DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
9170 LATTY AVENUE
BERKELEY, MISSOURI 63134

REPLY TO
ATTENTION OF:

January 18, 2000

Formerly Utilized Sites Remedial Action Program Project Office

SUBJECT: Transmittal of the Final Meteorological/Radiological Air Particulate Monitoring Stations Installation Plan And Accident Prevention Plan

Mr. Bryan Kury
M/C S221-1400
The Boeing Company
P.O. Box 516
St. Louis, Missouri 63166

Dear Mr. Kury:

Enclosed please find the Final Meteorological/Radiological Air Particulate Monitoring Station Installation Plan and Accident Prevention Plan. These documents summarize activities that will be performed to carry out the installation of the Meteorological and Radiological Air Particulate Monitoring Stations on the roof of Building 14 at Boeing. Comments from your letter dated November 29, 1999 have been incorporated as requested.

It is our intent to begin this work within the next 30 to 45 days. The actual start date for this activity will be fully coordinated with Mr. Elmer Dwyer of your staff. The names of the individuals requiring temporary access to complete the installation will be provided once a start date has been established.

Also included are the completed "Non-Employee Badge Request" forms for those individuals requiring access to maintain the Meteorological and Air Monitoring Stations after they are operational. To facilitate processing, these forms have been signed; however, these individuals have not read the "MDC Standards of Behavior" as required by the form. We request that you please provide this information so that they may comply with this requirement.

If you have any questions or concerning these plans, please contact Mr. Jim Moos at (314) 524-2069.

Sincerely,

Sharon R. Cotner
FUSRAP Program Manager

Enclosures
CC: Mr. Elmer Dwyer

Non-Employee Badge Request

Indicate one type of request
☒ New ☐ Renewal ☐ Access Card Required

Indicate type of badge

☒ A. Vendor/Complementary Work Force - Sponsor obtains the badge recipient information and signature. Send to Badging MC S276-1735. Call Badging ext. 25491 in two days to arrange badge pickup.

☐ B. Government - Send to DCMC, MC S306-1355. Call Badging at 25491 four days after sending your request to arrange pickup.

☐ C. Foreign National - Send to Information Security (IS), MC S102-2043. Call Badging at 25491 four days after sending your request to arrange pickup.

Badge Recipient Information

Social Security No.	Last Name, First, M.I.	Badge Expiration (DD/MM/YYYY)
Redacted - Privacy Act	Hoover, Lon, E.	

Company or Government Department Name: Science Applications International Corp. (SAIC)

Mailing Address	City	State	Zip Code
500 Northwest Plaza, Ste. 1250	St. Ann	MO	63074

Certification of Badge Recipient

I certify that the above information is true and accurate to the best of my knowledge. I have read the MDC "Standards of Behavior" and I will comply with these rules and those of the MDC host facility. I understand that I am responsible for custody of my badge and am subject to a replacement fee for a lost or non-returned badge.

Signature: Lon E. Hoover Date: 12/20/99

Sponsor Information

Employee No.	Last Name, First, M.I.	Dept. No.	Mailcode	Phone No.

U. S. Government Agency/Program Title:

Authorized Work Days	Yes/No	Hours
Monday-Friday	☐	
Saturday	☐	
Sunday	☐	
Holiday	☐	

Time Keeping Yes/No: ☐

Labor Accounting No. (from Cost Accounting):

Security Clearance Access Authorization
☐ None ☐ Secret ☐ Confidential ☐ Top Secret

Program Approval
☐ Yes ☐ No

Citizenship
☐ U.S. ☐ Lawful Permanent Resident ☐ Foreign National

Foreign National Citizenship
Country:
Technology Control Plan No.:

Authorized Work Areas (Please List Buildings By Assigned Numbers)

1)	2)	3)	4)
5)	6)	7)	8)
9)	10)	11)	12)

Certification of Badge Sponser

I understand that this request will be accepted only if mailed, faxed, or hand carried by me or my designee, to the badging office. This request will not be accepted if hand carried by an unaccompanied badge recipient. I hereby assume responsibility for the access authorization of the person named above for the period and purpose indicated. I also assume responsibility for the return of the badge issued to the person I have sponsored.

Signature (Required Before Sending to Security) Date

Security Department Approval

Remarks

IS Approval Date

MDC 4027-10 (REV 21 MAR 97)

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☒ New ☐ Renewal ☐ Access Card Required

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Badge Recipient Information

Social Security No.	Last Name, First, M.I.	Badge Expiration (DD/MM/YYYY)
x Redacted - Privacy Act	x CALDWELL ERIC	

Company or Government Department Name: x SAIC - SEC

Mailing Address	City	State	Zip Code
x 9170 LATTY AVE.	x BERKELEY	x MO	x 63134

Certification of Badge Recipient

I certify that the above information is true and accurate to the best of my knowledge. **I have read the MDC "Standards of Behavior" and I will comply with these rules and those of the MDC host facility.** I understand that I am responsible for custody of my badge and am subject to a replacement fee for a lost or non-returned badge.

Signature	Date
x Eric Caldwell	12-16-99

Sponsor Information

Employee No.	Last Name, First, M.I.	Dept. No.	Mailcode	Phone No.

U. S. Government Agency/Program Title

Authorized Work Days	Yes/No	Hours
Monday-Friday	☐	
Saturday	☐	
Sunday	☐	
Holiday	☐	

Time Keeping Yes/No: ☐

Labor Accounting No. (from Cost Accounting):

Security Clearance Access Authorization
☐ None ☐ Secret ☐ Confidential ☐ Top Secret

Program Approval
☐ Yes ☐ No

Citizenship
☐ U.S. ☐ Lawful Permanent Resident ☐ Foreign National

Foreign National Citizenship
Country
Technology Control Plan No.

Authorized Work Areas (Please List Buildings By Assigned Numbers)

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5)	6)	7)	8)
9)	10)	11)	12)

Certification of Badge Sponsor

I understand that this request will be accepted only if mailed, faxed, or hand carried by me or my designee, to the badging office. This request will not be accepted if hand carried by an unaccompanied badge recipient. I hereby assume responsibility for the access authorization of the person named above for the period and purpose indicated. I also assume responsibility for the return of the badge issued to the person I have sponsored.

Signature (Required Before Sending to Security)	Date

Security Department Approval

Remarks

IS Approval	Date

MDC 4027-10 (REV 21 MAR 97)

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Badge Recipient Information

Social Security No.	Last Name, First, M.I.	Badge Expiration (DD/MM/YYYY)
Redacted - Privacy Act	Danielson, Eric, J	

Company or Government Department Name: SAIC

Mailing Address	City	State	Zip Code
9170 Latty Ave.	Berkeley	MO	63134

Certification of Badge Recipient

I certify that the above information is true and accurate to the best of my knowledge. I have read the MDC "Standards of Behavior" and I will comply with these rules and those of the MDC host facility. I understand that I am responsible for custody of my badge and am subject to a replacement fee for a lost or non-returned badge.

Signature: [signature] Date: 12/16/99

Sponsor Information

Employee No.	Last Name, First, M.I.	Dept. No.	Mailcode	Phone No.

U. S. Government Agency/Program Title

Authorized Work Days	Yes/No	Hours
Monday-Friday	☐	
Saturday	☐	
Sunday	☐	
Holiday	☐	

Time Keeping Yes/No ☐

Labor Accounting No. (from Cost Accounting)

Security Clearance Access Authorization
☐ None ☐ Secret ☐ Confidential ☐ Top Secret

Program Approval
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Country
Technology Control Plan No.

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Badge Recipient Information

Social Security No.	Last Name, First, M.I.	Badge Expiration (DD/MM/YYYY)
Redacted - Privacy Act	MARTINEZ ANTONIO W	

Company or Government Department Name
SAFETY ANS ECOLOGY CORPORATION / SCIENCE APPLICATION INTERNATIONAL CORP.
SEC/SAIC,

Mailing Address	City	State	Zip Code
500 NW PLAZA, STE. 1250,	ST. ANN	MO	63074

Certification of Badge Recipient

I certify that the above information is true and accurate to the best of my knowledge. **I have read the MDC "Standards of Behavior" and I will comply with these rules and those of the MDC host facility.** I understand that I am responsible for custody of my badge and am subject to a replacement fee for a lost or non-returned badge.

Signature	Date
Antonio W. Martinez	12-16-99

Sponsor Information

Employee No.	Last Name, First, M.I.	Dept. No.	Mailcode	Phone No.

U. S. Government Agency/Program Title

Authorized Work Days	Yes/No	Hours
Monday-Friday	☐	
Saturday	☐	
Sunday	☐	
Holiday	☐	

Time Keeping Yes/No ☐

Labor Accounting No. (from Cost Accounting)

Security Clearance Access Authorization
☐ None ☐ Secret ☐ Confidential ☐ Top Secret

Program Approval
☐ Yes ☐ No

Citizenship
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Signature (Required Before Sending to Security)	Date

Security Department Approval

Remarks

IS Approval	Date

MDC 4027-10 (REV 21 MAR 97)

Meteorological/Radiological Air Particulate Monitoring Station Installation Plan

PART 1 GENERAL

1.01 SITE BACKGROUND

The St. Louis Airport Site (SLAPS) covers 22 acres and is located immediately north of the Lambert-St. Louis International Airport. The SLAPS is bounded on the north and east by McDonnell Boulevard, on the south by Banshee Road and the Norfolk and Western Railroad and by Coldwater Creek on the west. From 1942 to 1957, uranium and radium were extracted from ore at the Mallinckrodt Chemical Plant in downtown St. Louis. During this time and until 1967, SLAPS was used to store process byproducts that contained residual radioactive materials. Starting in the late 1960s, wastes stored at SLAPS were moved to Hazelwood Interim Storage Site (HISS), located on Latty Avenue, and residual contaminated materials are currently located there. The U.S. Army Corps of Engineers (USACE) has been tasked to investigate and remediate the SLAPS under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Both of these sites are classified as CERCLA sites. The Boeing facility will provides a background location to obtain background meteorological data and radiological air particulate data.

1.02 PURPOSE

The Meteorological Station and the Radiological Air Particulate Monitoring Station will be installed on the rooftop of Boeing's Building 14, a water treatment plant on Banshee Road. The building is approximately 12 feet high and 27 feet by 27 feet in size. The Meteorological Station will measure parameters such as wind speed, temperature, precipitation, barometric pressure, relative humidity, and dew point. The Radiological Air Particulate Monitoring Station will be used to monitor radiological air particulates and consists of an air pump, which is contained in the weather house and membrane filter, which will be attached to the gooseneck on the exterior of the weather house. Both of these devices will be attached to the roof of Building 14 (see Figure 1). Regular intervals of data readings and upkeep will be performed on the stations. Parameters measured using the Meteorological Station and Radiological Air Particulate Monitoring Station will be used as background data for the FUSRAP North County Sites.

1.03 SCOPE OF CONTRACT

A. The work to be performed under this project consists of furnishing materials, equipment, tools, and labor, and executing all work necessary for the installation of a Meteorological Station and Radiological Air Particulate Monitoring Station on the roof of Boeing Building 14. Contractor (SAIC) will perform data retrieval and upkeep necessary for these stations.

B. If any electrical work is required, Boeing will provide the materials and installation required upon their approval of plans given to them by USACE.

C. This summary of work is for general information only and shall not be construed as limiting the scope of the work under the Subcontract. The Subcontractors shall be responsible for furnishing and installing the work shown or indicated in the Subcontract Documents, and shall furnish and install all miscellaneous and incidental items necessary for a complete functioning installation, whether such items are shown on the Subcontract Drawings or not.

D. Boeing will be notified in advance of any changes to the scope of work of this contract. All conditions of the Access Agreement and the Amendment will apply during and after the installation of the monitoring stations.

1.04 APPLICABLE SUBCONTRACT DOCUMENTS

A. The work shall be performed in accordance with these specifications and the following documents:

Document Number	Title
ANSI A14.3	American National Standard for Ladders
Accident Prevention Plan	
General Conditions	
General Provisions	
Special Conditions	
USACE EM 385-1-1	Safety and Health Requirements Manual

1.05 WORK SCHEDULE

November 8	Installation Plan/Accident Prevention Plan to USACE
November 15	Comments on Plan/APP from USACE
November 16	Resolve comments from USACE
November 17	Submit Plan/APP to Boeing for review
December 6	Receive/resolve comments from Boeing
	Begin assembly of stations
January 17	Begin installation of stations
	Install permanent ladder
January 20	Complete installation

1.06 WORK SEQUENCE

A. The Subcontractor shall perform all work indicated in the Subcontract Documents.

B. The scheduling and performance of construction operations are the sole responsibility of the Subcontractor. This includes a determination of the availability of all specified or accepted substitute products, and the proper scheduling of their deliveries in order to allow sufficient time for installation so as not to cause delays in the performance of the work.

1.07 FIELD MEASUREMENTS AND TEMPLATES

A. Subcontractor shall secure and perform all field measurements required for proper and accurate fabrication and installation of the work included in the Subcontract documents.

B. Exact measurements are the Subcontractor's responsibility. Subcontractor shall furnish any and all specifications required for the fabrication of the two metal plates. All dimensions shall be checked and verified by Subcontractor in the field.

C. Any existing structures, equipment, utilities, etc., not shown shall be reported by the Subcontractor to the Prime Contractor's Representative immediately upon discovery.

1.08 CONDITIONS OF WORK IN PLACE

Inspection of the work by the Contractor shall not be construed to relieve the Subcontractor from his obligations or any conditions of the Subcontract Documents.

PART 2 PRODUCTS

As shown on drawings and specifications

PART 3 EXECUTION

(Not Used)

PART 4 MEASUREMENT AND PAYMENT

A. MEASUREMENT

Measurement for payment for all work specified will be by lump sum. Prior to acceptance for payment, the work shall be inspected and approved by the Construction Engineer.

B. PAYMENT

Payment will be the lump sum as stated in the pricing schedule.

END OF SECTION

Meteorological/Radiological Air Particulate Monitoring Station Installation Plan
Other Work

PART 1 - GENERAL

1.01 WORK INCLUDED

This specification section covers basic electrical work, metal plate foundations, grounding, and the installation of a Contractor furnished Meteorological Station and Radiological Air Particulate Monitoring Station which will be installed on the roof of Building 14 (see Figure 1). Work will include:

A. Relocation of equipment from HISS onto the roof of Building 14.

B. Tarring of the metal plate foundations to the roof and attachment of the Meteorological Station and Radiological Air Particulate Monitoring Station to the plates.

C. Radiological Air Particulate Monitoring Station Installation

D. Meteorological Station Installation.

E. Grounding.

F. Installation of the guywires.

G. The purchase and installation of permanent 10 foot ladder to Building 14.

1.02 SUBMITTALS

A. Provide in accordance with General Conditions and Special Conditions.

B. Hazard communication will be governed by SAIC EC&HS Procedure 8, an MSDS on all necessary items will be submitted to SAIC prior to commencement of work. At minimum, the following steps will be taken.

- All hazardous materials on site will be labeled to comply with the hazard communication standard.
  - clear labeling as to the contents,
  - the appropriate hazard warning, and
  - the name and address of the manufacturer.
- MSDSs will be available on site for all hazardous materials that are present
- Site-specific training will include the hazards posed by site chemicals, their location concentrations (maps showing the location and concentration of contaminants shall be used whenever feasible), protective measures, and emergency procedures.
- MSDS evaluations will be conducted prior to bringing a new hazardous chemical on-site for personal protection and waste management issues.

PART 2 - PRODUCTS

2.01 GROUNDING (provided)

A. Ground Rod: ¾ inch by 10 feet, copperweld type

B. Ground Cable: #2/0 stranded, bare copper conductor

C. Ground Connections: Cadweld type, thermic connections

2.02 METAL PLATE

A. Weather house: 1/4-inch metal plate 4' x 4' in size weighing approximately 160 lbs. Four bolts will be countersunk from the bottom of the plate, and spot welded in place to allow attachment of the weather house legs.

B. Meteorological Station: 1/4-inch metal plate 4' x 4' in size weighing approximately 160 lbs. The metal plate will have three small angles welded to it, with boltholes, which correspond to the legs of the tripod

See Appendix A for the loading study performed on both metal plates to ensure that they will properly hold the Meteorological Station and Radiological Air Particulate Monitoring Station.

2.03 METEOROLOGICAL STATION (provided)

A. Includes a tripod, METPAC® station, Micro Response Wind Vane, Micro Response Anemometer, Micro Response Crossarm Assembly, Self Aspirated Radiation Shield, Temperature/Humidity Probe, Tipping Bucket Rain Gauge, and the Tripod Lightning Rod. A grounding rod is also included with the Meteorological Station, see section 2.01.

B. The tripod is the main component of the Meteorological Station. It acts as a skeleton for the remaining components, which will be situated on different areas of the tripod. Tripod dimensions: 10' high, 4' wide; weight: 30 pounds.

C. Total Meteorological Station dimensions: 15' high, 4' wide, 200 pounds

D. Total rating: 5 amps @ 115 volts.

2.04 GUYWIRES

A. 3/8" stranded wire will be used

B. 1/2" eyebolt

2.05 ANCHORS

A. 1/2" self-drilling anchor

2.06 WEATHER HOUSE (See Figure 2) (provided)

A. Dimensions: 4' high, 2' deep, and 2' 6" in width

B. Weight: 52 pounds

C. Contains a GFCI four-way electrical box for wiring

D. three prong outlets

E. Two set of louvres on each side for air entry

2.07 RADIOLOGICAL AIR PARTICULATE SAMPLER (provided)

A. Contains an oil-less vacuum pump.

B. Rating: 8 amps

C. 6 foot, three wire grounded cable

D. Weight: 30 pounds

E. Dimensions: 12" long, 14" wide, 9" high

2.08 PERMANENT LADDER

A. Approximately 10 feet high from the first step to the surface of the roof

B. Specifications for this ladder were taken from ANSI A14.3 American National Standard for Ladders.

C. The ladder will support 325 pound maximum load

PART 3 - EXECUTION

3.01 ELECTRICAL CONNECTION

A. Weatherhouse and Meteorological Station shall be provided with a power cord (8-foot length and grounded plug).

B. Connect power cord to existing weatherproof, GFCI receptacle on the roof of Building 14. Receptacle is mounted on the equipment stand for the abandoned weather station.

C. Verify that weatherproof cover is engaged after power cord connections are made at the receptacle.

D. Route power cords on roof such that they do not present a tripping hazard during normal facility maintenance and weekly data retrieval activities.

3.02 GROUNDING

A. Grounding will be run from the lightning protection rod down to the base of the Meteorological Station along the roof to the northeast corner of the building and down to the ground.

B. The cable will be buried 2 inches deep in a 4 inch wide trench cut through the asphalt sidewalk at the northeast corner of the building. This trench will be saw cut and replaced with cold patch asphalt and compacted.

C. The ground rod will be run to the grassy area near the perimeter fence adjacent to the building. Coordinate with Leverd Doehring, Electrical Foreman at 314-234-1455 to establish the exact location for the ground rod and preferred routing of the ground cable. Before sinking the ground rod, Lambert Subsurface Investigations will conduct a utility search in the area to determine the location of any underground utilities.

D. Connect #2/0 ground cable to the grounding assembly at the weather house and Meteorological Station and to the ground rod by means of a Cadweld type thermic connection.

E. Utilize cable clamps along the roof and exterior wall of the building for routing and support of the ground cable.

3.03 METEOROLOGICAL STATION INSTALLATION (See Figure 3)

A. Assemble Meteorological Station at the HISS according to the procedures described in the Qualimetrics® systems handbook.

B. Transport the Meteorological Station to Building 14.

C. Lift equipment onto the roof of Building 14 by an industrial truck operated by a trained and qualified operator. The roof has approximately 1/2 inch of gravel covering it.

D. Provide proper leveling and sufficient adherence for the metal plate to the roof. Tar metal plate down with a cold roofing patch/seal in the specified area, this will be at least 6' from the edge of the roof.

E. Lift tripod onto the metal plate and bolt in place using 3/8" ASTM A308 bolts. As previously discussed, the metal plate will have three small angles welded to it with boltholes, which correspond to the legs of the tripod. Nuts will be installed to hold the tripod in place.

F. Anchor guywires in three locations through sides of the building with self-drilling anchors (see figure 1). The subcontractor will decide the exact anchoring locations. The stranded wires will be attached to eyebolts, which will be threaded into the self-drilling anchors. The parapet is approximately 3 inches in height and is approximately 1.5' in width. Fall protection will be worn during installation of the anchors.

G. Attach other components to the tripod as designated in the Qualimetrics® systems manual.

H. See 3.01 for electrical connection.

I. Fall protection: Work areas with the potential for a fall of 1.2 meters or more will be provided with fall protection in compliance with USACE EM 385-1-1 Section 21.A.15. This fall protection will consist of guardrails or personal fall protection. Personal fall protection will be used for roofing.

3.04 RADIOLOGICAL AIR PARTICLATE MONITORING SYSTEM

A. Transport equipment to Building 14.

B. Lift the equipment onto the roof of Building 14 with an industrial truck operated by a trained and qualified operator. The roof has approximately 1/2 inch of gravel covering it.

C. Provide proper leveling and sufficient adherence of the metal plate to the roof in designated area, which will be at least 6' from the edge of the roof, tarring the bottom and sides of the plate with a cold roofing patch/seal.

C. Lift tripod onto the metal plate and bolt in place. As previously discussed, holes were drilled through the plate and countersunk for ASTM A307 3/8" x 3" bolts which have been spot welded to the plate from the bottom. After the weather house has been placed on the bolts, nuts will be installed.

D. Secure radiological air particulate monitor pump base inside of the weather house with attached gooseneck running from the inside of the weather house to the outside to collect the surrounding air through the membrane filter into the radiological air particulate monitor.

E. See 3.01 for electrical connection.

F. Fall protection: Work areas with the potential for a fall of 1.2 meters or more will be provided with fall protection in compliance with USACE EM 385-1-1 Section 21.A.15. This fall protection will consist of guardrails or personal fall protection. Personal fall protection will be used for roofing.

3.05 PERMANENT LADDER

A. A permanent ladder will be installed on the far east portion of the north side of building (see Figure 1).

B. The ladder will have standoffs that will extend from the ladder to the brick wall of Building 14. The ladder will be fastened to the wall with concrete anchors and bolts.

C. The rails of the ladder will extend to the top of the roof up and make a loop past the top of the roof back over the ladder itself for fall protection.

D. Fall protection: Work areas with the potential for a fall of 1.2 meters or more will be provided with fall protection in compliance with USACE EM 385-1-1 Section 21.A.15. This fall protection will consist of guardrails or personal fall protection. Personal fall protection will be used for roofing.

End of Section

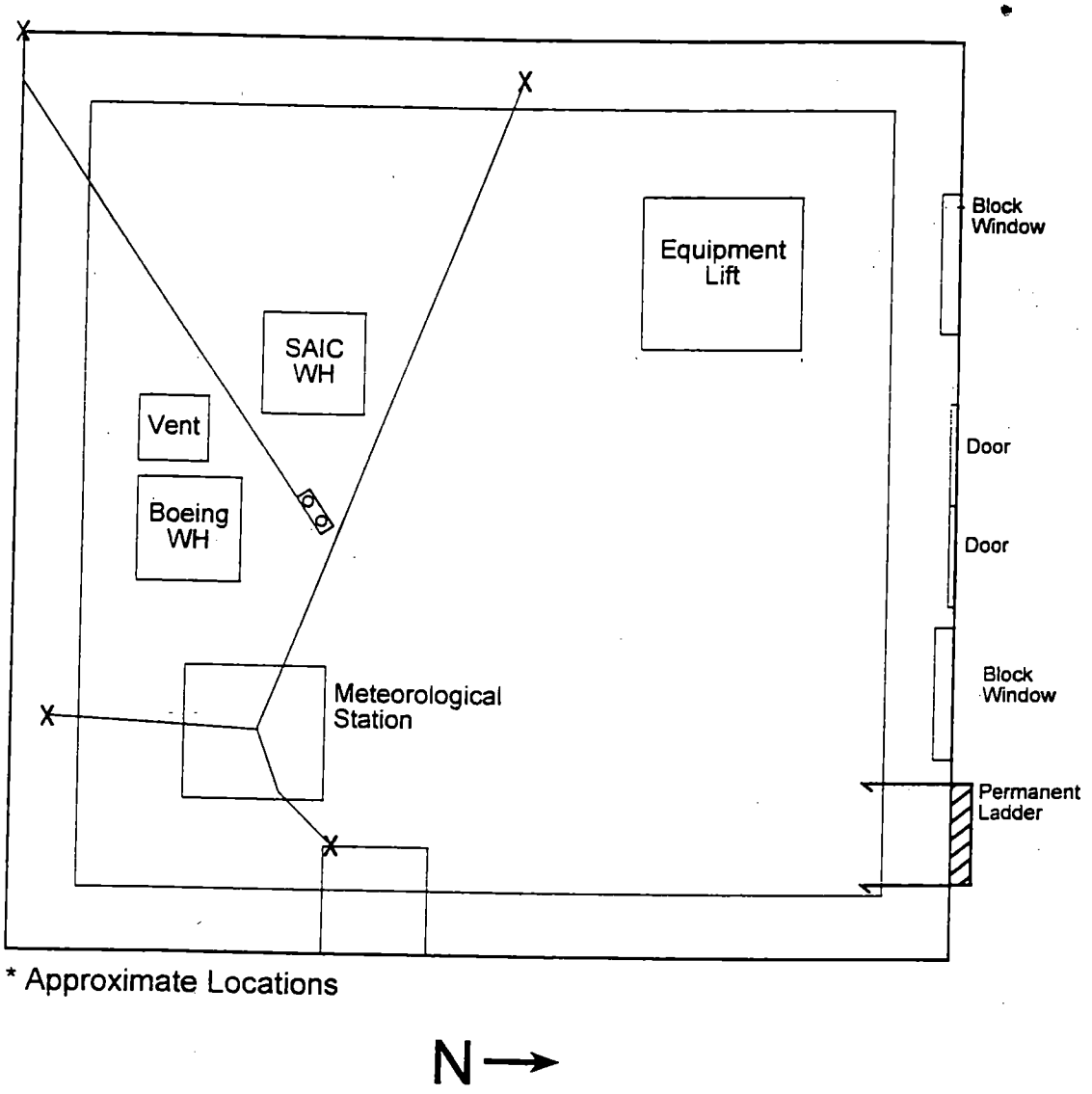


Figure 1: Aerial View of Boeing Building 14

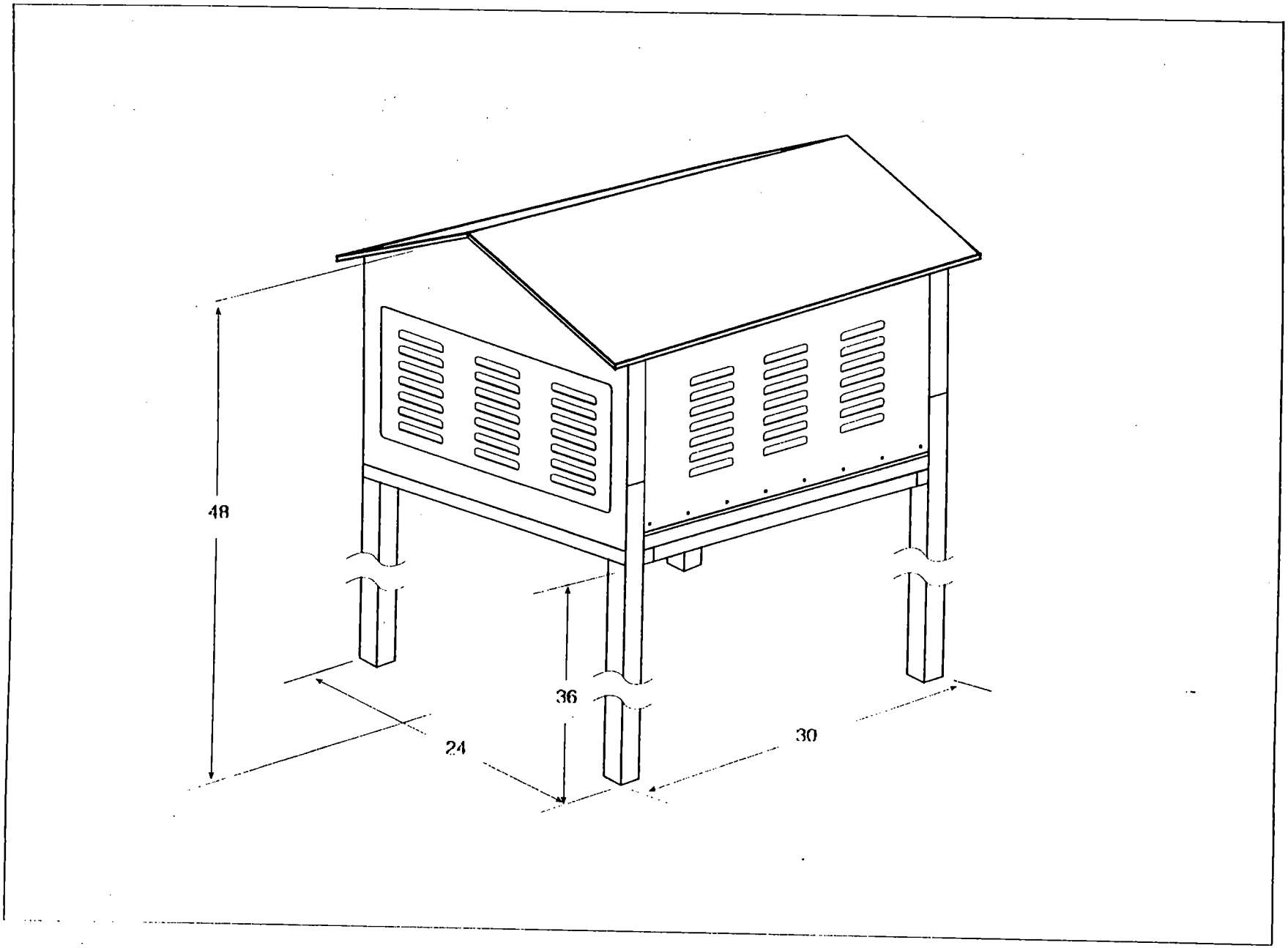


Figure 2. Weather House

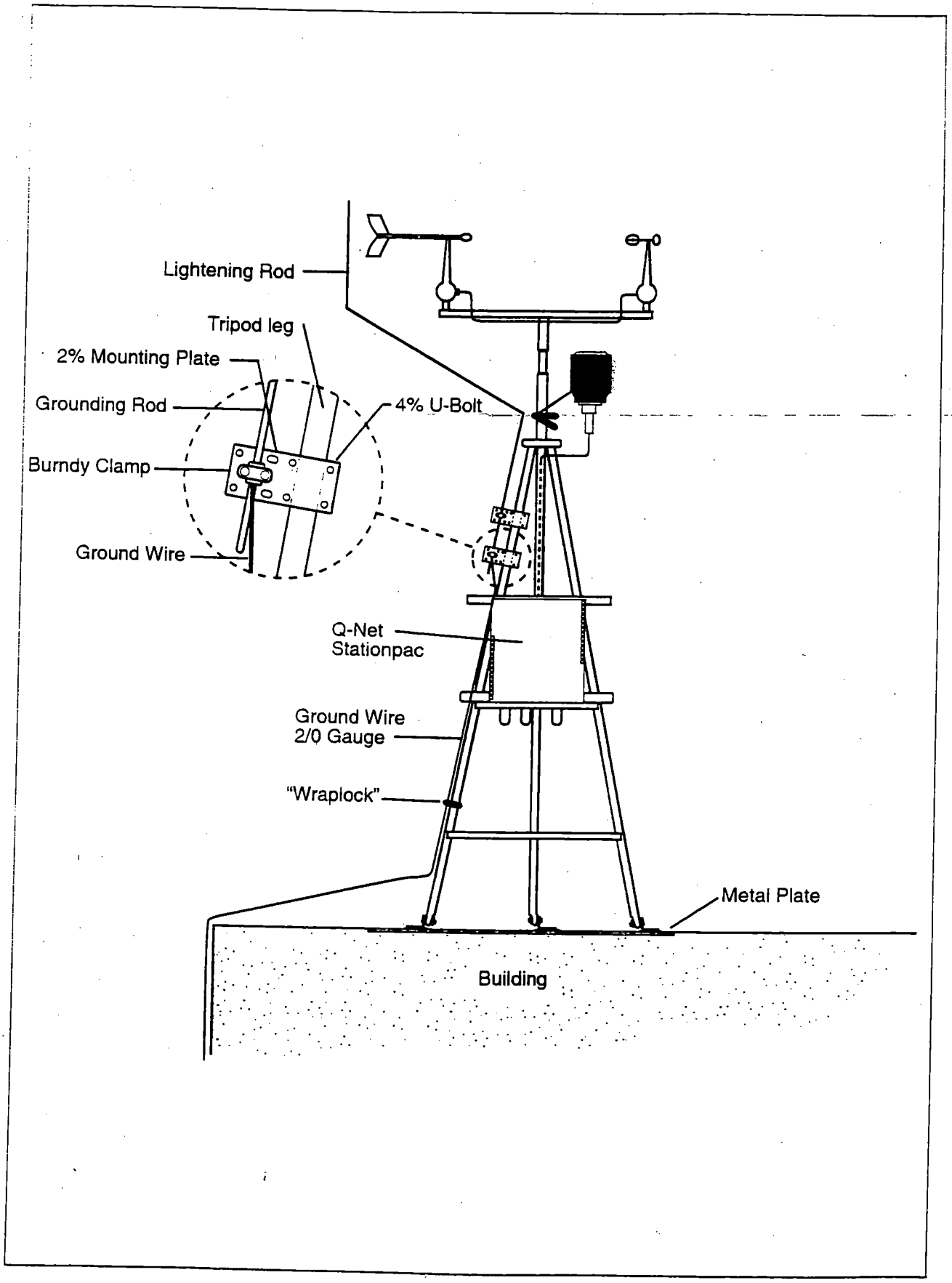


Figure 3. Meteorological Station

Appendix A

Title _____ Job Number _____

By _____ Date _____ Checked By _____ Date _____

To: Mike Higgins

From: Larry Ketcham

Subject: Load Testing; Meteorological Station and Air Particulate Station

This is to respond to your request to provide a bolt specification and determine if the metal plates are adequate to hold down the structures.

A. Meteorological Station

Since the station will only have dead load acting down on the roof and wind load acting horizontally as an overturning force. The overturning force will be taken by the 3 guy wires. I would suggest a turnbuckle in each wire to insure the cables are tight.

Page No. 2-3

Title _____ Job Number _____

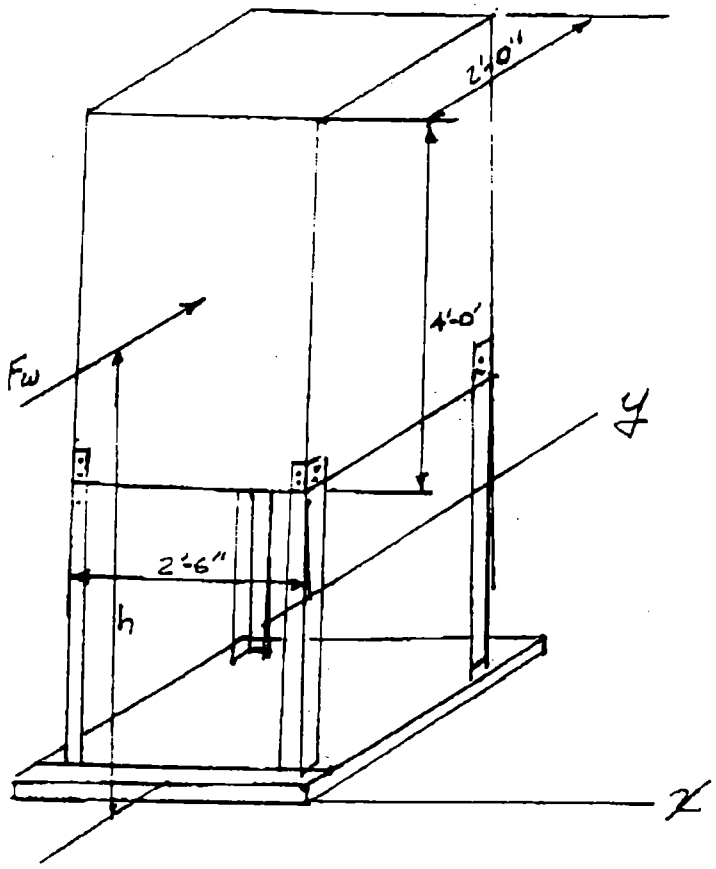
By _____ Date _____ Checked By _____ Date _____

The Load due to wind is 14.4 #/ft². If we take a worse case of Legs being 6" wide & exposed to the windward direction a horizontal Load of 330# would be the maximum horizontal Load. I would reccomend a 3/8" stranded wire and a 1/2" eye bolt threaded into a 1/2" self drilling anchor in the parepet wall. The 1/2" anchor would take 1.55 K and the stranded wire would be way over the 330#. The anchor bolts would not be a factor in Load attenuation therefore a 3/8" ASTM A307 bolt could be used at each connecting point and be more than adequate. The 1/4 plate is OK since it is thick enough to be welded. Again, it carries no horizontal Load.

Page No. 1

Title AIR Particulate Monitor Sta Job Number

By LAK Date Checked By Date



- stated in the previous transmittal

max wind force = (.002558)(70)² = 12.5 #/ft²

Max wind force = 12.5 x 4' x 2.5' = 125#

max overturning moment = 125# x h

h = Leg Length + 2' (we will assume Leg length = 2')

Since the station weighs 116# & the ¼" PL weighs 100#

The total ↓ load = 216#

- station must tip over from the x or y AXIS

- we assume the bar will keep the station

Page No. 2

Title _____ Job Number _____

By _____ Date _____ Checked By _____ Date _____

from sliding.

Check overturning moment w/ 3'x3' plate

$R = \frac{1/4"}{12\frac{in}{ft}} \times 490 \#/ft^3 \times 3 \times 3 = 92\#$

Assume the Legs for the Air Part Station are 2' high

$M_w = F_w \times (2+2) = 125 \times 4 = 500$ ft-#

max resisting moment about the weak axis $= (116+92) \times \frac{3.0}{2}$

$= 312$ ft-# ∴ No good

Increase the R to a 4x4

$w = \frac{1/4}{12} \times 490 \times 4 \times 4 = 163\#$

max resisting moment $= (116+163) \times \frac{4.0}{2} = 556$ ft-#

The required coefficient of friction

Downward Load = 279#

Horizontal Load = 125#

Friction factor must = .45

μ = friction factor

$\mu \times 279 = 125$

$\mu = .45$

Page No. 3

Title _____ Job Number _____

By _____ Date _____ Checked By _____ Date _____

Conclusion:

If the leg height is 2' to the station as assumed; a 4'x4'x 1/4" plate would allow the station to remain stable in a UBC max wind condition of 70 mph.

There is no published friction coefficient for metal on tar so my guess is that it probably is greater than .45 since metal on leather is about .45. The size of the plate does not affect the coefficient except that it adds weight. If the leg height is 3' then the 4'x4' plate must be 1/2" thk. (See below)

$m_w = 125 \times 5 = 625$

$m_r = \left[116 + (4 \times 4 \times 490 \times \frac{5}{12})\right] \times \frac{4.0}{2} = 6884 > 625$

If you have questions call me @ 481-8527

Larry A. Ketcham

P.S. If a restraint against sliding could be added; it would take away the assumption on the tar.

ACCIDENT PREVENTION PLAN

FOR

METEOROLOGICAL/RADIOLOGICAL AIR PARTICULATE MONITORING STATION INSTALLATION SAINT LOUIS, MISSOURI

PREPARED FOR

U.S. ARMY CORPS OF ENGINEERS ST. LOUIS DISTRICT

CONTRACT No. DAHA90-94-D-0007

December 1999

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and
should not be considered an eligible contractor for its review.

ACCIDENT PREVENTION PLAN
FOR
METEOROLOGICAL/RADIOLOGICAL AIR PARTICULATE MONITORING STATION INSTALLATION
SAINT LOUIS, MISSOURI

Prepared for:

U.S. Army Corps of Engineers
St. Louis District
Under Contract Number
DAHA90-94-D-0007

Prepared by:

Science Applications International Corporation
500 Northwest Plaza, Suite 1250
St. Ann, Missouri 63074

November 1999

APPROVALS

ACCIDENT PREVENTION PLAN
FOR
METEOROLOGICAL/RADIOLOGICAL AIR PARTICULATE MONITORING STATION INSTALLATION SAINT LOUIS, MISSOURI

Tom Thiele, P.E. SAIC Task Manager	Date
Amanda Thorne, SAIC Prime Contractor Representative	Date
Mike Crenshaw, SAIC Health and Safety Officer	Date
Stephen L. Davis, CIH, CSP, SAIC Health and Safety Manager	Date
(TBD, Construction Company). Project Manager	Date
(TBD, Construction Company) Construction Superintendent	Date

***Signature page will be provided pending award of contract**

TABLE OF CONTENTS

APPENDIX

LIST OF TABLES

LIST OF ACRONYMS

ACGIH	American Council of Government Industrial Hygienists
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
CS	Construction Superintendent
CPR	cardiopulmonary resuscitation
EC&HS	Environmental Compliance and Health and Safety (manual)
EEMG	Engineering and Environmental Management Group
FP	flash point
GFCI	ground fault circuit interrupter
MSDSs	Material Safety Data Sheets
OJT	on-the-job training
OSHA	Occupational Safety and Health Administration
PCR	Prime Contractor Representative
PPE	personal protective equipment
SAIC	Science Applications International Corporation
SSHO	Site Safety and Health Officer
TM	Task Manager
USACE	United States Army Corps of Engineers

EXECUTIVE SUMMARY AND ACCIDENT PREVENTION PLAN INFORMATION

Science Applications International Corporation's (SAIC) formal policy, stated in the Environmental Compliance and Health and Safety (EC&HS) Program, is to take every reasonable precaution to protect the health and safety of SAIC employees, the public, and the environment. Furthermore, all subcontractors, their line management, and their employees shall be required to fully support this policy. To this end, this Accident Prevention Plan (APP) sets forth the basic procedures required to protect the personnel involved in the FUSRAP Project Office Relocation. Standard procedures will be used to minimize the potential for personnel injury or illness. These will include on-site training, routine inspections, activity hazard analysis, visual and instrument surveillance for hazards, and enforcement of the health and safety requirements by project management. It is designed to comply with the requirements of applicable OSHA, state, and local health and safety regulations, and Appendix A, "Minimum Outline For Accident Prevention Plan", EM 385-1-1, "U.S. Army Corps of Engineers Safety and Health Requirements Manual", and the SAIC EC&HS Manual.

This project consists of the installation of a Meteorological Station and a Radiological Air Particulate Monitoring Station by SAIC. The Meteorological Station and the Radiological Air Particulate Monitoring Station will be installed on the roof top of Boeing's Building 14. A fixed industrial step-through ladder shall also be installed on the side of the building to provide access to the roof.

On-site tasks to be performed include

- Installation of monitoring stations,
- Installation of ladder.

The greatest hazards posed by the planned tasks are those associated with handling of materials and falls. Additional hazards include, but are not limited to those associated with working with electrical utilities.

Protective procedures, including protective clothing, will be enforced by the Pangea, Inc. Construction Superintendent (CS) and the SAIC Site Safety and Health Officer (SSHO) as well as all lower-tier subcontractor forepersons and workers. Any failure to comply with the project safety requirements can lead to immediate removal of any personnel from the construction site. All workers on site have the authority to stop work on any task should an imminent threat to health, safety, or the environment be identified. The CS, with concurrence of the SSHO, is the only one with restart of work authority once work has been stopped on a task.

Each subcontractor is responsible to verify that the hazard controls in this plan are sufficient to protect their personnel and if not to supplement these controls with appropriate task-specific controls.

Site visitors will not be allowed on the site without specific approval of the SSHO or the CS. Site visitors must sign a visitor log maintained on site and may not enter the construction area without a site escort. Site visitors are requested to contact the SAIC Task Manager or the Pangea CS prior to visiting.

Accident Prevention Plan Information

Requirement	Location of Information
Statement of safety and health policy	EC&HS Program Document
Responsibilities for implementation	APP Section 3
Coordination and control of work activities	EC&HS Proc. 20, APP Section 3
Safety training	EC&HS Proc. 20, APP Section 4
Safety inspections	APP Section 3.5
Accident investigation, exposure reporting	EC&HS Proc. 4 & 6, APP Sections 3.3, 3.4, and 3.5
Emergency response	APP Section 13
Contingency plans	APP Section 13
Job cleanup and safe access	APP Section 9.1
Public safety requirements	APP Section 10
Local requirements	None
Prevention of alcohol/drug abuse on the job	Policy A18, Drug and Substance Abuse
Hazard Communication	EC&HS Procedure 8 and APP Sections 4 and 9.11

1. SITE DESCRIPTION

1.1 Site Description

Boeing's Building 14 is a water treatment plant with an industrial built-up roof with a low parapet wall on Banshee Road. The building is approximately 10 feet in height with a 27 feet by 27 feet footprint.

See Appendix A for Site Maps.

2. HAZARD/RISK ANALYSIS

Site tasks will consist of :

- site preparation,
- placement of Station components,
- installation of Stations, and
- installation of ladder.

Table 2-1 is a checklist of common hazards that may be posed by this type of project.

Table 2-1. Hazards Inventory

Yes	No	Hazard
	X	Confined space entry
	X	Excavation entry
X		Heavy equipment
X		Fire and explosion
X		Electrical shock
	X	Exposure to chemicals
	X	Unexploded Ordnance
	X	Temperature extremes
X		Biological hazards
	X	Radiation or radioactive contamination
X		Noise

2.1 Task-specific Activity Hazard Analysis

Table 2-2 presents task-specific hazards, task-specific hazard analyses, relevant hazard controls, required monitoring, if appropriate, and required inspections, equipment to be used, and training requirements for all of the planned site tasks.

Table 2-2. ActivityHazards Analysis

ACTIVITY: Installation of Monitoring Stations		ANALYZED BY/DATE: J. M. Crenshaw / 11-5-99
Step	**Potential Safety/Health Hazards**	**Recommended Controls**
Establish fall protection on roof	General safety hazards (strains, slips, and falls)	Work clothes, protective footwear, safety glasses(Z87.1), hard hats(Z89.1). Buddy system. Proper lifting techniques, 50lb max. one person lift.
	Falls	Fall protection measures applied when working on roof. Mark warning line on roof surface 6 feet from roof edge. Personal fall protection required if working within 6 feet of roof edge. Attach lanyard to adequate anchorage capable of supporting 5,000 pounds per employee attached on roof or inside building through roof access.
	Noise	No noise levels over 85 dBA TWA anticipated.
	Fire/explosion	No on-site hot work or fueling anticipated.
	Exposure to chemicals	No site contaminants anticipated.
	Heavy equipment	Trained and qualified operators only. Operator manual available on site. Unnecessary personnel shall stay a safe distance (>15 ft.) away from operating construction/industrial equipment. Operators shall maintain awareness of others. Operators shall maintain a safe distance (see Section 8.5) from electrical utilities. All backup alarms must be functional.
	Temperature extremes	Administrative Controls (see Section 7.0).

	Electric shock	Identification and clearance of overhead utilities. Maintain minimum distances from utilities specified in standard procedures EM 385-1-1 Ground fault circuit interrupters (GFCIs) for hand tools, with hard or extra-hard usage extension cords.
	Biological hazards (bees, wasps,)	PPE (boots, work clothes, and tape pant legs as needed). Insect repellant, as necessary.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Stanchion, Rope, Personal Fall Arrest System (Full-Body Harness, Shock-Absorbing Lanyard, Lanyard, etc.), Ladder, Areal Lift, Boom Truck.	Inspect ladder each day of use, Inspect all industrial trucks each day of use, inspect personal fall arrest system before each use	Industrial truck operators trained on equipment, personnel using personal fall arrest systems trained on selection, use and inspection, on-site workers trained on APP and Haz Comm.

Move equipment to roof	General safety hazards (moving equipment, slips, and falls)	Work clothes, protective footwear, safety glasses(Z87.1), hard hats(Z89.1). Buddy system. Proper lifting techniques, 50lb max. one person lift.
	Falls	Fall protection measures applied when working on roof. Personal fall protection required if working within 6 feet of roof edge. Attach lanyard to adequate anchorage capable of supporting 5,000 pounds per employee attached on roof or inside building through roof access.
	Noise	No noise levels over 85 dBA TWA anticipated.
	Fire/explosion	No hot work or fueling is anticipated on site.
	Exposure to chemicals	No site contaminants anticipated.

	Heavy equipment	Trained and qualified operators only. Operator manual available on site. Unnecessary personnel shall stay a safe distance (>15 ft.) away from operating construction/industrial equipment. Operators shall maintain awareness of others. Operators shall maintain a safe distance (see Section 8.5) from electrical utilities. All backup alarms must be functional.
	Temperature extremes	Administrative Controls (see Section 7.0).
	Electric shock	Identification and clearance of overhead utilities. Maintain minimum distances from utilities specified in standard procedures & EM 385-1-1. Ground fault circuit interrupters (GFCIs) for hand tools, with hard or extra-hard usage extension cords, these have previously been installed.
	Biological hazards (bees, wasps)	PPE (boots, work clothes, and tape pant legs as needed). Insect repellant, as necessary.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Personal Fall Arrest System, Ladder, Areal Lift, Boom Truck, Hand truck.	Inspect ladder each day of use, Inspect all industrial trucks each day of use, inspect personal fall arrest system before each use.	Industrial truck operators trained on equipment, personnel using personal fall arrest systems trained on selection, use and inspection, on-site workers trained on APP and Haz Comm.

Assembly and anchoring of monitoring stations	General safety hazards (strains, slips, and falls)	Work clothes, protective cloth or leather gloves for sharp objects, protective footwear, safety glasses(Z87.1), hard hats(Z89.1). Buddy system. Proper lifting techniques, 50lb max. one person lift.
	Falls	Fall protection measures applied when working on roof. Personal fall protection required if working within 6 feet of roof edge. Attach lanyard to adequate anchorage capable of supporting 5,000 pounds per employee attached on roof or inside building through roof access.

	Electric shock	Identification and clearance of overhead utilities. Maintain minimum distances from utilities specified in standard procedures & EM 385-1-1. Ground fault circuit interrupters (GFCIs) for hand tools, with hard or extra-hard usage extension cords; these have previously been installed.
	Temperature extremes	Administrative Controls (see Section 7.0 of the APP). See MSDS for
	Noise	No noise levels over 85 dBA TWA anticipated.
	Fire/explosion	No on-site hot work or fueling anticipated.
	Exposure to chemicals	No site contaminants anticipated.
	Biological hazards (bees, wasps)	PPE (boots, work clothes, and tape pant legs as needed). Insect repellant, as necessary.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Electric hand tools (drill, screw driver, saw), manual hand tools, extension cords, personal fall arrest system, Areal Lift, Boom Truck, roofing tar.	Inspect all cords each day of use. Inspect all hand tools each day of use. Inspect all industrial trucks each day of use. Inspect personal fall arrest system before each use.	Industrial truck operators trained on equipment, personnel using personal fall arrest systems trained on selection, use and inspection, on-site workers trained on APP and Haz Comm.

Connect electrical power for monitoring stations	General safety hazards (strains, slips, and falls)	Work clothes, protective footwear, safety glasses(Z87.1), hard hats(Z89.1). Buddy system. Proper lifting techniques, 50lb max. one person lift.
	Falls	Fall protection measures applied when working on roof. Personal fall protection required if working within 6 feet of roof edge. Attach lanyard to adequate anchorage capable of supporting 5,000 pounds per employee attached on roof or inside building through roof access.

	Electric shock	Identification and clearance of overhead utilities. Maintain minimum distances from utilities specified in standard procedures & EM 385-1-1. Ground fault circuit interrupters (GFCIs) for hand tools, with hard or extra-hard usage extension cords, these have previously been installed.
	Temperature extremes	Administrative Controls (see Section 7.0 of the APP).
	Biological hazards (bees, wasps)	PPE (boots, work clothes, and tape pant legs as needed). Insect repellant, as necessary.
	Noise	No noise levels over 85 dBA TWA anticipated.
	Fire/explosion	No on-site hot work or fueling anticipated.
	Exposure to chemicals	No site contaminants anticipated.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Manual hand tools, extension cords, GFCI, personal fall arrest system.	Inspect all cords each day of use. Inspect all hand tools each day of use. Inspect personal fall arrest system before each use.	Personnel using personal fall arrest systems trained on selection, use and inspection, electrical lock out, on-site workers trained on APP and Haz Comm.

ACTIVITY: Installation of Fixed Industrial Ladder		ANALYZED BY/DATE: J. M. Crenshaw / 11-5-99
Step	**Potential Safety/Health Hazards**	**Recommended Controls**
Install ladder	General safety hazards (strains, slips, and falls)	Work clothes, protective footwear, safety glasses(Z87.1), hard hats(Z89.1). Buddy system. Proper lifting techniques, 50lb max. one person lift.
	Falls	Fall protection measures applied when working on roof. Mark warning line on roof surface 6 feet from roof edge. Personal fall protection required if working within 6 feet of roof edge. Attach lanyard to adequate anchorage capable of supporting 5,000 pounds per employee attached on roof or inside building through roof access.
	Electric shock	Identification and clearance of overhead utilities. Maintain minimum distances from utilities specified in standard procedures & EM 385-1-1. Ground fault circuit interrupters (GFCIs) for hand tools, with hard or extra-hard usage extension cords, these have previously been installed.
	Heavy equipment	Trained and qualified operators only. Operator manual available on site. Unnecessary personnel shall stay a safe distance (> 15 ft.) away from operating construction/industrial equipment. Operators shall maintain awareness of others. Operators shall maintain a safe distance (see Section 8.5) from electrical utilities. All backup alarms must be functional.
	Temperature extremes	Administrative Controls (see Section 7.0 of the APP).
	Noise	Hearing protection required during drilling of anchor holes or during hammer drill operation.

	Fire/explosion	No on-site hot work or fueling anticipated.
	Exposure to chemicals	No site contaminants anticipated.
	Biological hazards (bees, wasps)	PPE (boots, work clothes, and tape pant legs as needed). Insect repellant, as necessary. Self-inspection for ticks at end of workday. Wash hands prior to touching face or eating.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Electric hand tools (drill, screw driver, saw), manual hand tools, extension cords, GFCI, personal fall arrest system, Areal Lift, Boom Truck, hammer drill.	Inspect all cords each day of use. Inspect all hand tools each day of use. Inspect all industrial trucks each day of use. Inspect personal fall arrest system before each use.	Industrial truck operators trained on equipment, personnel using personal fall arrest systems trained on selection, use and inspection, on-site workers trained on APP and Haz Comm.

GFCI = ground fault circuit interrupter

3. STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

This section presents the lines of authority, responsibilities, and communication procedures concerning site safety and health and emergency response. It includes key SAIC and subcontractor personnel. Table 3-1 identifies the individuals who will fill key roles for the project field activities.

Table 3-1. Staff Organization

Position	Name	Phone
SAIC Program Manager	Sherry Gibson	314-581-7767
SAIC Health and Safety Manager	Steve Davis CIH, CSP	423-481-4755
SAIC Task Manager	Tom Thiele, P.E.	314-209-2010
SAIC Prime Contractor Representative	Amanda Thorne	314-209-2021
SAIC Site Safety and Health Officer	Mike Crenshaw	314-581-6706
Construction Project Manager (TBD)	TBD	314-xxx-xxxx
Construction Superintendent (TBD)	TBD	314-xxx-xxxx
USACE Site Safety and Health Officer	Tammy Atchison	314-524-6873

The key personnel assigned to the field activity positions presented in Table 3-1 represent those individuals who are planned to be used for the project. However, personnel availability will dictate the actual roster of individuals who will perform field activities. In the event that personnel other than those presented in Table 3-1 are assigned to the project, SAIC will provide the names of those individuals to the U.S. Army Corps of Engineers (USACE) Site Safety and Health Officer prior to mobilization for field work.

3.1 SAIC Program Manager

The SAIC Program Manager is responsible for ensuring conformance with SAIC Corporate, SAIC Engineering and Environmental Management Group (EEMG), and USACE policies and procedures. Specific responsibilities of the Program Manager include:

- coordinating with USACE personnel;
- ensuring that project and task managers satisfy SAIC and USACE health and safety requirements;
- ensuring that project staff implement the project Accident Prevention Plans (APPs);
- ensuring that projects have the necessary resources to operate safely; and
- ensuring that project personnel have the appropriate regard for safe job performance.

3.2 SAIC Health and Safety Manager

The SAIC Health and Safety Manager manages the EEMG health and safety program. This includes establishing health and safety policies and procedures, supporting project and office activities, and verifying safe work practices and conditions. The SAIC Health and Safety Manager is certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene, is certified as a safety professional by the Board of Certified Safety Professionals, and has more than ten years of hazardous waste experience. The specific responsibilities of the Health and Safety Manager include:

- coordinating with USACE health and safety personnel,
- reviewing and approving APPs,
- approving downgrades in personal protective equipment (PPE) or protective procedures, and
- interfacing with project personnel through routine communications and audits of selected projects.

3.3 SAIC Task Manager

The SAIC Task Manager is responsible for overall task execution. The responsibilities of the Task Manager include:

- coordinating with USACE personnel, including reporting accidents and incidents to the USACE Site Safety and Health Officer immediately and submitting written reports within two working days;
- ensuring implementation of the project APP;
- maintaining auditable project documentation of all required records;
- ensuring that a qualified Site Safety and Health Officer (SSHO) is designated;
- approving the subcontractor and lower-tier subcontractors for project participation, and
- maintaining a current copy of the project APP.

3.4 SAIC Prime Contractor Representative

The SAIC Prime Contractor Representative will provide field oversight activities associated with the project and will be responsible for ensuring site accessibility, safety, and quality assurance. He/she is responsible for enforcing the field requirements of this APP. Specific responsibilities of the PCR are listed below:

- enforcing compliance with the project APP;
- ensuring coordination on-site operations, including subcontractor activities;
- ensuring that subcontractors follow the requirements of this APP;
- ensuring means are in place for coordination and control of any emergency response actions;
- ensuring that at least two persons currently certified in first aid/cardiopulmonary resuscitation (CPR) are on site during site operations; and
- maintaining current copies of the project APP, EM 385-1-1 USACE Safety and Health Requirements Manual, and the SAIC EC&HS Manual on site.

3.5 SAIC Site Safety and Health Officer

The SAIC SSHO is responsible for verifying the effectiveness of the health and safety program. The SSHO's qualifications include, at a minimum, OSHA 30 hour Construction Safety or OSHA 30 hour Industrial Safety (or 5 years of related experience), at least one year experience with similar projects, knowledge of and understanding of the project APP, and the ability to use any required monitoring equipment. The SSHO has primary responsibility for the following:

- implementing and verifying compliance with this APP and reporting to the Construction Superintendent, PCR, Task Manager, and Health and Safety Manager any deviations from anticipated conditions;
- conducting daily safety inspections;
- documenting deficiencies identified in the daily inspections and responsible parties, procedures, and timetables for correction;
- stopping work or upgrading protective measures (including protective clothing) if uncontrolled health and safety hazards are encountered. Indications of uncontrolled health and safety hazards include monitoring instrument readings in excess of the established action limits, encountering liquids other than water, unsafe equipment, unsafe work practices, violation of OSHA or EM-385-1-1 requirements, etc. The SSHO must also authorize resumption of work following correction of the adverse condition(s);
- ensuring that site personnel have access to this plan and are aware of its provisions;
- ensuring that a site-specific pre-entry health and safety briefing covering potential chemical, physical, and radiological hazards, safe work practices, and emergency procedures is conducted;
- ensuring maintenance of on-site auditable documentation of
  - Material Safety Data Sheets (MSDSs) for applicable materials utilized at the site,
  - training for site workers and visitors,
  - calibration/maintenance of field instruments such as noise level monitors, combustible gas indicators, etc.,
  - environmental and personal exposure monitoring results,
  - notification of accidents/incidents, and
  - medical surveillance;
- confirming that all on-site personnel have received the training listed in the Training Requirements section (Section 4) of this APP;
- ensuring that all respirator users have received medical clearance within the last year, have been properly trained, and have been successfully fitted for respiratory protection;
- verifying that the project APP's emergency points of contact are correct;
- ensuring that all monitoring equipment is operating according to the manufacturer's specifications and performing field checks of instrument calibration;
- ensuring monitoring for potential on-site exposures is conducted in accordance with this APP;
- updating the project APP (field changes) to ensure that it adequately identifies all tasks and significant hazards at the site and notifying project personnel and the SAIC Health and Safety Manager of changes;
- investigating accidents and near accidents and reporting (in concert with PCR) same to Project Manager and Health and Safety Manager;
- ensuring that daily "tailgate" safety briefings are conducted and documented; and
- ensuring that visitor access to the construction site is controlled.

3.6 Construction Superintendent

The CS will oversee the field activities of his/her employees and all lower-tier subcontractor employees. He/she is responsible for ensuring that field work is carried out safely. Specific responsibilities are listed below:

- ensuring that his/her personnel, and lower-tier subcontractor personnel, on site follow the requirements of the project APP and any other applicable health and safety requirements [Occupational Safety and Health Administration (OSHA), USACE EM 385-1-1, equipment-specific controls, state requirements];
- verifying that this APP adequately addresses the hazards and controls of the subcontracted work, and supplementing the information in the APP, if necessary;
- ensuring the safe operation of any subcontractor equipment;
- coordinating on-site operations of his/her personnel and lower-tier subcontractor personnel; and
- maintaining any required documentation (operator's manuals, inspection/service logs, etc.) specific to his/her operations.
- conducting a site-specific pre-entry health and safety briefing covering potential chemical, physical, and radiological hazards, safe work practices, and emergency procedures;
- maintaining on-site auditable documentation of
  - Material Safety Data Sheets (MSDSs) for applicable materials utilized at the site,
  - training for site workers and visitors,
  - environmental and personal exposure monitoring results,
  - notification of accidents/incidents, and
  - medical surveillance;
- confirming that all on-site personnel have received the training listed in the Training Requirements section (Section 4) and the AHA of this APP;
- ensuring that all respirator users have received medical clearance within the last year, have been properly trained, and have been successfully fitted for respiratory protection;
- verifying that the project APP's emergency points of contact are correct;
- ensuring that all monitoring equipment is operating according to the manufacturer's specifications and performing field checks of instrument calibration;
- ensuring monitoring for potential on-site exposures is conducted in accordance with this APP;
- ensuring that the project APP is updated (field changes) to ensure that it adequately identifies all tasks and significant hazards at the site and notifying project personnel and the SAIC Health and Safety Manager of changes;
- investigating accidents and near accidents and reporting (in concert with PCR) same to Project Manager and Health and Safety Manager;
- conducting daily "tailgate" safety briefings; and
- controlling visitor access to the construction site.

3.7 Lower-tier Subcontractor Construction Supervisor

Lower-tier subcontractor construction supervisors/forepersons will oversee the field activities of his/her employees. He/she is responsible for ensuring the safe performance of work under his/her control. Specific responsibilities are listed below:

- ensuring that his/her personnel on site follow the requirements of the project APP and any other applicable health and safety requirements [Occupational Safety and Health Administration (OSHA), USACE EM 385-1-1; equipment-specific controls, state requirements];

- verifying that this APP adequately addresses the hazards and controls of the subcontracted work, and informing the CS of any required changes or additions, if necessary;
- ensuring the safe operation of any their equipment;
- coordinating on-site operations of his/her personnel; and
- maintaining any required documentation (operator's manuals, inspection/service logs, etc.) specific to his/her operations.
- ensuring that a site-specific pre-entry health and safety briefing covering potential chemical, physical, and radiological hazards, safe work practices, and emergency procedures is attended by his/her personnel;
- maintaining on-site auditable documentation of
  - Material Safety Data Sheets (MSDSs) for applicable materials utilized at the site,
  - qualifications for industrial/construction equipment operators including employer provided training,
  - training for site workers and visitors,
  - notification of accidents/incidents, and
  - medical surveillance;
- confirming that on-site personnel have received the training listed in the Training Requirements section (Section 4) of this APP;
- verifying that the project APP's emergency points of contact are correct;
- ensuring that the project APP is updated (field changes) to ensure that it adequately identifies all tasks and significant hazards at the site;
- investigating accidents and near accidents and reporting (in concert with Prime Contractor Representative) same to Project Manager and Health and Safety Manager;
- ensuring attendance of his/her employees at the daily "tailgate" safety briefings; and
- controlling visitor access to the construction site.

4. TRAINING

Personnel who work on the construction site are subject to the following training requirements. This section contains Table 4-1 that presents the requirements in condensed format and a brief discussion of each training course.

Table 4-1. Training Requirements

Training	Worker	Superintendent	Site visitor
OSHA 10 hour safety awareness course (or equivalent)	N	Y	N
General Hazard Communication Training	Y	Y	N
Respiratory Protection Training (required only if respirators are worn)	Y	Y	Y
Hearing Conservation Training (for workers in hearing conservation program)	Y	Y	Y
Pre-entry Briefing	Y	Y	Y
Site Specific Hazard Communication (contained in pre-entry briefing)	Y	Y	Y
Safety Briefing (daily and whenever conditions or tasks change)	Y	Y	Y

Y = Required
N = Not required

The following paragraphs present brief summaries of the training requirements. These summaries include a course description and guidance on who must take each course.

4.1 Off-site Training

The 10-hour OSHA Safety Awareness course is required for the CS.

General Hazard Communication Training is required for all site workers. This training must communicate the risks and protective measures for chemicals that employees may encounter in the performance of their jobs. This training is a good opportunity for employers to cover the physical hazards that employees can be expected to encounter as a normal course of performing their jobs.

Respiratory Protection Training is required for all individuals who wear respirators. It is not anticipated that respiratory protection will be required for this activity.

Hearing Conservation Training is required on an annual basis by 29 *CFR* 1910.95 for all employees enrolled in a hearing conservation program. This will include all employees exposed to occupational noise in excess of 85 dBA on an 8 hour time weighted average.

4.2 Site-specific Training

Personnel on site must have received the site-specific safety training. Two versions of this training will be used. The site worker version will contain full information on site hazards, hazard controls, and emergency procedures. A shortened version will be used for visitors who will be on site for short times and who will not do hands-on work. This shortened version will contain the hazard information that is directly relevant to the purpose of the visit. Signatures of those attending the visitor training and the type of briefing must be entered in the visitor logbook before site access will be granted. Note that casual visitors (package deliverers, observers, etc.) to the support area will not be required to have the site-specific training. The site-specific training will include the following site-specific information:

- names of project management, site health and safety personnel, and alternates;
- contents of the project APP, with special emphasis on the AHAs;
- chemical and physical hazards in the workplace;
- safe work practices to minimize risks;
- safe use of engineering controls and equipment;
- medical surveillance requirements;
- site control measures;
- location of MSDSs;
- reporting requirements for spills and emergencies;
- contingency plans (communications, phone numbers, emergency exits, assembly point, etc.); and
- emergency equipment locations and use (fire extinguishers, spill kits, etc.).

Safety briefings will be held daily and when conditions or tasks change. These briefings will be conducted by the CS and/or SSHO and will be attended by all site workers and supervisors. These briefings will address site-specific safety issues and will be used as an opportunity to refresh workers on the AHAs, specific procedures and to address new hazards and controls.

In addition to the site-specific training noted above, all supervisors and field personnel will be required to attend health and safety briefings before the commencement of field operations. The purpose of this briefing will be to inform field personnel of required safety measures that must be implemented during performance of work within this area, and other security and safety information.

4.3 Documentation

Documentation of all required training will be maintained on site by the Prime Contractor Representative.

5. PERSONAL PROTECTIVE EQUIPMENT

PPE for site tasks is based on potential site-specific hazards. In cases where multiple hazards are present, a combination of protective equipment will be selected so that adequate protection is provided for each hazard. When a conflict exists with the PPE requirements, the more restrictive shall apply. This section emphasizes the programmatic requirements for PPE. For task-specific equipment see the AHA section of this APP.

5.1 PPE Program

SAIC's PPE program is controlled by EC&HS Procedures 13 and 20 and 29 *CFR* 1910, Subpart I, Personal Protective Equipment and EM 385-1-1 Section 5. The level of protection and types of materials selected for a particular task are based on the following:

- potential for exposure to the hazard because of work being done;
- route of exposure for chemical or radiological hazards;
- measured or anticipated level of the hazard of concern;
- toxicity, reactivity, or other measure of adverse effect; and
- physical hazards such as falling from heights, flying projectiles, etc.

In situations where the type of hazard, concentration/level, and probability of contact are not known, the appropriate protection is selected based on the professional judgment of the EEMG H&S Manager until the hazards are further evaluated.

The SSHO may raise or lower the level of PPE worn by on-site employees, depending upon the site-specific hazards encountered in the field. Prior to lowering the level of PPE, the CS and the Health and Safety Manager will be contacted/consulted and the results documented. If site conditions are such that the level of PPE is insufficient or work must be stopped, the SSHO will take appropriate action immediately and the appropriate personnel (see above) will be contacted afterwards. Criteria indicating a possible need for reassessment of the PPE selection include the following:

- commencement of an unplanned (hazard not previously assessed) work phase;
- working in unplanned temperature extremes;
- changing the work scope so that the degree of exposure to the hazards changes.

5.2 Types of Equipment

This section presents the types of protective clothing that may be used for the project. Requirements for task-specific levels of protective clothing are presented in the Activity Hazards Analysis table (Table 2-2) of this APP.

Levels of protection that may be used to protect against chemical and physical hazards at this site include:

- Welding glasses or welding shield of appropriate shade factor
- Welding gauntlets/gloves
- Splash goggles or face shield (if splash hazard for eye or face/skin is present)
- Safety glasses (ANSI Z87.1)
- Hard Hats (ANSI Z89.1)
- Leather work gloves
- Coveralls/work clothes
- Protective footwear, ANSI Z41 preferred, workboots as a minimum

5.3 Cleaning, Storage, and Program Verification

If site tasks require the use of respirators each subcontractor will be responsible for the proper use, cleaning and storage of the respirators. The SSHO will verify that the PPE in use is appropriate and is being used properly within the requirements of this APP and the subcontractor program.

6. MEDICAL SURVEILLANCE

All employees performing on-site work that will expose them to hazardous level of chemicals, hazardous noise levels, or required to wear a respirator will be enrolled in a medical surveillance program to meet the applicable requirements of 1910.134, 1910.1020 and SAIC EC&HS Procedures 12 (Medical Surveillance) to assess and monitor workers' health and fitness for employment in this field. Employees are provided with summaries of medical examination results following each examination and are provided more detailed information upon written request.

6.1 Frequency of Exam

The frequency of employee medical exams shall be as follows:

- prior to assignment;
- once every 12 months for each employee covered unless the attending physician believes a shorter or longer interval (not to exceed 2 years) is appropriate;
- at termination of employment or reassignment to an area where the employee would not be covered, if the employee has performed field work since his/her last examination and has not had an examination within the last 6 months; and
- as soon as possible upon notification by an employee that he/she has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limit (PEL) or published exposure levels in an emergency situation.

7. HEAT/COLD STRESS MONITORING

Important factors in preventing heat stress induced illnesses are: acclimatization, consumption of copious quantities of fluids, and appropriate work/rest cycles. General controls will consist of making fluids readily available, use of the buddy system, and taking scheduled and unscheduled breaks in temperature controlled areas as necessary. The following specific steps will be taken to reduce the potential for heat stress induced illness.

- If ambient temperatures exceed 85°F, site training will include heat stress control, recognition of heat stress induced illness, and first aid for heat stress.
- If ambient temperatures exceed 85°F, cool water or equivalent drink will be made conveniently available to site workers.
- If ambient temperatures exceed 85°F, workers will be instructed to monitor their own and their buddy's condition relative to heat stress.
- Workers will be allowed to take unscheduled breaks, if needed.

Critical factors in preventing cold stress disorders are wearing adequate clothing and staying dry. The SSHO and CS will ensure the capability to quickly move individuals who become wet to a sheltered, warm area. The following specific steps will be taken [adapted from American Council of Government Industrial Hygienists (ACGIH) *Threshold Limit Values* booklet]:

- If ambient temperatures are less than 40°F, site training will include prevention of cold injury, cold injury symptoms, and cold injury first aid.
- A heated break area will be provided if ambient temperatures are less than 32°F.
- At a minimum, breaks will be taken in a warm area every 120 minutes if ambient temperatures are less than 32°F.
- Workers will be allowed to take unscheduled breaks, if needed, in a warm area.
- No outdoor work will be performed if the equivalent chill temperature (temperature combined with the effect of wind) is less than -29°F.

8. STANDARD OPERATING SAFETY PROCEDURES

This section presents those general safety rules that apply to all operations performed by SAIC and its subcontractors. The provisions of the plan are mandatory for all on-site employees and visitors. This includes employees engaged in initial site reconnaissance, preliminary field investigations, mobilization, project operations, and demobilization.

8.1 Site Rules

The following rules apply to all site activities:

- Daily safety briefings ("tailgate") will be held during field activities to inform personnel of new hazards or procedures.
- The SSHO or CS will conduct and document daily safety inspections.
- The SSHO, project personnel, or management personnel are responsible to suspend/stop work and require all personnel to evacuate the affected area if any of the following situations occur:
  - inadequate health and safety precautions on the part of any on-site personnel and
  - potential significant environmental insult as a result of planned activities.
- Personnel will perform only those tasks that they believe they can do safely.
- Personnel will notify the SSHO of any medical conditions (e.g., allergy to bee stings, diabetes, pregnancy) that require special consideration.
- Personnel will maintain proper workplace housekeeping to minimize the potential for trips and other accidents.
- Spills will be prevented to the greatest extent possible. In the event that a spill occurs, the material will be contained.
- All injuries and accidents requiring first aid will be reported to the SSHO, Construction Superintendent, EEMG Health and Safety Manager, and USACE.

8.2 Permit Requirements

SAIC will obtain all permits necessary for the safe execution of this project. At a minimum, this will include digging permits/clearance from the local utility companies to any drilling, excavation, etc.

8.3 Confined Space Entry

Any confined space entry will be performed in conformance with the requirements of SAIC EC&HS Procedure 10, 29 *CFR* 1910.146 and EM 385-1-1, Section 06I.

Performance of confined space entry activities are not anticipated for this project.

8.4 Hot Work, Sources of Ignition, Fire Protection

This work will be performed in conformance with EM 385-1-1, Section 9.

- Hot work (oxyfuel cutting) will be conducted using welder's helmet or shaded goggles, leather gloves, and a long-sleeved shirt.
- A fire extinguisher rated not less than 10-ABC will be immediately available in the vicinity of hot work. A fire watch trained in the use of the fire extinguisher will be assigned, and have no other duty, to prevent uncontrolled fires from occurring. The firewatch will stay on duty for a half hour after hot work has ended.
- Sources of ignition will be kept at least 47 feet from flammables storage areas.
- Flammables storage areas will be posted with signs indicating "No smoking or open flame."
- At least one fire extinguisher with a rating of not less than 20-B will be kept 25 to 70 feet from all flammables storage areas.
- Flammable liquids (other than solvents) kept in portable containers will be kept in safety containers with flame arresters. The cans must follow the EM 385-1-1 requirements for construction, color, and marking.

8.5 Electrical Safety

This work will be conducted in conformance with 29 *CFR* 1910, Subpart S and 385-1-1, Section 11.

- All portable electrical equipment will be double insulated or grounded and connected through a ground fault circuit interrupter.
- Conductive materials (industrial trucks) will be kept clear of energized power lines. The following minimum distances will be observed; 0-50 kV - 3 meters; 51-200 kV - -4.5 meters; 201-300 kV - 6 meters; 301-500 kV -7.5 meters; 501-750 kV - 10.5 meters; 750-1000 kV - 13.5 meters.
- All electrical work will be performed by licensed electricians.

- Any subcontractor personnel performing electrical work will work to their employer's electrical safety/lock-out tag-out program.

8.6 Excavation and Trench Safety

Any trench excavation will be conducted in conformance with 29 *CFR* 1926, Subpart P-Excavations and 385-1-1, Section 25.

No excavations are planned for this project.

8.7 Machine Guarding

All equipment will be operated with all guards provided by the manufacturer and in compliance with 29 *CFR* 1910, Subpart O and EM 385-1-1 Section 16.B. If any guarding must be removed for servicing, the equipment will be disabled to preclude movement or release of energy.

8.8 Lockout/Tagout

All potentially hazardous electrical work repair will be governed by the subcontractor performing the work's Electrical Safety- Lock Out/Tag Out Procedures and 29 *CFR* 1910.147. No electrical work will be performed on this work and therefore lockout/tagout will not be necessary.

8.9 Fall Protection

Work areas with the potential for a fall of 6 feet or more will be provided with fall protection in compliance with EM 385-1-1 Section 21.A.15. This fall protection will consist of guardrails or personal fall protection. Employees using personal fall protection systems shall have been trained by their employer in the selection and use of personal fall protection systems. Personal fall protection will be used for roofing.

8.10 Hazard Communication

Hazard communication will be governed by SAIC EC&HS Procedure 8, Hazard Communication, 29 *CFR* 1910.1200, and EM 385-1-1 Section 8. At a minimum, the following steps will be taken.

- All hazardous materials on site will be labeled to comply with the hazard communication standard.
  - clear labeling as to the contents,
  - the appropriate hazard warning, and
  - the name and address of the manufacturer.

- MSDSs will be available on site for all hazardous materials that are present.

- Site-specific training will include the hazards posed by any site chemicals, protective measures, and emergency procedures.

- Copies of MSDSs for all hazardous chemicals (chemicals brought on site) will be maintained in the work area. MSDSs will be available to all employees for review during each work shift.

8.11 Illumination

All site field work will be conducted during daylight hours (no earlier than 15 minutes after sunrise and no later than 15 minutes before sunset) and natural illumination will be used. Work conducted in buildings will be illuminated to meet the following minimums stated in 29 *CFR* 1910.120; stairs and ladders 10 foot-candles, offices and first aid areas 30 foot-candles. If work is to be performed outside of daylight hours adequate artificial light shall be used to provide a minimum of 5 foot-candles even illumination of the work being done.

8.12 Sanitation

- Means for washing hands and faces prior to eating will be provided at the work site.

- Potable drinking water will be provided in labeled, sanitary dispensers.

- Toilets shall be provided according to the following; $\leq$20 employees = 1 toilets, 21 to 199 employees = 1 toilet seat and 1 urinal per 40 workers.

8.13 Construction Equipment Operations

- Operating manuals will be present on site for each type of construction equipment in use.

- Mobile construction equipment will have functional backup alarms.

- Construction equipment will be inspected by the CS or SSHO prior to use on site, the operator each day of use, and a weekly detailed inspection will be conducted by the operating subcontractor's foreperson and this inspection will be confirmed by the SSHO.

- All equipment will have mounted fire extinguishers and this equipment will not be tampered with and will not be removed for other than the intended fire-fighting purposes or for servicing

- If lubrication fittings are not accessible with guards in place, machinery will be stopped and disabled (locked out or ignition key removed) for oiling and greasing.

- Work areas and walkways will not be obstructed.

8.14 Hoisting Operations

- The mast will not be raised unless the area is free of overhead obstructions and far enough from power lines (see Electrical Safety).
- The mast will not be raised until the rig has been blocked, leveled, and chocked.
- Rigging equipment for material handling will be checked prior to use on each shift and as often as necessary to ensure it is safe. Defective rigging will be removed from service.
- A hoisting line with a load imposed will not be permitted to be in direct contact with any mast member or stationary equipment, unless it has been specifically designed for line contact.
- Workers will stand clear of the area around the hoisting operation unless they are guiding the load.
- Loads will not be lifted over workers.

9. SITE CONTROL MEASURES

The CS will be responsible for establishing the site control areas, as necessary, around SAIC controlled areas that present physical and/or chemical hazards. Implementation of the site control areas will help to minimize the number of employees potentially exposed to physical or chemical hazards and to minimize the potential for the spread of any chemical contamination. The SSHO will monitor the implementation of the required site control work rules and will report any deviations from prescribed practice to the CS or stop work, as appropriate.

Site control areas will be established in a number of locations over a site. The exact locations will vary depending on site conditions; therefore, it is not possible to predetermine the size or exact locations of site control areas. At a minimum, control areas will be established around tasks or areas that pose a potential for injury to personnel or members of the public.

9.1 Construction Area

The construction area is the area where the greatest potential exists for exposure to physical hazards. The boundary between the construction area and the support area will be identified by traffic cones, barricade tape, or rope suspended above the ground. An entry and exit point will be visually defined to regulate the flow of personnel and equipment. The entry and exit point will be delineated with signs. Signs may include "Construction Area", "Hard Hat Area", "High Noise Area", etc. as deemed appropriate by the SSHO.

- The SSHO or CS must approve (and log) entry into the construction area.
- All personnel entering the construction area will wear hard hats, safety glasses and protective footwear and any other prescribed level of protective clothing.

9.2 Support Area

The Support Area is the relatively safe area adjacent to the construction area. Entry requirements for the support area consist of those required for entry into the general area of the facility. Primary functions of the support area are:

- staging area for equipment and supplies, and
- location for support services [e.g., office trailers, eating area(s), toilet facilities, parking, visitor area(s), etc.].

9.3 Site Communication

Field personnel will be capable of contacting other field personnel and outside agencies. Communication on site will be assured by hand-held radio when voice communications will not serve. If phone service is not immediately available on the site, the CS will be equipped with a cellular phone.

10. EMERGENCY PROCEDURES AND EQUIPMENT

The CS will remain in charge of all personnel during emergency activities. The CS will perform emergency notification of emergency medical services, fire department, SAIC Task Manager, SAIC Health and Safety Manager, etc. In order to minimize the potential for accidents and injuries, daily safety and health inspections will be conducted by the CS or SSHO. If an emergency occurs, the PCR, the SSHO, and the field team will participate in a briefing to discuss the event, identify the causes, identify corrective measures, and evaluate the responses.

In the event of an accident or incident, the CS or SAIC Task Manager will notify the USACE-St. Louis District Site Safety and Health Officer immediately according to the requirements of EM 385-1-1.

All accidents will be investigated and reported within 24 hours as specified in EM 385-1-1. The Accident Report (ENG Form 3394) will be completed and submitted to the USACE Occupational Safety and Health Office at the following address:

U.S. Army Corps of Engineers, St. Louis District
FUSRAP Health and Safety
Attn: Tammy Atchison
9170 Latty Aveue
Berkeley, MO 63134

All personnel working on site will be trained in the requirements of this section. This will include recognizing emergencies, reporting emergencies to the CS or SSHO, and responding to emergencies. Employees will also be informed of any changes in potential emergencies or response plans.

10.1 Potential Emergencies

10.1.1 Fires

Diesel fuel will be present on site. In the event of a fire, the local fire department will be notified immediately. If it is safe to do so, on-site personnel with fire extinguisher training may attempt to extinguish the fire with the available fire extinguishers and isolate any nearby flammable materials. If there is any doubt about the safety of extinguishing the fire, site personnel will evacuate the area. The CS, or knowledgeable employee, will provide the fire department with relevant information when they arrive.

10.1.2 Spills

Potential spills include releases of fuels, lubricants, and hydraulic fluids. In the event of a spill or leak, the employee making the discovery will immediately attempt to control the spill and notify the SSHO and/or the CS. The CS will determine whether the leak poses an environmental risk or will exceed the capacity of on-site personnel and equipment. In the unlikely event that there is a probability that the spill will extend beyond the immediate area, result in an environmental insult, or exceed the capabilities of the on-site personnel, the CS will inform the local fire department and hazardous materials response team. If this is not the case, the on-site spill kit will be used to clean up the spill.

10.1.3 Medical Emergencies

In the event of a medical emergency, the CS will notify the local emergency medical service immediately. At least two first aid/CPR-trained individuals will be on site at all times and these personnel will provide first aid pending release of the injured person to emergency medical staff.

10.2 Emergency Phone Numbers

Listed below are emergency groups and their telephone numbers. A telephone will be present in the field and available for use.

Fire department	314-533-3406 (911)
Police	314-444-5555 (911)
Emergency medical service	653-5665 (911)
Christian Hospital Northwest	314-953-6728
Hazardous materials response	876-2117
USACE, FUSRAP SSHO	314-630-5811, 314-524-6873
SAIC EEMG Health and Safety Manager	423-481-4755

These telephone numbers and the map showing the route to the medical facility will be posted on site (Appendix A).

10.3 Evacuation

The SSHO or CS will designate the evacuation routes and an assembly area. All employees will be familiar with the evacuation routes and assembly area.

10.4 Emergency Equipment

Several items of emergency equipment will be maintained at the work site. Any incident that is not clearly controllable by personnel wearing standard site clothing plus protective gloves and using the listed equipment will require reevaluation by the SSHO. If the SSHO does not feel that on-site personnel can safely control the emergency with the available equipment, the crew will use alternate approaches such as allowing a small fire to burn out or evacuating the site. The required emergency equipment includes:

- 16-unit first aid kit indoors or in weatherproof container, inspected weekly;
- fire extinguisher(s) (at least 20-B) 15 to 75 feet from outside flammables storage (or use) area;
- basic spill kit suitable to handle small spills of oils, hydraulic fluid, or fuels and containing sorbent pads, tubes, and nitrile or similar gloves; and
- telephone, cellular telephone, and/or portable radios.

11. LOGS, REPORTS, AND RECORD KEEPING

A system of reports and logs will be used to document activities related to site Health and Safety. The SSHO will generate a brief weekly summary of Health and Safety issues and resolutions. These reports will include injuries, accidents, near accidents, interpretations of the APP or regulations, interactions with auditors/regulators/USACE personnel, and any off-normal events. These reports will be limited to one page or less.

In addition to the weekly reports, the following documents will be generated and submitted to the USACE-Saint Louis Site Safety and Health Officer.

- Training logs will contain information covered and the signatures of the trainer and those attending. These logs will contain documentation of pre-entry (project start) training, routine ("tailgate") safety briefings, and visitor training.

- Daily safety inspection logs will contain the dates of inspections, identity of the person doing the inspection, the examined areas/activities/equipment, any deficiencies, and any corrective actions taken.

- Employee/visitor register will be a sign-in log for all site employees and visitors. It will contain the names of all personnel who perform on-site work or visit the site. It will not contain the names of delivery or similar personnel.

12. REFERENCES

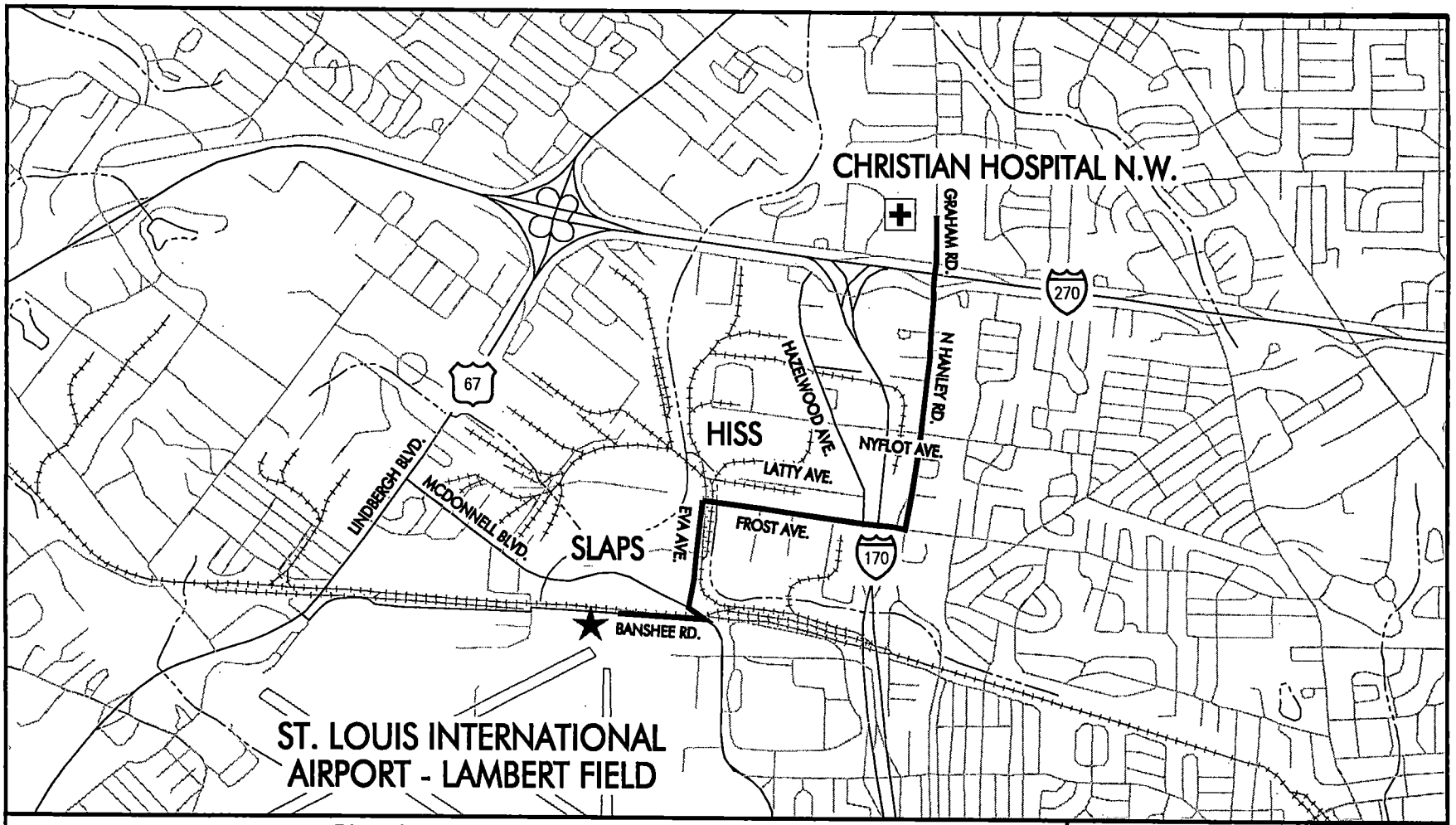
American Conference of Governmental Industrial Hygienists, 1999. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.*

OSHA 29 *CFR* 1926

U.S. Army Corps of Engineers, September 1996. *Safety and Health Requirements Manual*, EM 385-1-1.

APPENDIX A

SITE LOCATION, MEDICAL FACILITY ROUTE MAP/DIRECTIONS/PHONE NUMBERS



LEGEND:

- PRIMARY ROAD
- SECONDARY ROAD
- RAILROAD TRACKS
- STREAM, RIVER, LAKE
- HOSPITAL
- BOEING

Directions:

START: Depart Banshee Rd, St Louis, MO, 63134
on **Banshee Rd** (East)
1: Turn **Left** (North-West) onto **SR-TT [McDonnell Blvd]**
2: Turn **Right** (North) onto **Eva Ave**
3: Turn **Right** (East) onto **Frost Ave**
4: Turn **LEFT** (North) onto **N Hanley Rd [Graham Rd]**
5: Continue (North) on **Graham Rd**
END: Arrive Christian Hospital N.W.
1225 Graham Rd, Florissant, MO, 63031
Total Route = 2.3 Miles ~ 8 Minutes
Phone Number = (314) 953-6728

0 1000 2000 3000 6000

SCALE: 1" = 3000'

FUSRAP

St. Louis North County Sites
Hospital Location Map
St. Louis, Missouri

DRAWN BY:	REV. NO./DATE:	CAD FILE:
CDaniel/SKitchings	0 - 1/6/00	BOEINGHOSPLOCR00

Fire department	314-533-3406 (911)
Police	314-444-5555 (911)
Emergency medical service	911
Christian Hospital Northwest	314-953-6000
Hazardous materials response	876-2117
USACE, FUSRAP SSHO	314-630-5811
SAIC EEMG Health and Safety Manager	423-481-4755

Cataloging Form

{Technical/Project Managers fill in **C** through **G**, **K** through **Q**. RM completes other fields}

A. Document ID Number: Assigned by database 00-250 **B.** *Further Information Required?*: ☐

C. *Operable Unit (Choose One):*

USACE	☐
St. Louis Sites	☒
Downtown	☐
North County	☐
Madison Sites	☐
Inaccessible Areas	☐
PRP	☐
Oversight Committee	☐

D. *Site (Optional):*

SLDS VPs	☐
Mallinckrodt	☐
SLAPS	☐
SLAPS VPs	☐
CWC	☐
HISS	☐
Madison	☐

E. *Area (Optional):* _____

F. *Primary Document Type (Choose One):*

Site Management Records	☒	Remedial Action	☐
Removal Response	☐	Public Affairs/Community Relations	☐
Remedial Investigation	☐	Congressional Relations	☐
Feasibility Study	☐	Freedom of Information Act	☐
Record of Decision	☐	Real Estate	☐
Remedial Design	☐	Project Management	☐

G. *Secondary Document Type (see back of form):* Correspondence

H. *Bechtel Number*: — **I.** *SAIC Number*: —

J. *MARKS Number(Choose One):* FN: 1110-1-8100e ☐ FN: 1110-1-8100f ☐ FN: 1110-1-8100g ☐

K. *Subject:/Title:* Final Meteorological/Radiological Air Particulate

L. *Author:* Sharon L. Cotner **M.** *Author's Company:* PM-R

N. *Recipient(s):* Bryan Lucy **O.** *Recipient(s) Company:* Boeing Company

P. *Version (Choose One):* Draft ☐ Final ☑ **Q.** Date: 1-18-00

R. *Include in the ARF?* ☐ **S.** *Include in the AR?* ☐ **T.** *Filed as Confidential/Privileged?* ☐

U. *Document Format (Choose one):*

Paper	☑	Photographic	☐	Cartographic/Oversize	☐
Electronic	☐	Audio-visual	☐	Microform	☐

V. *Filed in AR Volume Number:* _____

W. *Physical Location (Choose One):*

Central Files	☑	Microfilm Vendor	☐	In ARF	☐
Records Holding Area	☐	Department of Energy	☐	In AR	☐

X. *Associated with Document(s):* _____

Secondary Document Types

- ☐ Amendments to Record of Decision (ROD)
- ☐ Anomaly Review Board Documents (Management Plan, Correspondence, Standard Operating Procedures, Findings)
- ☐ Applicable or Relevant and Appropriate Requirements (ARAR) Determinations
- ☐ Archives Search Reports (ASR)
- ☐ Briefing Papers
- ☐ Chain of Custody Forms
- ☐ Community Relations Plan
- ☐ Correspondence
- ☐ Daily Operations Summary/Situation Reports
- ☐ Engineering Evaluation and Cost Analysis (EE/CA) Action Memo
- ☐ Engineering Evaluation and Cost Analysis (EE/CA) Approval Memorandum
- ☐ Engineering Evaluation and Cost Analysis (EE/CA)
- ☐ Explanation of Significant Differences
- ☐ Fact Sheets/Newsletters
- ☐ Feasibility Study (FS) Reports
- ☐ Federal, State, Local Tech. Records
- ☐ Final Approved Findings and Determinations
- ☐ Final Remedial Design Documents
- ☐ Freedom of Information (FOIA) Requests
- ☐ Freedom of Information (FOIA Responses)
- ☐ Health and Endangerment Assessments
- ☐ Interagency Agreements/Memoranda
- ☐ Interim Deliverables
- ☐ Inventory Project Report (INPR) Risk Assessment Code (RAC)
- ☐ Invoices/Contractor Payments/Cost Reports
- ☐ Land Grants/Deeds
- ☐ Mailing Lists
- ☐ News Clippings and Press Releases
- ☐ No Further Action Docs (NOFA)
- ☐ On-Scene Coordinator Reports
- ☐ Proposed Plans for Remedial Action
- ☐ Public Meeting Minutes/Transcripts
- ☐ Public Notices
- ☐ Public notices, Comments Received, Responses to the Comments
- ☐ Published Hearings
- ☐ Record of Decision (ROD)
- ☐ Reference Documents
- ☐ Remedial Action Documents
- ☐ Remedial Investigation (RI) Reports
- ☐ Removal Response Reports (Emergency Evacuation Orders)
- ☐ Rights of Entry Documents
- ☐ Sampling/Analysis Data and Plans
- ☐ Scopes of Work/Contractual Documents
- ☐ Site Descriptions and Chronologies
- ☐ Site Inspection Documents
- ☐ Site Photographs and Maps
- ☐ Testimonies
- ☐ Title Search Documents
- ☐ Work Logs
- ☐ Work Plans and Progress Reports
- ☐ Work Plans/Site Safety and Health Plans and Progress Reports
- ☐ Work Register and Logs