coating

All studs, floor and ceiling track, bridging, and accessories shall have a G90 galvanized coating meeting the requirements of ASTM A 653/A 653M.

2.1.4.1 Fasteners

2.1.4.2 Screws

Screws shall be corrosion-resistant, self-tapping and self-drilling type, with pan head; size as recommended by steel framing manufacturer.

2.1.4.3 Welding

Welding shall be in accordance with AWS D1.3. A wire feeder type welder may be used.

2.2 DESIGN AND FABRICATION

Cold-formed steel structural framing shall be designed and fabricated to conform to AISI-01 and AISI-02. **[AM #0005] However, sizes shown on drawings shall be minimum required.**

2.2.1 Wind Loading

Steel framing system shall be designed to carry the full design wind load with the maximum deflection limited to L/600.

2.2.2 Web Stiffeners

Web stiffeners shall be provided at concentrated load points and at end reactions whenever the web height/thickness ratio exceeds 200.

2.2.3 Panel Fabrication

Framing components may be prefabricated into panels prior to erection.

2.2.4 Cutting and Placement of Framing Members

Framing Components shall be cut square or on an angle as in bracing to fit square against abutting members. Members shall be held firmly in position until properly fastened.

2.2.5 Attachments

Attachments of similar components shall be done by welding. Dissimilar framing components shall be attached by welding, screen attachment or by bolting. Wire tying of framing components in structural applications will not be permitted. All welds shall be touched up with a zinc-rich paint.

2.2.6 Prefabricated Panels

Prefabricated panels shall be square and braced against racking. Lifting of prefabricated panels shall be done in a manner as to avoid local distortion in any member.

PART 3 EXECUTION

3.1 ERECTION

3.1.1 Floor Runner Channels

Channels shall be accurately aligned and securely attached in place. Attachment shall be by expansion shields and machine bolts, self-drilling anchors, or other approved methods with shear load capacity of 350.54 lbs minimum. Space anchors 24.02 inches on center maximum. Butt welds or splices shall be made at all butt joints in the channel.

3.1.2 Studs

Studs shall be seated squarely in the track with flanges abutting the track web, plumbed and aligned. Fasten studs to the top and bottom runner channels by welding or screwing both flanges to the runner channels. All studs shall be full wall height without splices. Jack studs shall be provided between track and sills, and between door and window headers and top track. Provide double studs at jambs of door and window openings and at control joints. Provide not less than 3 studs at corners. All welds shall be fillet, plug, butt, or seam. Install diagonal stud bracing between door and window headers and the top track. Stud spacing shall be 15.75 inches on center.

3.1.3 Ceiling Runner Channels

Channels shall be fitted and attached to studs as specified for the floor runner channel attachment. Ceiling runner channels shall continue across control joints without splices.

3.1.4 Special Framing

Special framing shall be provided at corners, intersections, jambs of openings, and over door and window openings to distribute the structural loads imposed and to provide attachment surfaces for connecting materials.

3.1.5 Temporary Bracing

Temporary bracing shall be provided until erection is completed.

3.1.6 Bridging

Bridging may be either C-shaped stud member cut to fit between stud webs, or continuous 1.50 inch cold rolled channel inserted through stud web cut-outs. Attach bridging to each web by welding.

3.1.7 Diagonal Bracing

Provide diagonal bracing where required. Attach by welding to floor and ceiling runner channels and at each stud intersection.

-- End of Section --

SECTION 13121

PREENGINEERED METAL BUILDING FRAME

[AM #0005]

PART 1 GENERAL

1.1 REFERENCES

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

ALUMINUM ASSOCIATION (AA)

AA 30 (1986) Aluminum Structures, Construction Manual Series Section 1

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC FCD (1990) Quality Certification Program Description

AISC S329 (1985) Allowable Stress Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts

AISC S335 (1989) Structural Steel Buildings Allowable Stress Design and Plastic Design

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7 (1988) Minimum Design Loads for Buildings and Other Structures

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36/A 36M (1996) Carbon Structural Steel

ASTM A 500 (1993) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A 529/A 529M (1994) High-Strength Carbon-Manganese Steel of Structural Quality

ASTM A 572/A 572M (1994; Rev. C) High-Strength Low-Alloy Columbium-Vanadium of Structural Steel

ASTM A 588/A 588M (1994) High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick

ASTM B 117 (1995) Operating Salt Spray (Fog) Apparatus

ASTM B 221 (1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

ASTM C 308	(1995) Working, Setting, and Service Strength Setting Times of Chemical-Resistant Resin Mortars
ASTM D 522	(1993; Rev. A) Mandrel Bend Test of Attached Organic Coatings
ASTM D 968	(1993) Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 2244	(1993) Calculation of Color Differences from Instrumentally Measured Color Coordinates
ASTM D 2247	(1994) Water Resistance of Coatings in 100 Percent Relative Humidity
ASTM D 2794	(1993) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 3359	(1995; Rev. A) Measuring Adhesion by Tape Test
ASTM D 4214	(1989) Evaluating Degree of Chalking of Exterior Paint Films
ASTM G 23	(1996) Operating Light-Exposure Apparatus (Carbon-Arc Type) with and Without Water for Exposure of Nonmetallic Materials
AMERICAN WELDING SOCIETY (AWS)	
AWS D1.1	(1996) Structural Welding Code - Steel
METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)	
MBMA LRMBSM	(1986; Supp. 1990) Low Rise Metal Building Systems Manual

1.2 DESCRIPTION OF BUILDING

1.2.1 Dimensions

Building dimensions shall be as standard with manufacturer, not less than those indicated, but exceeding the indicated dimensions only by the amount of the closest standard size thereto. Eave height shall be measured from the top of finished floor to intersection of insides of roof and sidewall sheets. The clear height between finished floor and bottom of roof steel shall be as indicated.

1.2.2 Framing

Provide building frame to accept vertical walls and gable roof. Building frame shall be single-span structures with one of the following framing systems: self-framing, column with single-span or rigid frame type, similar to AISC S335, Type I construction. End walls shall be of rigid frame. Roof slope greater than that indicated may be furnished if the required materials are provided and appropriate drawings are submitted and

approved. Design framed openings structurally.

1.2.3 Foundation Requirements

Design foundations for allowable soil bearing pressure and a minimum bottom of footing depth as indicated. Use a factor of safety of 1.5 for overturning, sliding and uplift, and a concrete compressive strength as specified in Section 03300, "Cast-In-Place Structural Concrete." The foundation loads are supplied by the building manufacturer.

1.3 EXPERIENCE

1.3.1 Manufacturer

The manufacturer shall have AISC FCD, category MB certification.

1.3.2 Installer

Erector shall have specialized experience in the erection of metal building systems for a period of at least 3 years.

1.4 DESIGN REQUIREMENTS

MBMA LRMBSM, for loading combinations and definitions with the exceptions of wind load and special collateral loads. Design for each material shall be as specified by the Design Authority as listed in MBMA LRMBSM.

1.4.1 Roof Dead, Live, and Snow Loads

As indicated.

1.4.2 Wind Loads

Compute and apply wind pressures, ASCE 7. Basic wind speed and multiplying factors are as indicated.

1.4.3 Collateral Loads

As indicated.

1.4.4 Deflection

1.4.4.1 Structural Members

The maximum deflection of main framing members shall not exceed 1/240th of their respective spans. The maximum deflection due to live load in roof panels and purlins shall not exceed 1/180th of their respective spans.

1.4.4.2 Roof Panels

Roof panels shall be in accordance with section [AM #0005] 07416 STRUCTURAL STANDING SEAM METAL ROOF SYSTEM (SSSMR) over 16 gauge structural metal roof deck.

1.4.4.3 Wall panels

Wall construction shall be as indicated.

1.4.4.4 Openings

Limit deflections of steel framing above and along the side of rolling door openings to a maximum of 1/2 the allowable movement in the telescoping top roller of the doors to ensure proper operation. Frame all equipment openings over 12 by 12 inches.

1.5 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Preengineered building frame; G

Template for anchor bolts

Submit as necessary to erect the building and install components.

SD-03 Product Data

Preengineered metal building materials

Submit sufficient data indicating conformance to specified requirements on materials provided under this section.

SD-04 Samples

Factory color finish

Submit one sample of each color indicated for verification that the color matches the colors indicated.

SD-05 Design Data

Building; G

Foundation loads; G

Anchor bolts; G

Purlins and girts; G

Bracing; G

SD-06 Test Reports

Factory Color Finish

Insulation

SD-07 Certificates

Preengineered metal building materials

Submit certificates attesting that materials comply with this specification.

SD-10 Operation and Maintenance Data

Preengineered Building, data package 1; G

Submit operation and maintenance data in accordance with Section 01781, "Operation and Maintenance Data."

1.6 DELIVERY, STORAGE, AND HANDLING

Deliver, store, and handle manufactured items so that materials remain dry and undamaged. Do not store in contact with materials that might cause staining.

1.7 WARRANTY

Provide warranty against water leaks arising out of or caused by ordinary wear and tear by the elements for a period of 20 years. Such warranty shall start upon final acceptance of the work or the date the Government takes possession, whichever is earlier.

1.8 QUALITY ASSURANCE

1.8.1 Drawings: Preengineered Building Frame

Submit complete design drawings for the preengineered building. Submit drawings for the foundations and anchorage.

1.8.2 Design Data: Building Frame

Submit design calculations for the entire preengineered building and foundations, prepared and stamped by a professional engineer. Also submit for components requested, and stamp with the seal of a professional engineer. Include sizes and location of anchor bolts.

PART 2 PRODUCTS

2.1 FRAMING AND STRUCTURAL MEMBERS

2.1.1 Steel

ASTM A 36/A 36M, ASTM A 529/A 529M, ASTM A 572/A 572M, or ASTM A 588/A 588M.

2.1.2 Aluminum

ASTM B 221 or ASTM C 308.

2.1.3 Structural Tube

ASTM A 500 or ASTM B 221.

2.2 MISCELLANEOUS ITEMS

2.2.1 Caps, Strips, and Plates

Form miscellaneous flashings, and miscellaneous sheet metal accessories from the same material and gage as the roof panels. Wall plates, base angles or base channels, and other miscellaneous framing members may be standard structural steel shapes, or may be formed from steel not lighter than 18 gage thick.

2.2.2 Closure Strips

Provide closure strips of closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the covering. Closure strips shall not absorb or retain water.

2.2.3 Sealant

Provide elastomeric type sealant containing no oil or asphalt. Exposed sealant shall cure to a rubberlike consistency. Concealed sealant may be the nonhardening type.

2.2.4 Gaskets and Insulating Compounds

Provide nonabsorptive gaskets and insulating compounds suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

2.2.5 Fasteners

Provide fasteners for steel wall and roof panels of zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Fasteners for aluminum wall and roof panels shall be aluminum or corrosion resisting steel. Fasteners for structural connections shall provide both tensile and shear strength of not less than 750 pounds per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be gasketed or have gasketed washers on the exterior side of the covering to waterproof the fastener penetration. Washer material shall be compatible with the covering; have a minimum diameter of 3/8 inch for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 1/8 inch thick. When wall covering is factory color finished, exposed wall fasteners shall be color finished or provided with plastic color caps to match the covering. Nonpenetrating fastener system using concealed clips shall be manufacturer's standard for the system provided.

2.2.5.1 Screws

Provide self-tapping screws not less than No. 14 diameter and not less than No. 12 diameter if self-drilling/self-tapping type.

2.2.5.2 End-Welded Studs

Provide automatic shouldered type studs with a shank diameter of not less than 3/16 inch and cap or nut for holding covering against the shoulder.

2.2.5.3 Explosive Actuated Fasteners

Fasteners for use with explosive actuated tools shall have a shank diameter of not less than 0.145 inch with a shank length of not less than 1/2 inch for fastening panels to steel and not less than one inch for fastening panels to concrete.

2.2.5.4 Blind Rivets

Provide aluminum rivets with 3/16 inch nominal diameter shank or stainless

steel rivets with 1/8 inch nominal diameter shank. Rivets shall be threaded stem type if used for other than the fastening of trim. Provide hollow stem rivets with closed ends.

2.2.5.5 Bolts

Provide bolts not less than 1/4 inch diameter, shouldered or plain shank as required, with nuts.

2.3 DOORS AND WINDOWS

Provide framing members and flashings as necessary for installation of the doors and windows.

2.4 CANOPIES

Soffit materials shall be of material indicated.

2.5 FINISH

2.5.1 Shop Painting

Ferrous metal work, except factory-finished work, zinc-coated work, aluminum-coated work, and work specified to be painted herein, shall be (1) cleaned of dirt, rust, scale, loose particles, grease, oil, and other deleterious substances; (2) phosphate treated; and (3) then be given one coat of an approved rust-inhibiting primer paint of the type standard with the metal building manufacturer.

2.5.2 Factory Color Finish

Exposed surfaces of metal accessories shall have a thermal-cured factory finish. Color shall be selected from manufacturer's standard colors. Provide standard dry film thickness of 1.0 mil exclusive of primer. Provide exterior primer thickness standard with building manufacturer. Provide color finish meeting the test requirements specified below. Tests shall have been performed on the same factory finish and thickness provided.

- a. Salt Spray Test: ASTM B 117, minimum 1000 hours. Undercutting of the paint film from the score line shall not exceed 1/16 inch.
- b. Accelerated Weathering Test: ASTM G 23, Method 2, Type D apparatus minimum 2000 hours or Type EH apparatus minimum 500 hours, no checking, blistering or loss of adhesion; color change less than 5 NBS units by ASTM D 2244 and chalking less than No. 8 rating by ASTM D 4214.
- c. Flexibility: ASTM D 522, Method A, 1/8 inch diameter, 180 degree bend, no evidence of fracturing to the naked eye.
- d. Adhesion: ASTM D 3359, Method B, for laboratory test and film thickness less than 5 mil and Method A for site tests. There shall be no film removed by tape applied to 11 parallel cuts spaced 1/8 inch apart plus 11 similar cuts at right angles.
- e. Impact: ASTM D 2794, no loss of adhesion after direct and reverse impact equal to 1.5 times metal thickness in mils, expressed in inch-pounds.

- f. Humidity Resistance: ASTM D 2247, 1000 hours, no signs of blistering, cracking, creepage or corrosion on score panel.
- h. Abrasion: ASTM D 968, Method A, falling sand shall not expose substrate when tested in quantities 13.2-15.9 gallons of sand per mil of thickness.

PART 3 EXECUTION

3.1 INSPECTION

Check concrete dimensions, anchor bolt size and placement, and slab elevation with the metal building manufacturer's templates and drawings before setting any steel.

3.2 ERECTION

Erect in accordance with the manufacturer's approved erection instructions and diagrams. Correct defects and errors in the fabrication of building components in a manner approved by the Contracting Officer. If defects or errors in fabrication of components cannot be corrected, remove and provide nondefective components. When installing wall and roof systems, install closure strips, flashing, sealing material, and other accessories in accordance with building manufacturer's instructions to provide a weathertight system, free of abrasions, loose fasteners, and deformations. After erection is complete, repair and coat abraded and damaged, primed or factory-finished surfaces to match adjacent surfaces.

3.2.1 Dissimilar Materials

Prevent direct contact between aluminum surfaces, and ferrous or other incompatible metals, by one of the following methods:

- a. Paint the incompatible metal with a coating of manufacturer's standard heavy-bodied paint.
- b. Paint the incompatible metal with a prime coat of corrosion inhibitive primer followed by one or two coats of aluminum metal-and-masonry paint, or other suitable protective coating, excluding products containing lead and chromium pigmentation.
- c. Provide an approved nonabsorptive gasket.
- d. Apply an approved calking between the aluminum and the incompatible metal.

If drainage from incompatible metal passes over aluminum, paint the incompatible metal by method (a) or (b). Paint aluminum surfaces in contact with concrete or masonry materials by method (a). Paint green or wet wood, or wood treated with incompatible wood preservatives, by method (a) or use two coats of aluminum paint.

3.2.2 Rigid Frames, Bases, and Sill Members

Brace frames as necessary to ensure safety. Set accurately, using a nonshrink grout to obtain uniform bearing on the concrete and to maintain a level base line elevation. Clean surfaces to receive the mortar and thoroughly moisten immediately before placement of mortar. Water cure

exposed surfaces of mortar with wet burlap for 7 days.

3.2.2.1 Field Welding

Steel, AWS D1.1. Aluminum, AA 30.

3.2.2.2 Field Bolting

AISC S329

3.2.3 Minimum Fastener Spacing

Space fasteners according to manufacturer's instructions, but not to exceed:

- a. 8 inches o.c. at end laps of covering,
- b. 12 inches o.c. at connection of covering to intermediate supports,
- c. 12 inches o.c. side laps of roof coverings, 18 inches o.c. at side laps of wall.

3.2.4 Installation of Insulation

3.3 FIELD PAINTING

Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same color and material used for the shop coat. Section 09900, "PAINTS AND COATINGS" for painting of shop-primed ferrous surfaces exposed on the outside of the building and all shop-primed surfaces of doors and windows.

3.4 FIELD QUALITY CONTROL

At the discretion of the Contracting Officer, sample panels may be taken at random from each delivery or from stockpiles on the site at any time during the construction period, and tests may be made to check the conformance of the materials to the requirements specified in paragraph entitled "Factory Color Finish." Failure of the sample sheets to pass the required tests shall be cause for rejection of all sheets represented by the samples and replacement of the entire shipment.

-- End of Section --

SECTION 13280A

ASBESTOS ABATEMENT

11/01

AMENDMENT #0002 AMENDMENT #0005

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- | | |
|------------|---|
| ANSI Z87.1 | (1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection |
| ANSI Z88.2 | (1992) Respiratory Protection |
| ANSI Z9.2 | (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- | | |
|-------------|--|
| ASTM C 732 | (1995) Aging Effects of Artificial Weathering on Latex Sealants |
| ASTM D 1331 | (1989; R 1995) Surface and Interfacial Tension of Solutions of Surface-Active Agents |
| ASTM D 2794 | (1993) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact) |
| ASTM D 4397 | (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications |
| ASTM D 522 | (1993a) Mandrel Bend Test of Attached Organic Coatings |
| ASTM E 119 | (1998) Fire Tests of Building Construction and Materials |
| ASTM E 1368 | (1997) Visual Inspection of Asbestos Abatement Projects |
| ASTM E 736 | (1992) Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members |
| ASTM E 84 | (1998 e1) Surface Burning Characteristics of Building Materials |

ASTM E 96 (1995) Water Vapor Transmission of Materials

COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7 (1990) Compressed Air for Human Respiration

CGA G-7.1 (1997) Commodity Specification for Air

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701 (1999; TIA 96-1, 96-2) Methods of Fire Tests for Flame-Resistant Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub No. 84-100 (1984; Supple 1985, 1987, 1988 & 1990) NIOSH Manual of Analytical Methods

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90/018 (1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance

[AM#1]EPA 340/1-90/019 (1990) Asbestos/NESHAP Adequately Wet Guidance

EPA 560/5-85-024 (1985) Guidance for Controlling Asbestos-Containing Materials in Buildings

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1926 Safety and Health Regulations for Construction

40 CFR 61 National Emission Standards for Hazardous Air Pollutants

40 CFR 763 Asbestos

42 CFR 84 Approval of Respiratory Protective Devices

49 CFR 107 Hazardous Materials Program Procedures

49 CFR 171 General Information, Regulations, and Definitions

49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

49 CFR 173

Shippers - General Requirements for
Shipments and Packagings

UNDERWRITERS LABORATORIES (UL)

UL 586

(1996) High-Efficiency, Particulate, Air
Filter Units

TEXAS DEPARTMENT OF HEALTH (TDH)

[AM#1]SECTIONS 295.31 THRU 295.7 Texas Asbestos Health Protection Rules

1.2 DEFINITIONS

- a. Adequately Wet: A term defined in 40 CFR 61, Subpart M, and EPA 340/1-90-019 meaning to sufficiently mix or penetrate with liquid to prevent the release of particulate. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
- b. Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact asbestos-containing material (ACM).
- c. Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.
- d. Asbestos: Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.
- e. Asbestos-Containing Material (ACM): Any materials containing more than one percent asbestos.
- f. Asbestos Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1.
- g. Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.
- h. Building Inspector: Individual who inspects buildings for asbestos and has EPA Model Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.
- i. Certified Industrial Hygienist (CIH): An Industrial Hygienist certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.
- j. Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM. This activity is not applicable to this project.

- k. Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos - containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain "incidental" roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II asbestos work. Removal of small amounts of these materials which would fit into a glovebag may be classified as a Class III job.
- l. Clean room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- m. Competent Person: In addition to the definition in 29 CFR 1926, Section .32(f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926, Section .1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.
- n. Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.
- o. Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a regulated area from migrating to an adjacent area.
- p. 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.
- q. Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
- r. Disposal Bag: A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926, Section .1101, used for transporting asbestos waste from containment to disposal site.
- s. Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.
- t. Equipment Room or Area: An area adjacent to the regulated area used for the decontamination of employees and their equipment.
- u. Employee Exposure: That exposure to airborne asbestos that would occur if the employee were not using respiratory protective

equipment.

- v. Fiber: A fibrous particulate, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.
- w. Friable ACM: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent, as determined by a method other than point counting by PLM, the asbestos content is verified by point counting using PLM.
- x. Glovebag: Not more than a 60 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.
- y. 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.
- z. Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.
- aa. Industrial Hygienist: A professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.
- bb. Intact: ACM which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.
- cc. Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763, Subpart E, Appendix C.
- dd. Modification: A changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system.
- ee. Negative Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).
- ff. NESHP: National Emission Standards for Hazardous Air Pollutants. The USEPA NESHP regulation for asbestos is at 40 CFR 61, Subpart M.
- gg. Nonfriable ACM: A NESHP term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material containing more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

- hh. Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy.
- ii. Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using the methods specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- jj. Permissible Exposure Limits (PELs):
 - (1) PEL-Time weighted average(TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8 hour time weighted average (TWA), as determined by the method prescribed in 29 CFR 1926, Section .1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400.
 - (2) PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes as determined by the method prescribed in 29 CFR 1926, Section .1101, Appendix A, or the current version of NIOSH Pub No. 84-100 analytical method 7400.
- kk. Regulated Area: An OSHA term defined in 29 CFR 1926, Section .1101 meaning an area established by the Contractor to demarcate areas where Class I, II.
- ll. Removal: All operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.
- mm. Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates. If the amount of asbestos so "disturbed" cannot be contained in 1 standard glovebag or waste bag, Class I precautions are required.
- nn. Spills/Emergency Cleanups: Cleanup of sizable amounts of asbestos waste and debris which has occurred, for example, when water damage occurs in a building, and sizable amounts of ACM are dislodged. A Competent Person evaluates the site and ACM to be handled, and based on the type, condition and extent of the dislodged material, classifies the cleanup as Class I or II.
- oo. Surfacing ACM: Asbestos-containing material which contains more than 1% asbestos and is sprayed-on, 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, or other purposes.
- pp. Thermal system insulation (TSI) ACM: ACM which contains more than 1% asbestos and is applied to pipes, fittings, boilers,

breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation.

qq. Transite: A generic name for asbestos cement wallboard and pipe.

rr. Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926, Section .1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation required by 40 CFR 763, Subpart E, Appendix C, if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

1.3 DESCRIPTION OF WORK

Work in this section for the project Fixed Wing Aircraft Park [AM#1] Phase II at Fort Hood, Texas includes asbestos-containing material (ACM) abatement [AM#1] as part of the Bid [AM#1] [AM#1] in B/90050 Fire Station and [AM#1] B/90049 Control Tower & Ops Bldg [AM#1] prior to demolition of the buildings, and [AM#2] abatement of ACM [AM#2] in B/90079 Air Lift Terminal [AM#1], B/90080 Parachute Rigging Facility [AM#5] prior to renovation, [AM#2] as noted on [AM#5] Regulated Material Survey drawings and attached Asbestos Survey and Analysis Report.

[AM#2] _____

Asbestos abatement involves OSHA Class I and Class II work shall be performed for Bid Options No. 1 and No. 2. Approximately asbestos quantities are identified on the project environmental drawings for the bid options. However, abatement of the [AM#5] 12-inch by 12-inch ACM floor tiles, tile mastic and roof penetration mastic is not required in [AM#2] B/90049 and B/90050 [AM#2] if material is evaluated with the COR and determined to be in good condition. The non-friable ACM is in good condition and it shall be demolished in-place with B/90050, the total demolition debris shall be disposed of at the Fort Hood Landfill [AM#5] per Section 01368 SPECIAL PROJECT PROCEDURES AT FORT HOOD. The Contractor shall adequately wet the ACM debris. During demolition the ACM shall not be subjected to sanding, grinding, cutting, or abrading per EPA 340/1-90-018 and EPA 340/1-90-019.

The abated ACM debris [AM#2] and building demolition debris containing ACM shall be disposed [AM#2] in Ft Hood sanitary landfill in accordance with Section 01368 Special Project Procedures for Fort Hood.

Asbestos survey was performed in March 1999 (for B/90079, B/90080, and 90071), in November 1999 (for B/90050), and in January 2000 (for B/90049). A summary of work task data elements for each individual ACM abatement work task in is included in Table 1, "Individual Work Task Data Elements" at the end of this section. The Contractor shall verify abatement items and conditions prior to start work.

This section describes procedures and equipment required to protect workers and environment from airborne asbestos fibers, ACM dust and debris. This section asbestos abatement activity involves OSHA Class I and Class II work operation. The Contractor shall provide containment, storage, transportation and disposal of the generated ACM wastes. The Contractor shall provide specific operational procedures in the Accident Prevention Plan and its sub components, the Asbestos Hazard Abatement Plan and Activity Hazard Analyses required in paragraph, SAFETY AND HEALTH PROGRAM

AND PLANS.

1.3.1 Abatement Work Tasks

A summary of work task data elements for each individual ACM abatement work task is in Table 1, "Individual Work Task Data Elements" at the end of this section.

1.3.2 Unexpected Discovery of Asbestos

For any previously untested building components suspected to contain asbestos and located in areas impacted by the work, the Contractor shall notify the Contracting Officer (CO) who will have the option of ordering up to six (6) bulk samples to be obtained at the Contractor's expense and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)" and analyzed by PLM at no additional cost to the Government. Any additional components identified as ACM that have been approved by the Contracting Officer for removal shall be removed by the Contractor and will be paid for by an equitable adjustment to the contract price under the CONTRACT CLAUSE titled "changes". Sampling activities undertaken to determine the presence of additional ACM shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, Appendix C.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Materials and Equipment; FIO.

Manufacturer's catalog data for all materials and equipment to be used in the work, including brand name, model, capacity, performance characteristics and any other pertinent information. Test results and certificates from the manufacturer of encapsulants substantiating compliance with performance requirements of this specification. Material Safety Data Sheets for all chemicals to be used onsite in the same format as implemented in the Contractor's HAZARD COMMUNICATION PROGRAM. Data shall include, but shall not be limited to, the following items:

- a. High Efficiency Filtered Air (HEPA) local exhaust equipment
- b. Vacuum cleaning equipment
- c. Pressure differential monitor for HEPA local exhaust equipment
- d. Air monitoring equipment
- e. Respirators

- f. Personal protective clothing and equipment
 - (1) Coveralls
 - (2) Underclothing
 - (3) Other work clothing
 - (4) Foot coverings
 - (5) Hard hats
 - (6) Eye protection
 - (7) Other items required and approved by Contractors Designated IH and Competent Person
- g. Glovebag
- h. Duct Tape
- i. Disposal Containers
 - (1) Disposal bags
 - (2) Fiberboard drums
 - (3) Paperboard boxes
- j. Sheet Plastic
 - (1) Polyethylene Sheet - General
 - (2) Polyethylene Sheet - Flame Resistant
 - (3) Polyethylene Sheet - Reinforced
- k. Wetting Agent
 - (1) Amended Water
 - (2) Removal encapsulant
- l. Strippable Coating
- m. Prefabricated Decontamination Unit
- n. Other items
- o. Chemical encapsulant
- p. Chemical encasement materials
- q. Material Safety Data Sheets (for all chemicals proposed)

SD-04 Drawings

Site Layout; GA.

Descriptions, detail project drawings, and site layout for each building to include worksite containment area techniques, local exhaust ventilation system locations, decontamination units and load-out units, other temporary waste storage facility, access tunnels, location of temporary utilities (electrical, water, sewer) and boundaries of each regulated area. Site Layout shall be submitted with the Contractor's Asbestos Hazard Abatement Plan.

SD-08 Statements

Qualifications; GA.

A written report providing evidence of qualifications for personnel, facilities and equipment assigned to the work.

Training Program; FIO.

A copy of the written project site-specific training material as indicated in 29 CFR 1926, Section .1101 that will be used to train onsite employees. The training document shall be signed by the Contractor's Designated Industrial Hygienist (IH) and Competent Person.

Medical Requirements; FIO.

Physician's written opinion.

Encapsulants; GA

Certificates stating that encapsulants meet the applicable specified performance requirements per paragraph ENCAPSULANTS.

SD-09 Reports

Exposure Assessment and Air Monitoring; GA

Initial exposure assessments, negative exposure assessments, air-monitoring results and documentation per paragraph EXPOSURE ASSESSMENT AND AIR MONITORING.

Local Exhaust Ventilation; FIO.

Pressure differential recordings.

Licenses, Permits and Notifications; GA

Licenses, permits, and notifications submittal per paragraph LICENSES, PERMIT AND NOTIFICATIONS. In addition, prior to start work, Contractor shall submit current medical certificate, training certificate and state license of each worker, including air monitoring technician.

SD-13 Certificates

Vacuum, Filtration and Ventilation Equipment, FIO.

Manufacturer's certifications showing compliance with ANSI Z9.2 for:

- a. Vacuums.
- b. Water filtration equipment.
- c. Ventilation equipment.
- d. Other equipment required to contain airborne asbestos fibers.

SD-18 Records

Respiratory Protection Program; GA.

Records of the respirator program per paragraph RESPIRATORY PROTECTION PROGRAM.

Safety and Health Program and Plans; GA.

Preparation of Accident Prevention Plan, Asbestos Hazard Abatement Plan, and Activity Hazard Analyses per paragraph SAFETY AND HEALTH PROGRAM AND PLANS. Two copies of the Asbestos Hazard Abatement Plan shall be required. One copy shall be submitted to the Contracting Officer Representative (COR) and the other copy shall be submitted to Ms. Rosemarie Olney, Industrial Hygienist at Fort Hood DPW-ENV, 20 working days prior to the pre-construction meeting.

Cleanup and Disposal; GA.

A copy of waste shipment records, weigh bills, delivery tickets, daily narrative log of work, descriptions of problems and resolutions, exposure assessment and analytical results shall be provided with the Closure Report. The Closure Report shall be furnished to the COR in at least 10 working days after completion of work in this section, and prior to final payment.

1.5 QUALIFICATIONS

1.5.1 Written Qualifications and Organization Report

The Contractor shall furnish a written qualifications and organization report providing evidence of qualifications of the Contractor, Contractor's Project Supervisor, Designated Competent Person, supervisors and workers; Designated IH (person assigned to project and firm name); independent testing laboratory (including name of firm, principal, and analysts who will perform analyses); all subcontractors to be used including disposal transportation and disposal facility firms, subcontractor supervisors, subcontractor workers; and any others assigned to perform asbestos abatement and support activities. The report shall include an organization chart showing the Contractor's staff organization for this project by name and title, chain of command and reporting relationship with all subcontractors. The report shall be signed by the Contractor, the Contractor's onsite project manager, Designated Competent Person, Designated IH, designated testing laboratory and the principals of all subcontractors to be used. The Contractor shall include the following statement in the report: "By signing this report I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926, Section .1101, 40 CFR 61, Subpart M, and the federal, state and local requirements specified in paragraph SAFETY AND HEALTH PROGRAM AND PLANS for those asbestos abatement activities that they will be involved in."

1.5.2 Specific Requirements

The Contractor shall designate in writing, personnel meeting the following qualifications:

- a. Designated Competent Person: The name, address, telephone number, and resume of the Contractor's Designated Competent Person shall be provided. Evidence that the full-time Designated Competent Person is qualified in accordance with 29 CFR 1926, Sections .32

and .1101, has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C, and is experienced in the administration and supervision of asbestos abatement projects, including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, etc. The duties of the Competent Person shall include the following: controlling entry to and exit from the regulated area; supervising any employee exposure monitoring required by 29 CFR 1926, Section .1101; ensuring that all employees working within a regulated area wear the appropriate personal protective equipment (PPE), are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified; and ensuring that engineering controls in use are in proper operating conditions and are functioning properly. The Designated Competent Person shall be responsible for compliance with applicable federal, state and local requirements, the Contractor's Accident Prevention Plan and Asbestos Hazard Abatement Plan. The Designated Competent Person shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Contractor shall submit evidence that this person has a minimum of 2 years of on-the-job asbestos abatement experience relevant to OSHA competent person requirements. The Designated Competent Person shall be onsite at all times during the conduct of this project.

- b. Project Supervisors: The Contractor shall provide the name, address, telephone number, and resume of the Project Supervisor who have responsibility to implement the Accident Prevention Plan, including the Asbestos Hazard Abatement Plan and Activity Hazard Analyses, the authority to direct work performed under this contract and verify compliance, and have EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C. The Project Supervisor shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Contractor shall submit evidence that the Project Supervisor has a minimum of 2 years of on-the-job asbestos abatement experience relevant to project supervisor responsibilities.
- c. Designated Industrial Hygienist (IH) and Industrial Hygiene Technician (IHT):

The Contractor shall provide the name, address, telephone number, resume, and other information specified below for the IHT selected to prepare the Contractor's Asbestos Hazard Abatement Plan, prepare and perform any training, direct air monitoring and assist the Contractor's Competent Person in ensuring that safety and

health requirements are complied with during the performance of all required work. The Designated IH shall be a person who is board certified in the practice of industrial hygiene as determined and documented by the American Board of Industrial Hygiene (ABIH), have a minimum of 2 years of comprehensive experience in planning and overseeing asbestos abatement activities and have EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training required by 40 CFR 763 Subpart E, Appendix C. The Designated IH shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Designated IH shall be completely independent from the Contractor according to federal, state, or local regulations; that is, shall not be a Contractor's employee or be an employee or principal of a firm in a business relationship with the Contractor negating such independent status.

A copy of the Designated IH's current valid ABIH certification shall be included. The Designated IH shall be on-site when requested by the IHT and shall be available for emergencies. The Contractor shall submit, the name, address, telephone numbers and resumes IHT who will be under the guidance of the Designated CIH and performing on-site tasks. IHT supporting the Designated IH shall have a minimum of 2 years of practical on-site asbestos abatement experience, and have a current air monitoring technician license per Texas Asbestos Health Protection Rules, Section 295.52, with the Texas Department of Health. The formal reporting relationship between the Designated IH, the IHT, the Designated Competent Person, and the Contractor shall be indicated in the Contractor's Asbestos Hazard Abatement Plan.

- d. Asbestos Abatement Workers: Asbestos abatement workers shall meet the requirements contained in 29 CFR 1926, Section .1101, 40 CFR 61, Subpart M, and other applicable federal, state and local requirements. Worker training documentation shall be provided as required on the "Certificate of Workers Acknowledgment" in this paragraph.
- e. Worker Training and Certification of Worker Acknowledgment: Training documentation will be required for each employee who will perform OSHA Class I, Class II, Class III, or Class IV asbestos abatement operations. Such documentation shall be submitted on a Contractor generated form titled "Certificate of Workers Acknowledgment", to be completed for each employee in the same format and containing the same information as the example certificate at the end of this section. Training course completion certificates (initial and most recent update refresher) required by the information checked on the form shall be attached.
- f. Physician: The Contractor shall provide the name, medical qualifications, address, telephone number and resume of the physician who will or has performed the medical examinations and evaluations of the persons who will conduct the asbestos abatement work tasks. The physician shall be currently licensed by the state where the workers will be or have been examined, have expertise in pneumoconiosis and shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1926, Section .1101 and paragraph MEDICAL REQUIREMENTS. The physician

shall be familiar with the site's hazards and the scope of this project.

- g. First Aid and CPR Trained Persons: The names of at least 2 persons who are currently trained in first aid and CPR by the American Red Cross or other approved agency shall be designated and shall be onsite at all times during site operations. They shall be trained in universal precautions and the use of PPE as described in the Bloodborne Pathogens Standard of 29 CFR 1910, Section .1030 and shall be included in the Contractor's Bloodborne Pathogen Program. These persons may perform other duties but shall be immediately available to render first aid when needed. A copy of each designated person's current valid First Aid and CPR certificate shall be provided.
- h. Independent Testing Laboratory: The Contractor shall provide the name, address and telephone number of the independent testing laboratory selected to perform the sample analyses and report the results. The testing laboratory shall be completely independent from the Contractor as recognized by federal, state or local regulations. Written verification of the following criteria, signed by the testing laboratory principal and the Contractor, shall be submitted:
- (1) Phase contrast microscopy (PCM): The laboratory is fully equipped and proficient in conducting PCM of airborne samples using the methods specified by 29 CFR 1926, Section .1101, OSHA method ID-160, the most current version of NIOSH Pub No. 84-100 Method 7400, and NIOSH Pub No. 84-100 Method 7402, transmission electron microscopy (TEM); the laboratory is currently judged proficient (classified as acceptable) in counting airborne asbestos samples by PCM by successful participation in each of the last 4 rounds in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program; the names of the selected microscopists who will analyze airborne samples by PCM with verified documentation of their proficiency to conduct PCM analyses by being judged proficient in counting samples as current participating analysts in the AIHA PAT Program, and having successfully completed the Asbestos Sampling and Analysis course (NIOSH 582 or equivalent) with a copy of course completion certificate provided; when the PCM analysis is to be conducted onsite, documentation shall be provided certifying that the onsite analyst meets the same requirements.
- (2) Polarized light microscopy (PLM): The laboratory is fully equipped and proficient in conducting PLM analyses of suspect ACM bulk samples in accordance with 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for bulk asbestos analysis and will use analysts (names shall be provided) with demonstrated proficiency to conduct PLM to include its application to the identification and quantification of asbestos content.
- (3) Transmission electron microscopy (TEM): The laboratory is fully equipped and proficient in conducting TEM analysis of airborne samples using the mandatory method specified by 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for airborne sample analysis of asbestos by TEM; the laboratory will use analysts (names shall be provided)

that are currently evaluated as competent with demonstrated proficiency under the NIST NVLAP for airborne sample analysis of asbestos by TEM. The laboratory is proficient in conducting analysis for low asbestos concentration, enhanced analysis of floor tiles and bulk materials where multiple layers are present, using an improved EPA test method titled, "Method for the Determination of Asbestos in Bulk Building Materials".

(4) PCM/TEM: The laboratory is fully equipped and each analyst (name shall be provided) possesses demonstrated proficiency in conducting PCM and TEM analysis of airborne samples using NIOSH Pub No. 84-100 Method 7400 PCM and NIOSH Pub No. 84-100 Method 7402 (TEM confirmation of asbestos content of PCM results) from the same filter.

- i. Disposal Facility, Transporter: The Contractor shall provide written evidence that the landfill to be used is approved for asbestos disposal by the state and local regulatory agencies. Copies of signed agreements between the Contractor (including subcontractors and transporters) and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste generated during the performance of this contract shall be provided. Qualifications shall be provided for each subcontractor or transporter to be used, indicating previous experience in transport and disposal of asbestos waste to include all required state and local waste hauler requirements for asbestos. The Contractor and transporters shall meet the DOT requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as registration requirements of 49 CFR 107 and other applicable state or local requirements. The disposal facility shall meet the requirements of 40 CFR 61, Sections .154 or .155, as required in 40 CFR 61, Section .150(b), and other applicable state or local requirements.

1.5.3 Federal, State or Local Citations on Previous Projects

The Contractor and all subcontractors shall submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company shall be provided.

1.6 REGULATORY REQUIREMENTS

In addition to detailed requirements of this specification, work performed under this contract shall comply with EM 385-1-1, applicable federal, state, and local laws, ordinances, criteria, rules and regulations regarding handling, storing, transporting, and disposing of asbestos waste materials. This includes, but is not limited to, OSHA standards, 29 CFR 1926, especially Section .1101, 40 CFR 61, Subpart M and 40 CFR 763. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply. The following state and local laws, rules and

regulations regarding demolition, removal, encapsulation, construction alteration, repair, maintenance, renovation, spill/emergency cleanup, housekeeping, handling, storing, transporting and disposing of asbestos material apply: Texas Asbestos Health Protection Rules.

1.7 SAFETY AND HEALTH PROGRAM AND PLANS

The Contractor shall develop and submit a written comprehensive site-specific Accident Prevention Plan at least 30 days prior to the preconstruction conference. The Accident Prevention Plan shall address requirements of EM 385-1-1, Appendix A, covering onsite work to be performed by the Contractor and subcontractors. The Accident Prevention Plan shall incorporate an Asbestos Hazard Abatement Plan, and Activity Hazard Analyses as separate appendices into 1 site specific Accident Prevention Plan document. Any portions of the Contractor's overall Safety and Health Program that are referenced in the Accident Prevention Plan, e.g., respirator program, hazard communication program, confined space entry program, etc., shall be included as appendices to the Accident Prevention Plan. The plan shall take into consideration all the individual asbestos abatement work tasks identified in Table 1. The plan shall be prepared, signed (and sealed, including certification number if required), and dated by the Contractor's Designated IH, Competent Person, and Project Supervisor.

1.7.1 Asbestos Hazard Abatement Plan Appendix

The Asbestos Hazard Abatement Plan appendix to the Accident Prevention Plan shall include, but not be limited to, the following:

- a. The personal protective equipment to be used;
- b. The location and description of regulated areas including clean and dirty areas, access tunnels, and decontamination unit (clean room, shower room, equipment room, storage areas such as load-out unit);
- c. Initial exposure assessment in accordance with 29 CFR 1926, Section .1101;
- d. Level of supervision;
- e. Method of notification of other employers at the worksite;
- f. Abatement method to include containment and control procedures;
- g. Interface of trades involved in the construction;
- h. Sequencing of asbestos related work;
- i. Storage and disposal procedures and plan;
- j. Type of wetting agent and asbestos encapsulant to be used;
- k. Location of local exhaust equipment;
- l. Air monitoring methods (i.e. personal, environmental and clearance);
- m. Bulk sampling and analytical methods (if required and as approved

by the Contracting Officer);

- n. A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber concentrations (if possible, remove employees in adjacent work areas during asbestos abatement);
- o. Fire and medical emergency response procedures;
- p. The security procedures to be used for all regulated areas.
- q. The type of hygiene facility to be used.
- r. Surfaces that required precleaning.

1.7.2 Activity Hazard Analyses Appendix

Activity Hazard Analyses, for each major phase of work, shall be submitted and updated during the project. The Activity Hazard Analyses format shall be in accordance with EM 385-1-1 (Figure 1-1). The analysis shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the Activity Hazard Analyses has been accepted and a preparatory meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activities, including the onsite Government representatives. The Activity Hazard Analyses shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

1.8 PRECONSTRUCTION CONFERENCE AND ONSITE SAFETY

The Contractor and the Contractor's Designated Competent Person, Project Supervisor, and Designated CIH shall meet with the Contracting Officer prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's submitted Accident Prevention Plan to include the Asbestos Hazard Abatement Plan and Activity Hazard Analyses appendices. Deficiencies in the Accident Prevention Plan will be discussed and the Accident Prevention Plan shall be revised to correct the deficiencies and resubmitted for acceptance. Any changes required in the specification as a result of the Accident Prevention Plan shall be identified specifically in the plan to allow for free discussion and acceptance by the Contracting Officer, prior to the start of work. Onsite work shall not begin until the Accident Prevention Plan has been accepted. A copy of the written Accident Prevention Plan shall be maintained onsite. Changes and modifications to the accepted Accident Prevention Plan shall be made with the knowledge and concurrence of the Designated CIH, the Project Supervisor, Designated Competent Person, and the Contracting Officer. Should any unforeseen hazard become evident during the performance of the work, the Designated CIH shall bring such hazard to the attention of the Project Supervisor, Designated Competent Person, and the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the Contractor to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Once accepted by the Contracting Officer, the Accident Prevention Plan, including the Asbestos Hazard Abatement Plan and Activity Hazard Analyses will be enforced as if an addition to the contract. Disregarding the provisions of this contract or the accepted Accident Prevention Plan will be cause for stopping of

work, at the discretion of the Contracting Officer, until the matter has been rectified.

1.9 SECURITY

Fenced and locked security areas shall be provided for each regulated area. A log book shall be kept documenting entry into and out of the regulated area. Entry into regulated areas shall only be by personnel authorized by the Contractor and the Contracting Officer. Personnel authorized to enter regulated areas shall be trained, be medically evaluated, and wear the required personal protective equipment for the specific regulated area to be entered.

1.10 MEDICAL REQUIREMENTS

Medical requirements shall conform to 29 CFR 1926, Section .1101.

1.10.1 Medical Examinations

Before being exposed to airborne asbestos fibers, workers shall be provided with a medical examination as required by 29 CFR 1926, Section .1101 and other pertinent state or local requirements. This requirement shall have been satisfied within the last 12 months. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. X-ray films of asbestos workers shall be identified to the consulting radiologist and medical record jackets shall be marked with the word "asbestos."

1.10.1.1 Information Provided to the Physician

The Contractor shall provide the following information in writing to the examining physician:

- a. A copy of 29 CFR 1926, Section .1101 and Appendices D, E, G, and I;
- b. A description of the affected employee's duties as they relate to the employee's exposure; a copy of 29 CFR 1910, Section .134 and Appendix D;
- c. The employee's representative exposure level or anticipated exposure level;
- d. A description of any personal protective and respiratory equipment used or to be used; and all supplemental information in compliance with 29 CFR 1910, Section .134 (e);
- e. Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

1.10.1.2 Written Medical Opinion

For each worker, a written medical opinion prepared and signed by a licensed physician indicating the following:

- a. Summary of the results of the examination.
- b. The potential for an existing physiological condition that would

place the employee at an increased risk of health impairment from exposure to asbestos.

- c. The ability of the individual to wear personal protective equipment, including respirators, while performing strenuous work tasks under cold and/or heat stress conditions.
- d. A statement that the employee has been informed of the results of the examination, provided with a copy of the results, informed of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure, and informed of any medical condition that may result from asbestos exposure.

1.10.2 Medical and Exposure Records

Complete and accurate records shall be maintained of each employee's medical examinations, medical records, and exposure data, as required by 29 CFR 1910, Section .1910.20 and 29 CFR 1926, Section .1101 for a period of 30 years after termination of employment. Records of the required medical examinations and exposure data shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and an employee's physician upon request of the employee or former employee. A copy of the required medical certification for each employee shall be maintained on file at the worksite for review, as requested by the Contracting Officer or the representatives.

1.11 TRAINING PROGRAM

1.11.1 General Training Requirements

The Contractor shall establish a training program as specified by EPA Model Accreditation Plan (MAP), training requirements at 40 CFR 763, Subpart E, Appendix C, the State of Texas Sections 295.64 and 295.65, OSHA requirements at 29 CFR 1926, Section .1101(k)(9), and this specification. Contractor employees shall complete the required training for the type of work they are to perform and such training shall be documented and provided to the Contracting Officer as specified in paragraph QUALIFICATIONS.

1.11.2 Project Specific Training

Prior to commencement of work, each worker shall be instructed by the Contractor's Designated IH and Competent Person in the following project specific training:

- a. The hazards and health effects of the specific types of ACM to be abated;
- b. The content and requirements of the Contractor's Accident Prevention Plan to include the Asbestos Hazard Abatement Plan and Activity Hazard Analyses and site-specific safety and health precautions;
- c. Hazard Communication Program;
- d. Hands-on training for each asbestos abatement technique to be employed;
- e. Heat and/or cold stress monitoring specific to this project;

- f. Air monitoring program and procedures;
- g. Medical surveillance to include medical and exposure record-keeping procedures;
- h. The association of cigarette smoke and asbestos-related disease;
- i. Security procedures;
- j. Specific work practice controls and engineering controls required for each Class of work in accordance with 29 CFR 1926, Section .1101.

1.12 RESPIRATORY PROTECTION PROGRAM

The Contractor's Designated CIH shall establish in writing, and implement a respiratory protection program in accordance with 29 CFR 1926, Section .1101, 29 CFR 1910, Section .134, ANSI Z88.2, CGA G-7, CGA G-7.1. The Contractor's Designated IH shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations encountered during the performance of the asbestos abatement work. The Contractor's respiratory protection program shall include, but not be limited to, the following elements:

- a. The company policy, used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.
- b. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.
- c. Medical evaluation by a physician or other licensed health care professionals, with the Mandatory Evaluation Questionnaire in 29 CFR 1910, Section .132, Appendix C for the employee's fit testing or workers who are required to use respirator (e)(1)..
- d. Training in the proper use and limitations of respirators.
- e. Respirator fit-testing, i.e., quantitative, qualitative and individual functional fit checks.
- f. Regular cleaning and disinfection of respirators.
- g. Routine inspection of respirators during cleaning and after each use when designated for emergency use.
- h. Storage of respirators in convenient, clean, and sanitary locations.
- i. Surveillance of regulated area conditions and degree of employee exposure (e.g., through air monitoring).
- j. Regular evaluation of the continued effectiveness of the respiratory protection program.
- k. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with

valve function; prescription eye wear usage; contact lenses usage; etc.).

1. Proper training in putting on and removing respirators.

1.12.1 Respiratory Fit Testing

A qualitative or quantitative fit test conforming to 29 CFR 1926, Section 1101, Appendix C shall be conducted by the Contractor's Designated CIH for each Contractor worker required to wear a respirator, and for the Contracting Officer and authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test shall be performed for each worker wearing a negative-pressure respirator prior to initially wearing a respirator on this project and every 6 months thereafter. The qualitative fit tests may be used only for testing the fit of negative pressure air-purifying respirator that must achieve a fit factor of 100 or less. If physical changes develop that will affect the fit, a new fit test for the worker shall be performed. Functional fit checks shall be performed by employees each time a respirator is put on and in accordance with the manufacturer's recommendation.

1.12.2 Respirator Selection and Use Requirements

The Contractor shall provide respirators, and ensure that they are used as required by 29 CFR 1926, Section .1101, and 29 CFR 1910 Section .134 and in accordance with the manufacturer's recommendations. Respirators shall be jointly approved by the National Institute for Occupational Safety and Health (NIOSH), under the provisions of 42 CFR 84, N100, R100, P100 particulate filters for use in environments containing airborne asbestos fibers. Personnel who handle ACM, enter regulated areas that require the wearing of a respirator, or who are otherwise carrying out abatement activities that require the wearing of a respirator, shall be provided with approved respirators that are fully protective of the worker at the measured or anticipated airborne asbestos concentration level to be encountered. For air-purifying respirators, the particulate filter portion of the cartridges or canister approved for use in airborne asbestos environments shall be N100, R100, P100 particulate filters per 42 CFR 84. The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type shall be made by the Contractor's IHT with documented approval of Designated CIH, based on the measured or anticipated airborne asbestos fiber concentrations to be encountered (as recorded by the IHT). Recommendations made by the Contractor's IHT to downgrade respirator type, with the written approval of the Designated CIH, shall be submitted in writing to the Contracting Officer. The Contractor's Designated Competent Person, IHT, in consultation with the Designated CIH, shall have the authority to take immediate action to upgrade or downgrade respiratory type when there is an immediate danger to the health and safety of the wearer. Respirators shall be used in the following circumstances:

- a. During all Class I asbestos jobs.
- b. During all Class II work where the ACM is not removed in a substantially intact state.
- c. During all Class II work which is not performed using wet methods. Respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and ACM is removed in an intact state.

- d. During all Class II asbestos jobs where the Contractor does not produce a negative exposure assessment.
- e. During all work where employees are exposed above the PEL-TWA or PEL-Excursion Limit.
- f. In emergencies

1.12.3 Class I Work

For Class I work, the Contractor shall provide: (1) a tight-fitting, powered air purifying respirator equipped with N100, R100 or P100, or (2) a full-facepiece supplied air respirator operated in the pressure demand mode, equipped with HEPA egress cartridges, or (3) an auxiliary positive pressure self-contained breathing apparatus, for all employees within the regulated area where Class I work is being performed; provided that a negative exposure assessment has not been produced, and that the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full-facepiece supplied air respirator, operated in the pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions, if the exposure assessment indicates exposure levels above 1 f/cc as an 8-hour time weighted average.

1.12.4 Class II Work

The Contractor shall provide an air purifying respirator, other than a disposable respirator, equipped with high-efficiency filters whenever the employee performs Class II asbestos jobs where the Contractor does not produce a negative exposure assessment.

1.12.5 Sanitation

Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

1.13 HAZARD COMMUNICATION PROGRAM

A hazard communication program shall be established and implemented in accordance with 29 CFR 1926, Section .59. Material safety data sheets (MSDSs) shall be provided for all hazardous materials brought onto the worksite. One copy shall be provided to the Contracting Officer and 1 copy shall be included in the Contractor's Hazard Communication Program.

1.14 LICENSES, PERMITS AND NOTIFICATIONS

1.14.1 General Legal Requirements

Necessary licenses, permits and notifications shall be obtained in conjunction with the project's asbestos abatement, transportation and disposal actions and timely notification furnished of such actions as required by federal, state, regional, and local authorities. The Contractor shall notify the Texas Department of Health, Asbestos Program Branch, Austin, Texas, in writing, at least 20 working days prior to the commencement of work, including the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents. Notification shall be by Certified Mail, Return Receipt Requested. Notification shall be signed by a representative of DPW-Environmental who

has signature authority. The Contractor shall furnish copies of the receipts to the Contracting Officer, prior to the commencement of work. Local fire department shall be notified 3 days before fire-proofing material is removed from a building and the notice shall specify whether or not the material contains asbestos. A copy of the rental company's written acknowledgment and agreement shall be provided as required by paragraph RENTAL EQUIPMENT. For licenses, permits, and notifications that the Contractor is responsible for obtaining, the Contractor shall pay any associated fees or other costs incurred.

1.14.2 Litigation and Notification

The Contractor shall notify the Contracting Officer if any of the following occur:

- a. The Contractor or any of the subcontractors are served with notice of violation of any law, regulation, permit or license which relates to this contract;
- b. Proceedings are commenced which could lead to revocation of related permits or licenses; permits, licenses or other Government authorizations relating to this contract are revoked;
- c. Litigation is commenced which would affect this contract;
- d. The Contractor or any of the subcontractors become aware that their equipment or facilities are not in compliance or may fail to comply in the future with applicable laws or regulations.

1.15 PERSONAL PROTECTIVE EQUIPMENT

One (1) complete set of personal protective equipment shall be made available to the Contracting Officer and authorized visitors for entry to the regulated area. Contracting Officer and authorized visitors shall be provided with training equivalent to that provided to Contractor employees in the selection, fitting, and use of the required personal protective equipment and the site safety and health requirements. Contractor workers shall be provided with personal protective clothing and equipment and the Contractor shall ensure that it is worn properly. The Contractor's Designated IH and Designated Competent Person shall select and approve all the required personal protective clothing and equipment to be used.

1.15.1 Respirators

Respirators shall be in accordance with paragraph RESPIRATORY PROTECTION PROGRAM.

1.15.2 Whole Body Protection

Personnel exposed to airborne concentrations of asbestos that exceed the PELs, or for all OSHA Classes of work for which a required negative exposure assessment is not produced, shall be provided with whole body protection and such protection shall be worn properly. The Contractor's Designated IH and Competent Person shall select and approve the whole body protection to be used. The Competent Person shall examine work suits worn by employees at least once per work shift for rips or tears that may occur during performance of work. When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the work suit shall be immediately replaced. Disposable whole body protection

shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Reusable whole body protection worn shall be either disposed of as asbestos contaminated waste upon exiting from the regulated area or be properly laundered in accordance with 29 CFR 1926, Section .1101.

Whole body protection used for asbestos abatement shall not be removed from the worksite by a worker to be cleaned. Recommendations made by the Contractor's IHT (with written approval of Designated IH) to downgrade whole body protection shall be submitted in writing to the Contracting Officer. The Contractor's Designated Competent Person, IHT, in consultation with the Designated IH, has the authority to take immediate action to upgrade or downgrade whole body protection when there is an immediate danger to the health and safety of the wearer.

1.15.2.1 Coveralls

Disposable-breathable coveralls with a zipper front shall be provided as the approved Contractor's Asbestos Hazard Abatement Plan. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles. See DETAIL SHEET 13.

1.15.2.2 Underwear

Disposable underwear shall be provided. If reusable underwear are used, they shall be disposed of as asbestos contaminated waste or laundered in accordance with 29 CFR 1926, Section .1101. Asbestos abatement workers shall not remove contaminated reusable underwear worn during abatement of ACM from the site to be laundered.

1.15.2.3 Work Clothing

An additional coverall shall be provided when the abatement and control method employed does not provide for the exit from the regulated area directly into an attached decontamination unit. Cloth work clothes for wear under the protective coverall, and foot coverings, shall be provided when work is being conducted in low temperature conditions. Cloth work clothes shall be either disposed of as asbestos contaminated waste or properly laundered in accordance with 29 CFR 1926, Section .1101.

1.15.2.4 Gloves

Gloves shall be provided to protect the hands. Where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.) a suitable glove shall be provided and used.

1.15.2.5 Foot Coverings

Cloth socks shall be provided and worn next to the skin. Footwear, as required by OSHA and EM 385-1-1, that is appropriate for safety and health hazards in the area shall be worn. Rubber boots shall be used in moist or wet areas. Reusable footwear removed from the regulated area shall be thoroughly decontaminated or disposed of as ACM waste. Disposable protective foot covering shall be disposed of as ACM waste. If rubber boots are not used, disposable foot covering shall be provided.

1.15.2.6 Head Covering

Hood type disposable head covering shall be provided. In addition, protective head gear (hard hats) shall be provided as required. Hard hats shall only be removed from the regulated area after being thoroughly

decontaminated.

1.15.2.7 Protective Eye Wear

Eye protection provided shall be in accordance with ANSI Z87.1.

1.16 HYGIENE FACILITIES AND PRACTICES

The Contractor shall establish a decontamination area for the decontamination of employees, material and equipment. The Contractor shall ensure that employees enter and exit the regulated area through the decontamination area.

1.16.1 Shower Facilities

Shower facilities, when provided, shall comply with 29 CFR 1910, Section .141(d)(3).

1.16.2 3-Stage Decontamination Area

A temporary negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided as described in the approved Contractor's Asbestos Hazard Abatement Plan. Utilization of prefabricated units shall have prior approval of the Contracting Officer. The decontamination unit shall have an equipment room and a clean room separated by a shower that complies with 29 CFR 1910, Section .141 (unless the Contractor can demonstrate that such facilities are not feasible). Equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area. Surfaces of the equipment room shall be wet wiped 2 times after each shift.

Materials used for wet wiping shall be disposed of as asbestos contaminated waste. Two separate lockers shall be provided for each asbestos worker, one in the equipment room and one in the clean room. Hot water service may be secured from the building hot water system provided backflow protection is installed by the Contractor at the point of connection. Should sufficient hot water be unavailable, the Contractor shall provide a minimum 40 gal. electric water heater with minimum recovery rate of 20 gal. per hour and a temperature controller for each showerhead. The Contractor shall provide a minimum of 2 showers. Instantaneous type in-line water heater may be incorporated at each shower head in lieu of hot water heater, upon approval by the Contracting Officer.

Flow and temperature controls shall be located within the shower and shall be adjustable by the user. The wastewater pump shall be sized for 1.25 times the showerhead flow-rate at a pressure head sufficient to satisfy the filter head loss and discharge line losses. The pump shall supply a minimum 25 gpm flow with 35 ft. of pressure head. Used shower water shall be collected and filtered to remove asbestos contamination. Filters and residue shall be disposed of as asbestos contaminated material. Filtered water shall be discharged to the sanitary system. Wastewater filters shall be installed in series with the first stage pore size of 20 microns and the second stage pore size of 5 microns. The floor of the decontamination unit's clean room shall be kept dry and clean at all times. Water from the shower shall not be allowed to wet the floor in the clean room. Surfaces of the clean room and shower shall be wet-wiped 2 times after each shift change with a disinfectant solution. Proper housekeeping and hygiene requirements shall be maintained. Soap and towels shall be provided for showering, washing and drying. Any cloth towels provided shall be disposed of as ACM waste or shall be laundered in accordance with 29 CFR 1926, Section .1101.

1.16.3 Load-Out Unit

A temporary load-out unit that is adjacent and connected to the regulated area shall be provided as described in the Contractor's Asbestos Hazard Abatement Plan. Utilization of prefabricated units shall have prior approval of the Contracting Officer. The load-out unit shall be attached in a leak-tight manner to each regulated area. Surfaces of the load-out unit shall be adequately wet-wiped 2 times after each shift change. Materials used for wet wiping shall be disposed of as asbestos contaminated waste.

1.16.4 Single Stage Decontamination Area

A decontamination area (equipment room/area) shall be provided for Class I work involving less than 25 feet or 10 square feet of TSI or surfacing ACM, and for Class II and Class III asbestos work operations where exposures exceed the PELs or where there is no negative exposure assessment produced before the operation. The equipment room or area shall be adjacent to the regulated area for the decontamination of employees, material, and their equipment which is contaminated with asbestos. The equipment room or area shall consist of an area covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area. Surfaces of the equipment room shall be wet wiped 2 times after each shift. Materials used for wet wiping shall be disposed of as asbestos contaminated waste.

1.16.5 Decontamination Area Entry Procedures

The Contractor shall ensure that employees entering the decontamination area through the clean room or clean area:

- a. Remove street clothing in the clean room or clean area and deposit it in lockers.
- b. Put on protective clothing and respiratory protection before leaving the clean room or clean area.
- c. Pass through the equipment room to enter the regulated area.

1.16.6 Decontamination Area Exit Procedures

The Contractor shall ensure that the following procedures are followed:

- a. Before leaving the regulated area, respirators shall be worn while employees remove all gross contamination and debris from their work clothing using a HEPA vacuum.
- b. Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers (see Detail Sheets 9 and 14) for disposal and/or laundering.
- c. Employees shall not remove their respirators in the equipment room.
- d. Employees shall shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, the Contractor shall

ensure that employees engaged in Class I asbestos jobs: a) Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or b) Remove their contaminated work suits in the equipment room, without cleaning worksuits, and proceed to a shower that is not adjacent to the work area.

- e. After showering, employees shall enter the clean room before changing into street clothes.

1.16.7 Lunch Areas

The Contractor shall provide lunch areas in which the airborne concentrations of asbestos are below 0.01 f/cc.

1.16.8 Smoking

Smoking, if allowed by the Contractor, shall only be permitted in designated areas approved by the Contracting Officer.

1.17 REGULATED AREAS

All Class I and II asbestos work shall be conducted within regulated areas. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they shall demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The Contractor shall control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

1.18 WARNING SIGNS AND TAPE

Warning signs and tape printed bilingually, in English and Spanish shall be provided at the regulated boundaries and entrances to regulated areas. The Contractor shall ensure that all personnel working in areas contiguous to regulated areas comprehend the warning signs. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area. Warning signs shall be in vertical format conforming to 29 CFR 1910 and 29 CFR 1926, Section .1101, a minimum of 20 by 14 inches, and displaying the following legend in the lower panel:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

PELIGRO
ASBESTOS
PRECAUCION ENFERMEDADES DEL CANCER Y PULMON
SOLAMENTE AUTORIZADO PERSONAL

Spacing between lines shall be at least equal to the height of the upper of any two lines. Warning tape shall be provided. Decontamination unit signage shall be posted.

1.19 WARNING LABELS

Warning labels shall be affixed to all asbestos disposal containers used to contain asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements are acceptable. Warning labels shall conform to 29 CFR 1926, Section .1101 and shall be of sufficient size to be clearly legible displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

PELIGRO
CONTIENE FIBRAS DE ASBESTOS
EVITE LA CREACION DE POLVO
PRECAUCION ENFERMEDADES DEL CANCER Y PULMON

1.20 LOCAL EXHAUST VENTILATION

Local exhaust ventilation units shall conform to ANSI Z9.2 and 29 CFR 1926, Section .1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled.

1.21 TOOLS

Vacuums shall be leak proof to the filter, equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system, or has otherwise been approved for use by the Contracting Officer. Residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

1.22 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the Contractor's notification shall be obtained from the rental agency.

1.23 AIR MONITORING EQUIPMENT

The Contractor's Designated CIH shall approve air monitoring equipment to be used to collect samples. The equipment shall include, but shall not be limited to:

- a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute when equipped with a sampling train of tubing and filter cassette.
- b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling

train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

- c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands, to be used with low flow pumps in accordance with 29 CFR 1926, Section .1101 for personal air sampling.
- d. Single use standard 25 mm diameter cassette, open face, 0.45 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive cowl, and shrink bands, to be used with high flow pumps when conducting environmental area sampling using NIOSH Pub No. 84-100 Methods 7400 and 7402.
- e. Appropriate plastic tubing to connect the air sampling pump to the selected filter cassette.
- f. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

1.24 EXPENDABLE SUPPLIES

1.24.1 Glovebag

Glovebags shall be provided as described in 29 CFR 1926, Section .1101. The glovebag assembly shall be 6 mil thick plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

1.24.2 Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container shall be provided.

1.24.3 Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926 Section .1101.

1.24.4 Disposal Bags

Leak-tight bags, 6 mil thick, shall be provided for placement of asbestos generated waste.

1.24.5 Sheet Plastic

Sheet plastic shall be polyethylene of 6 mil minimum thickness and shall be provided in the largest sheet size necessary to minimize seams, as indicated on the Contractor's Asbestos Hazard Abatement Plan. Film shall be frosted and conform to ASTM D 4397, except as specified below:

1.24.5.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets shall be provided. Film shall be frosted and shall conform to the requirements of NFPA 701.

1.24.5.2 Reinforced

Reinforced sheets shall be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

1.24.6 Amended Water

Amended water shall meet the requirements of ASTM D 1331.

1.24.7 Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 140 degrees F.

1.24.8 Leak-tight Wrapping

Two layers of 6 mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

1.24.9 Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8 inch thick, acrylic sheet, 18 by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure as indicated in the approved Contractor's Asbestos Hazard Abatement Plan. The windows shall be sealed leak-tight with industrial grade duct tape.

1.24.10 Wetting Agents

Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS.

1.24.11 Strippable Coating

Strippable coating in aerosol cans shall be used to adhere to surfaces and to be removed cleanly by stripping, at the completion of work. This work shall only be done in well ventilated areas.

1.25 MISCELLANEOUS ITEMS

A sufficient quantity of other items, such as, but not limited to:

scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, other tools, scaffolding, staging, enclosed chutes, wooden ladders, lumber necessary for the construction of containments, UL approved temporary electrical equipment, material and cords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, logbooks, log forms, markers with indelible ink, spray paint in bright color to mark areas, project boundary fencing, etc., shall be provided.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvent and shall meet the following requirements:

ALL ENCAPSULANTS

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E 84
Combustion Toxicity Zero Mortality	Univ. of Pittsburgh Protocol
Life Expectancy, 20 yrs Accelerated Aging Test	ASTM C 732
Permeability, Minimum 0.4 perms	ASTM E 96

Additional Requirements for Bridging Encapsulant

Requirement	Test Standard
Cohesion/Adhesion Test, 50 pounds of force/foot	ASTM E 736
Fire Resistance, Negligible affect on fire resistance rating over 3 hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E 119
Impact Resistance, Minimum 43 in-lb (Gardner Impact Test)	ASTM D 2794
Flexibility, no rupture or cracking (Mandrel Bend Test)	ASTM D 522

Additional Requirements for Penetrating Encapsulant

Requirement	Test Standard
Cohesion/Adhesion Test, 50 pounds of force/foot	ASTM E 736
Fire Resistance, Negligible affect on fire resistance rating over 3 hour test(Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E 119
Impact Resistance, Minimum 43 in-lb (Gardner Impact Test)	ASTM D 2794

ALL ENCAPSULANTS

Requirement	Test Standard
Flexibility, no rupture or cracking (Mandrel Bend Test)	ASTM D 522

Additional Requirements for Lockdown Encapsulant

Requirement	Test Standard
Fire Resistance, Negligible affect on fire resistance rating over 3 hour test (Tested with fireproofing over encapsulant applied directly to steel member)	ASTM E 119
Bond Strength, 100 pounds of force/foot (Tests compatibility with cementitious and fibrous fireproofing)	ASTM E 736

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Asbestos abatement work tasks shall be performed as summarized in paragraph DESCRIPTION OF WORK ((including Table 1) and the Contractor's Accident Prevention Plan, Asbestos Hazard Abatement Plan, and the Activity Hazard Analyses. The Contractor shall use the engineering controls and work practices required in 29 CFR 1926, Section .1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment as in the approved Contractor's Asbestos Hazard Abatement Plan. The Contractor shall not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area. All hot work (burning, cutting, welding, etc.) shall be conducted under controlled conditions in conformance with 29 CFR 1926, Section .352, Fire Prevention. Personnel of other trades, not engaged in asbestos abatement activities, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the Contractor's Accident Prevention Plan are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910, and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. The Contractor shall stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. The Contractor shall correct the condition to the satisfaction of the Contracting Officer, including visual inspection and air sampling. Work shall resume only upon notification by the Contracting Officer. Corrective actions shall be documented.

3.2 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

Asbestos abatement shall be performed without damage to or contamination of adjacent work or area. Where such work or area is damaged or contaminated, as verified by the Contracting Officer using visual inspection or sample analysis, it shall be restored to its original condition or decontaminated

by the Contractor at no expense to the Government, as deemed appropriate by the Contracting Officer. This includes inadvertent spill of dirt, dust or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, work shall stop in all effected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and air sampling analysis results are obtained and have been evaluated by the Contractor's IHT, in consultation with the Designated CIH as needed, and the COR, work shall proceed.

3.3 OBJECTS

3.3.1 Removal of Mobile Objects

Mobile objects, furniture, and equipment will be removed from the area of work by the Government before asbestos abatement work begins. The Contractor shall coordinate such work with the COR.

3.4 BUILDING VENTILATION SYSTEM AND CRITICAL BARRIERS

Building ventilating systems supplying air into or returning air out of a regulated area shall be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910, Section .147 and isolated by airtight seals to prevent the spread of contamination throughout the system. Air-tight critical barriers shall be installed on building ventilating openings located inside the regulated area that supply or return air from the building ventilation system or serve to exhaust air from the building. The critical barriers shall consist of 2 layers of polyethylene. Edges to wall, ceiling and floor surfaces shall be sealed with industrial grade duct tape.

3.5 PRECLEANING

The Contractor shall identify surfaces to be precleaned in the Contractor's Asbestos Hazard Abatement Plan. Surfaces shall be cleaned by HEPA vacuum and adequately wet wiped prior to establishment of containment.

3.6 METHODS OF COMPLIANCE

3.6.1 Mandated Practices

The Contractor shall employ proper handling procedures in accordance with 29 CFR 1926 and 40 CFR 61, Subpart M, and the specified requirements. The specific abatement techniques and items identified shall be detailed in the Contractor's Asbestos Hazard Abatement Plan including, but not limited to, details of construction materials, equipment, and handling procedures. The Contractor shall use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

- a. Vacuum cleaners equipped with HEPA filters to collect debris and dust containing ACM.
- b. Wet methods or wetting agents to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup; except where it can be demonstrated that the use of wet methods is unfeasible due to, for example, the creation of electrical hazards, equipment malfunction, and in roofing.
- c. Prompt clean-up and disposal in leak-tight containers of wastes and debris contaminated with asbestos.

- d. Inspection and repair of polyethylene in work and high traffic areas.
- e. Cleaning of equipment and surfaces of containers filled with ACM prior to removing them from the equipment room or area.

3.6.2 Control Methods

The Contractor shall use the following control methods to comply with the PELs:

- a. Local exhaust ventilation equipped with HEPA filter dust collection systems;
- b. Enclosure or isolation of processes producing asbestos dust;
- c. Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;
- d. Use of other work practices and engineering controls;
- e. Where the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the PELs, the Contractor shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with paragraph, RESPIRATORY PROTECTION PROGRAM.

3.6.3 Unacceptable Practices

The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

- a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- b. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- c. Dry sweeping, shoveling, or other dry clean-up of dust and debris containing ACM.
- d. Employee rotation as a means of reducing employee exposure to asbestos.

3.6.4 Class I Work Procedures

For Class I asbestos work, the following engineering controls and work practices shall be used, in addition to requirements of paragraphs Mandated Practices and Control Methods:

- a. A Competent Person shall supervise the installation and operation

of the control system.

- b. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, the Contractor shall place critical barriers over all openings to the regulated area.
- c. HVAC systems shall be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.
- d. Impermeable dropcloths (6 mil or greater thickness) shall be placed on surfaces beneath all removal activity.
- e. Objects within the regulated area shall be handled as specified in paragraph OBJECTS.
- f. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area shall be ventilated to move contaminated air away from the employee's breathing zone toward a HEPA unit or collection device.

3.6.5 Specific Control Methods for Class I Work

In addition to requirements of paragraph Class I Work Procedures, Class I asbestos work shall be performed using the control methods identified in the subparagraphs below.

3.6.5.1 Negative Pressure Enclosure (NPE) System

The NPE system shall provide at least 4 air changes per hour inside the containment. The local exhaust unit equipment shall be operated 24 hours per day until the containment is removed, and shall be leak-proof to the filter and equipped with HEPA filters. Air movement shall be directed away from the employees and toward a HEPA filtration device. The NPE shall be smoke tested for leaks at the beginning of each shift. Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic manometric recording instrument. Pressure differential recordings shall be provided daily on the same day collected. Readings shall be reviewed by the Contractor's Designated Competent Person and IH prior to submittal. The Contracting Officer shall be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system shall not be used as the local exhaust system for the regulated area. The local exhaust system shall terminate outdoors unless an alternate arrangement is allowed by the Contract Officer. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.

3.6.5.2 Glovebag Systems

The glovebag system shall be used to remove ACM from straight runs of piping and elbows and other connections. Glovebags shall be used without modification and shall be smoke-tested for leaks and any leaks sealed prior to use. Glovebags shall be installed to completely cover the circumference of pipe or other structures where the work is to be done. Glovebags shall be used only once and shall not be moved. Glovebags shall not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, glovebags shall be collapsed by removing air within them using a

HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least 2 persons shall perform Class I glovebag removal. Asbestos regulated work areas shall be established as specified and shown on detailed drawings and plans for glovebag abatement. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained, including area signage and boundary warning tape.

- a. In addition to requirements for negative pressure glovebag systems above, the Contractor shall attach HEPA vacuum systems or other devices to the bag to prevent collapse during removal of ACM from straight runs of piping and elbows and other connections.
- b. The negative pressure glove boxes used to remove ACM from pipe runs shall be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure shall be created in the system using a HEPA filtration system. The box shall be smoke tested for leaks prior to each use.

3.6.5.3 Mini-Enclosures

Mini-containment (small walk-in enclosure) to accommodate no more than 2 persons, may be used if the disturbance or removal can be completely contained by the enclosure with the Class I work procedures. The mini-enclosure shall be inspected for leaks and smoke tested before each use. Air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

3.6.6 Class II Work

In addition to the requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

- a. A Competent Person shall supervise the work.
- b. For indoor work, critical barriers shall be placed over all openings to the regulated area.
- c. Impermeable dropcloths shall be placed on surfaces beneath all removal activity.

3.6.7 Specific Control Methods for Class II Work

In addition to requirements of paragraph Class II Work, Class II work shall be performed using the following methods:

3.6.7.1 Vinyl and Asphalt Flooring Materials

Resilient sheeting shall be removed by adequately wet methods. Tiles shall be removed intact (if possible); wetting is not required when tiles are heated and removed intact. Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet

methods. Mechanical chipping is prohibited unless performed in a negative pressure enclosure. Dry sweeping is prohibited. The Contractor shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean floors.

3.6.7.2 Other Class II Jobs

The Contractor shall use the following work practices when performing Class II removal of ACM listed in Table 1: The material shall be thoroughly wetted with amended water prior and during its removal. The material shall be removed in an intact state. Cutting, abrading or breaking the material is prohibited. The ACM removed shall be immediately bagged or wrapped.

3.6.8 Cleaning After Asbestos Removal

After completion of all asbestos removal work, surfaces from which ACM has been removed shall be wet wiped or sponged clean, or cleaned by some equivalent method to remove all visible residue. Run-off water shall be collected and filtered through a dual filtration system. A first filter shall be provided to remove fibers 20 micrometers and larger, and a final filter provided that removes fibers 5 micrometers and larger. After the gross amounts of asbestos have been removed from every surface, remaining visible accumulations of asbestos on floors shall be collected using plastic shovels, rubber squeegees, rubber dustpans, and HEPA vacuum cleaners as appropriate to maintain the integrity of the regulated area. When TSI and surfacing material has been removed, workmen shall use HEPA vacuum cleaners to vacuum every surface. Surfaces or locations which could harbor accumulations or residual asbestos dust shall be checked after vacuuming to verify that no asbestos-containing material remains; and shall be re-vacuumed as necessary to remove the ACM.

3.6.9 Abatement of Asbestos Contaminated Soil

This paragraph is only applicable in case of accidental spillage by the Contractor. Asbestos contaminated soil shall be removed from areas to a minimum depth of 2 inches. Soil shall be thoroughly dampened with amended water and then removed by manual shoveling into labeled containers. The workers shall be closely monitored for heat exhaustion. The minimum ventilation shall be 8 air changes per hour through a local exhaust HEPA system.

3.6.10 Sealing Contaminated Items Designated for Disposal

Contaminated architectural appurtenances designated for removal and items in the building that are contaminated by the Contractor during execution of work shall be coated with an asbestos lockdown encapsulant at the demolition site before being removed from the asbestos control area. These items shall not be vacuumed prior to application of the lockdown encapsulant. The asbestos lockdown encapsulant shall be tinted a contrasting color and shall be spray applied by airless method. Thoroughness of sealing operation shall be visually gauged by the extent of colored coating on exposed surfaces.

3.7 FINAL CLEANING AND VISUAL INSPECTION

Upon completion of abatement, the regulated area shall be cleaned by collecting, packing, and storing all gross contamination. A final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the cleaning,

the Contractor shall conduct a visual pre-inspection of the cleaned area in preparation for a final inspection and final air clearance monitoring. Upon completion of the final cleaning, the Contractor and the Contracting Officer shall conduct a final visual inspection of the cleaned regulated area in accordance with ASTM E 1368 and document the results on the Final Cleaning and Visual Inspection. If the Contracting Officer rejects the clean regulated area as not meeting final cleaning requirements, the Contractor shall reclean as necessary and have a follow-on inspection conducted with the Contracting Officer. Recleaning and follow-up reinspection shall be at the Contractor's expense.

3.8 LOCKDOWN

Prior to removal of plastic barriers and after clean-up of gross contamination and final visual inspection, a post removal (lockdown) encapsulant shall be spray applied to ceiling, walls, floors, and other surfaces in the regulated area.

3.9 EXPOSURE ASSESSMENT AND AIR MONITORING

3.9.1 General Requirements For Exposure

Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926, Section .1101, the Contractor's air monitoring plan, and as specified. Personal exposure air monitoring (collected at the breathing zone) that is representative of the exposure of each employee who is assigned to work within a regulated area shall be performed by the Contractor's IHT. Breathing zone samples shall be taken for at least 25 percent of the workers in each shift, or a minimum of 2, whichever is greater. Air monitoring results at the 95 percent confidence level shall be calculated as shown in Table 2 at the end of this section. Preabatement and abatement environmental air monitoring shall be performed by the Contractor's IHT, under the direction of the Designated IH. Final clearance environmental air monitoring, shall be performed by the Contractor's Designated IHT. Environmental and final clearance air monitoring shall be performed using NIOSH Pub No. 84-100 Method 7400 (PCM) with optional confirmation of results by NIOSH Pub No. 84-100 Method 7402 (TEM). For environmental and final clearance, air monitoring shall be conducted at a sufficient velocity and duration to establish the limit of detection of the method used at 0.005 f/cc. Confirmation of asbestos fiber concentrations (asbestos f/cc) from environmental and final clearance samples collected and analyzed by NIOSH Pub No. 84-100 Method 7400 (total f/cc) may be conducted using TEM in accordance with NIOSH Pub No. 84-100 Method 7402. When such confirmation is conducted, it shall be from the same sample filter used for the NIOSH Pub No. 84-100 Method 7400 PCM analysis. For all Contractor required environmental or final clearance air monitoring, confirmation of asbestos fiber concentrations, using NIOSH Pub No. 84-100 Method 7402, shall be at the Contractor's expense. Monitoring may be duplicated by the Government at the discretion of the Contracting Officer. Results of breathing zone samples shall be posted at the job site and made available to the COR. The Contractor shall maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the conduct of the asbestos abatement. If fiber concentration rises above 0.1 f/cc, work procedures shall be investigated with the COR to determine the cause. At the discretion of the COR, fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. The Contractor's workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a

sampling period of 30 minutes. Should either an environmental concentration of 1.0 f/cc expressed as an 8-hour TWA or a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside a regulated work area, the Contractor shall stop work immediately, notify the COR, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the COR.

3.9.2 Initial Exposure Assessment

The Contractor's IHT shall conduct an exposure assessment immediately before or at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to comply with the requirements which are triggered by exposure data or the lack of a negative exposure assessment, and to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor which indicate the levels of airborne asbestos likely to be encountered on the job. If Class I asbestos work is required, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of PELs, or otherwise makes a negative exposure assessment, the Contractor shall presume that employees are exposed in excess of the PEL-TWA and PEL-Excursion Limit.

3.9.3 Negative Exposure Assessment

The Contractor shall provide a negative exposure assessment for the specific asbestos job which will be performed. The negative exposure assessment shall be provided within 1 day of the initiation of the project and conform to the following criteria:

- a. Objective Data: Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the PEL-TWA and PEL-Excursion Limit under those work conditions having the greatest potential for releasing asbestos.
- b. Prior Asbestos Jobs: Where the Contractor has monitored prior asbestos jobs for the PEL and the PEL-Excursion Limit within 12 months of the current job, the monitoring and analysis were performed in compliance with asbestos standard in effect; the data were obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations; the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job; and these data show that under the conditions prevailing and which will prevail in the current workplace, there is a high degree of certainty that the monitoring covered exposure from employee exposures will not exceed the PEL-TWA and PEL-Excursion Limit.
- c. Initial Exposure Monitoring: The results of initial exposure

monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

3.9.4 Preabatement Environmental Air Monitoring

Preabatement environmental air monitoring shall be established 1 day prior to the masking and sealing operations for each regulated area to determine background concentrations before abatement work begins. As a minimum, preabatement air samples shall be collected using NIOSH Pub No. 84-100 Method 7400, PCM at these locations: (1) outside the building; (2) inside the building, but outside the regulated area perimeter; and (3) inside each regulated work area. One sample shall be collected for every 2000 square feet of floor space. At least 2 samples shall be collected outside the building: at the exhaust of the HEPA unit; and downwind from the abatement site. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH Pub No. 84-100 Method 7402 (TEM).

3.9.5 Environmental Air Monitoring During Abatement

Until an exposure assessment is provided to the COR, environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The assessment shall demonstrate that the product or material containing asbestos minerals, or the abatement involving such product or material, cannot release airborne asbestos fibers in concentrations exceeding 0.01 f/cc as a TWA under those work conditions having the greatest potential for releasing asbestos. The monitoring shall be at least once per shift at locations including, but not limited to, close to the work inside a regulated area; preabatement sampling locations; outside entrances to a regulated area; close to glovebag operations (if applicable); representative locations outside of the perimeter of a regulated area; inside clean room; and at the exhaust discharge point of local exhaust system ducted to the outside of a containment (if used). If the sampling outside regulated area shows airborne fiber levels have exceeded background or 0.01 f/cc, whichever is greater, work shall be stopped immediately, and the COR notified. The condition causing the increase shall be corrected. Work shall not restart until authorized by the COR.

3.9.6 Final Clearance Air Monitoring

Prior to conducting final clearance air monitoring, the Contractor and the COR shall conduct a final visual inspection of the regulated area where asbestos abatement has been completed. The final visual inspection shall be as appended herein. Final clearance air monitoring shall not begin until acceptance of the Contractor's final cleaning by the COR. The Contractor's IHT shall conduct final clearance air monitoring using aggressive air sampling techniques as defined in EPA 560/5-85-024 or as otherwise required by federal or state requirements. The sampling and analytical method used will be NIOSH Pub No. 84-100 Method 7400 (PCM) and Table 3 with confirmation of results by NIOSH Pub No. 84-100 Method 7402 (TEM).

3.9.6.1 Final Clearance Requirements, NIOSH PCM Method

For PCM sampling and analysis using NIOSH Pub No. 84-100 Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, shall be less than 0.01 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any sample result is greater than 0.01 total f/cc, the asbestos fiber concentration (asbestos f/cc) shall be confirmed from that same filter using NIOSH Pub No. 84-100 Method 7402 (TEM) at Contractor's expense. If any confirmation sample result is greater than 0.01 asbestos f/cc, abatement is incomplete and cleaning shall be repeated.

Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

3.9.6.2 Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, the Contractor shall pay all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

3.9.7 Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours (breathing zone samples), and 24 hours (environmental/clearance monitoring) after completion of a sampling period. The Contracting Officer shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst, testing laboratory principal and the Contractor's IHT and Designated CIH. The air sampling results shall be documented on a Contractor's daily air monitoring log. The daily air monitoring log shall contain the following information for each sample:

- a. Sampling and analytical method used;
- b. Date sample collected;
- c. Sample number;
- d. Sample type: BZ = Breathing Zone (Personal), P = Preabatement, E = Environmental, C = Abatement Clearance;
- e. Location/activity/name where sample collected;
- f. Sampling pump manufacturer, model and serial number, beginning flow rate, end flow rate, average flow rate (L/min);
- g. Calibration date, time, method, location, name of calibrator, signature;
- h. Sample period (start time, stop time, elapsed time (minutes));
- i. Total air volume sampled (liters);
- j. Sample results (f/cc) for final clearance;
- k. Laboratory name, location, analytical method, analyst, confidence level. In addition, the printed name and a signature and date

block for the IHT who conducted the sampling and for the CIH who reviewed the daily air monitoring log verifying the accuracy of the information.

3.10 CLEARANCE CERTIFICATION

When asbestos abatement is complete, ACM waste is removed from the regulated areas, and final clean-up is completed, the COR will certify the areas as safe before allowing the warning signs and boundary warning tape to be removed. After final clean-up and acceptable airborne concentrations are attained, but before the HEPA unit is turned off and the containment removed, the Contractor shall remove all pre-filters on the building HVAC system and provide new pre-filters. The Contractor shall dispose of such filters as asbestos contaminated materials. HVAC, mechanical, and electrical systems shall be re-established in proper working order. The Contractor and the COR shall visually inspect all surfaces (within the containment, if applicable) for residual material or accumulated debris. The Contractor shall reclean all areas showing dust or residual materials. The Contracting Officer will certify in writing that the area is safe before unrestricted entry is permitted. The Government will have the option to perform monitoring to certify the areas are cleaned.

3.11 CLEANUP AND DISPOSAL

3.11.1 Title to ACM Materials

ACM material resulting from abatement work, except as specified otherwise, shall be disposed of by the Contractor as specified and in accordance with applicable federal, state and local regulations.

3.11.2 Collection and Disposal of Asbestos

All ACM waste shall be collected and including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in leak-tight containers such as double plastic bags; sealed double wrapped polyethylene sheet; sealed fiberboard boxes; or other approved containers. Waste within the containers shall be wetted in case the container is breached. Asbestos-containing waste shall be disposed of [AM#2] in Fort Hood sanitary landfill [AM#2] in accordance with Section 01368 Special Project Procedures for Ft. Hood. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/transportation conveyance (i.e., dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the Contracting Officer. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, state, regional, and local standards.

3.11.3 Scale Weight Measurement

Scales used for measurement shall be public scales. Weighing shall be at a point nearest the work at which a public scale is available. Scales shall be standard truck scales of the beam type; scales shall be equipped with the type registering beam and an "over and under" indicator; and shall be capable of accommodating the entire vehicle. Scales shall be tested, approved and sealed by an inspector of the State of Texas. Scales shall be calibrated and resealed as often as necessary and at least once every three months to ensure continuous accuracy. Vehicles used for hauling ACM shall be weighed empty daily at such time as directed and each vehicle shall bear a plainly legible identification mark.

3.11.4 Weigh Bill and Delivery Tickets

Copies of weigh bills and delivery tickets shall be submitted to the COR during the progress of the work. The Contractor shall furnish the Contracting Officer scale tickets for each load of ACM weighed and certified. These tickets shall include tare weight; identification mark for each vehicle weighed; and date, time and location of loading and unloading. Tickets shall be furnished at the point and time individual trucks arrive at the worksite. A master log of all vehicle loading shall be furnished for each day of loading operations. Before the final statement is allowed, the Contractor shall file with the Contracting Officer certified weigh bills and/or certified tickets and manifests of all ACM actually disposed by the Contractor for this contract.

3.11.5 Asbestos Waste Shipment Record

The Contractor shall complete and provide the COR final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records, within 3 days of delivery to the landfill. Waste manifest shall be signed by a representative of DPW-Environmental who has signature authority. Each Waste Shipment Record shall be signed and dated by the Contractor, COR, the waste transporter and disposal facility operator.

TABLE 1-A

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90050 (Fire Station)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90050-1
2. LOCATION OF WORK TASK: B/90050 Ceiling
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: Suspended Sheetrock, Tape and Joint Mud
 - a. Type of Asbestos: Chrysotile
 - b. Percent asbestos content: ranged from 0.75% to 3.0%
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: Class I
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: Friable, Category II
7. FORM: IA and CONDITION OF ACM: FAIR
8. QUANTITY: SQUARE METERS: 10 (Approx.)

NOTES:

- (1) Numeric sequence of individual work tasks (1,2,3,4, etc.) for each regulated area. Each category of EPA friability/OSHA class has a separate task.
- (2) Specific location of work (building, floor, area, e.g., Building 1421, 2nd Floor, Rm 201)
- (3) A description of material to be abated (example: horizontal pipe, cement wall panels, tile, stucco, etc.) type of asbestos (chrysotile, amosite, crocidolite, etc.); and % asbestos content.
- (4) Technique to be used: Removal = REM; Encapsulation = ENCAP; Encasement = ENCAS; Enclosure = ENCL; Repair = REP.
- (5) Class designation: Class I, II, III, or IV (OSHA designation).
- (6) Friability of materials: Check the applicable EPA NESHAP friability designation.
- (7) Form: Interior or Exterior Architectural = IA or EA; Mechanical/Electrical = ME.
Condition: Good = G; Fair = F; Poor = P.
- (8) Quantity of ACM for each work task in meters or square meters.

TABLE 1-B
INDIVIDUAL WORK TASK DATA ELEMENTS
BUILDING 90050 (Fire Station)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90050-2
2. LOCATION OF WORK TASK: Restroom pipe chase, behind wall
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: Pipe insulation on less than 4-inch diameter pipe.
 - a. Type of Asbestos: Presumed asbestos containing material
 - b. Percent asbestos content: access problem, no sample collected
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS I
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: friable, Category II
7. FORM: IA and CONDITION OF ACM: PACM, no information
8. QUANTITY: 20 METERS (Approx.)

TABLE 1-C

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90049 (Control Tower & Ops Bldg)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90049-1
2. LOCATION OF WORK TASK: Mechanical Room, Basement and 7th Floor (Tower)
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: Flexible Connector
 - a. Type of Asbestos: Chrysotile
 - b. Percent asbestos content: ranged from 7% to 50%
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS II
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: Non-friable, Category II
7. FORM: IA and CONDITION OF ACM: GOOD
8. QUANTITY: 2.1 SQUARE METERS (Approx.); 6 each (in Basement) and 4 each (on 7th Floor).

TABLE 1-D

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90049 (Control Tower & Ops Bldg)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90049-2
2. LOCATION OF WORK TASK: ENTIRE BUILDING
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: 12-inch by 12-inch Floor Tile and Mastic lay on top of 9-inch by 9-inch Floor Tile and mastic
 - a. Type of Asbestos: Floor Tile (non-detect for asbestos); Mastic has Chrysotile
 - b. Percent asbestos content: ranged from 5% to 7%, mastic
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS II
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: Non-friable, Category I
7. FORM: IA and CONDITION OF ACM: GOOD
8. QUANTITY: 1875 SQUARE FEET (Approx., including both tile and mastic)

Remarks: Floor tile is not removed with the building structures because it is contaminated by the 9" by 9" floor tile and mastic (in poor condition).

TABLE 1-E

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90049 (Control Tower & Ops Bldg)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90049-3
2. LOCATION OF WORK TASK: ENTIRE BUILDING
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: 9-inch by 9-inch Floor Tile and Mastic covered by 12-inch by 12-inch Floor Tile and mastic
 - a. Type of Asbestos: Chrysotile
 - b. Percent asbestos content: Tile and Mastic both contain 5%
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS II
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: Non-friable, Category I
7. FORM: IA and CONDITION OF ACM: POOR
8. QUANTITY: 1875 SQUARE FEET (Approx., including both tile and mastic)

TABLE I-F

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90049 (Control Tower & Ops Bldg)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90049-4
2. LOCATION OF WORK TASK: Window Casing at Mechanical Room, Basement
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: Window caulking
 - a. Type of Asbestos: Chrysotile
 - b. Percent asbestos content: 3%
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS II
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: Non-friable,
Category II
7. FORM: IA and CONDITION OF ACM: FAIR
8. QUANTITY: 1.2 SQUARE METER (Approx.)

TABLE 1-G

INDIVIDUAL WORK TASK DATA ELEMENTS

BUILDING 90049 (Control Tower & Ops Bldg)

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 90049-5
2. LOCATION OF WORK TASK: Mechanical Room, 6th Floor (Tower)
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: 4-inch diameter pipe canvas wrap with powder insulation
 - a. Type and Percent of Asbestos: Chrysotile (15%) and Amosite (25%)
4. ABATEMENT TECHNIQUE TO BE USED: REM
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: CLASS I
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK: friable, Category II
7. FORM: IA and CONDITION OF ACM: GOOD
8. QUANTITY: 12 METER (Approx.)

TABLE 2

FORMULA FOR CALCULATION OF THE 95 PERCENT CONFIDENCE LEVEL
(Reference: NIOSH 7400)

$$\text{Fibers/cc}(01.95 \text{ percent CL}) = X + (X) * (1.645) * (CV)$$

Where: $X = ((E)(AC))/((V)(1000))$

$$E = ((F/Nf) - (B/Nb))/Af$$

CV = The precision value; 0.45 shall be used unless the analytical laboratory provides the Contracting Officer with documentation (Round Robin Program participation and results) that the laboratory's precision is better.

AC = Effective collection area of the filter in square millimeters

V = Air volume sampled in liters

E = Fiber density on the filter in fibers per square millimeter

F/Nf = Total fiber count per graticule field

B/Nb = Mean field blank count per graticule field

Af = Graticule field area in square millimeters

$$\text{TWA} = C1/T1 + C2/T2 = Cn/Tn$$

Where: C = Concentration of contaminant

T = Time sampled.

TABLE 3
 NIOSH METHOD 7400
 PCM ENVIRONMENTAL AIR SAMPLING PROTOCOL (NON-PERSONAL)

Sample Location	Minimum No. of Samples	Filter Pore Size (Note 1)	Min. Vol. (Note 2) (Liters)	Sampling Rate (liters/min.)
Inside Abatement Area	0.5/140 Square Meters (Notes 3 & 4)	0.45 microns	3850	2-16
Each Room in 1 Abatement Area Less than 140 Square meters		0.45 microns	3850	2-16
Field Blank	2	0.45 microns	0	0
Laboratory Blank	1	0.45 microns	0	0

Notes:

1. Type of filter is Mixed Cellulose Ester.
2. Ensure detection limit for PCM analysis is established at 0.005 fibers/cc.
3. One sample shall be added for each additional 140 square meters. (The corresponding I-P units are 5/1500 square feet).
4. A minimum of 5 samples are to be taken per abatement area, plus 2 field blanks.

TABLE 4

CERTIFICATION OF FINAL CLEANING AND VISUAL INSPECTION

A separate inspection shall be applicable to each abatement work task. In accordance with the cleaning and decontamination procedures specified in the Contractor's Asbestos Hazard Abatement Plan and this contract. The Contractor hereby certifies that he/she has thoroughly visually inspected the decontaminated regulated area (all surfaces, including pipes, beams, ledges, wall, ceiling, floor, decontamination units, etc.) In accordance with ASTM E1368, Standard Practice for Visual Inspection of Asbestos Abatement Projects, has found no dust, or asbestos-containing material residue.

Contractor's Signature:

Date:

Print Name and Title:

Contractor's On-site Supervisor's Signature:

Print Name and Title:

Contractor's Designated CIH's Signature:

Print Name and Title:

Contractor's IHT's Signature:

Print Name and Title:

CONTRACTING OFFICER REPRESENTATIVE (COR) ACCEPTANCE OR REJECTION

I hereby determine that the Contractor has performed final cleaning and visual inspection of the decontaminated regulated work area (all surfaces including beams, ledges, wall, ceiling, floor, decontamination units, etc.) And by quality assurance inspection, find the Contractor's final cleaning to be:

_____Acceptable

_____Unacceptable, Contractor instructed to reclean the regulated area

COR's Signature:

Date:

Print Name and Title:

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ CONTRACT NO. _____
PROJECT ADDRESS _____
CONTRACTOR FIRM NAME _____
EMPLOYEE'S NAME _____, _____, _____,
(Print) (Last) (First) (MI)

Social Security Number: _____-_____-_____,

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH TYPES OF LUNG DISEASE AND CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NONSMOKING PUBLIC.

Your employer's contract for the above project requires that you be provided and you complete formal asbestos training specific to the type of work you will perform and project specific training; that you be supplied with proper personal protective equipment including a respirator, that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you. The Contractor's Designated Industrial Hygienist will check the block(s) for the type of formal training you have completed. Review the checked blocks prior to signing this certification.

FORMAL TRAINING:

_____ a. For Competent Persons and Supervisors: I have completed EPA's Model Accreditation Program (MAP) training course, "Contractor/Supervisor", that meets this State's requirements.

b. For Workers:

_____ (1) For OSHA Class I work: I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

_____ (2) For OSHA Class II work (where there will be abatement of more than one type of Class II materials, i.e., roofing, siding, floor tile, etc.): I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

_____ (3) For OSHA Class II work (there will only be abatement of one type of Class II material):

_____ (a) I have completed an 8-hour training class on the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls of 29 CFR 1926, Section .1101(g) and hands-on training.

_____ (b) I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

_____ (4) For OSHA Class III work: I have completed at least a 16-hour course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, Section .92(a)(2) and the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926, Section .1101, and hands-on training.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

_____ (5) For OSHA Class IV work: I have completed at least a 2-hr course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, (a)(1), and the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926, Section .1101(g) and hands-on training.

_____ c. Workers, Supervisors and the Designated Competent Person: I have completed annual refresher training as required by EPA's MAP that meets this State's requirements.

PROJECT SPECIFIC TRAINING:

_____ I have been provided and have completed the project specific training required by this Contract. My employer's Designated Industrial Hygienist and Designated Competent Person conducted the training.

RESPIRATORY PROTECTION:

_____ I have been trained in accordance with the criteria in the Contractor's Respiratory Protection program. I have been trained in the dangers of handling and breathing asbestos dust and in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair and contact lens use policy of my employer.

RESPIRATOR FIT-TEST TRAINING:

_____ I have been trained in the proper selection, fit, use, care, cleaning, maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the Contractor's Respiratory Program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time.

MEDICAL EXAMINATION:

_____ I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray. A physician made a determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's Industrial Hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

_____ were no limitations to performing the required work tasks.
_____ were identified physical limitations to performing the required work tasks.

Date of the medical examination _____

Employee Signature _____ date _____
Contractor's Industrial
Hygienist Signature _____ date _____

-- End of Section --