

4207

**REMOVAL SITE EVALUATION - AIR
CONDITIONING SYSTEM, BUILDING 28, MARCH
1993**

03/11/93

**DOE-FN/FERMCO
40
RSE**

004207

REMOVAL SITE EVALUATION

AIR CONDITIONING SYSTEM - BUILDING 28

Fernald Environmental Management Project

U.S. Department of Energy

March, 1993

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REMOVAL SITE EVALUATION

AIR CONDITIONING SYSTEM - BUILDING 28 EAST AND WEST

1.0 INTRODUCTION

This construction project is located in the radiologically uncontrolled area of the FEMP inside Building 28. The east portion of this building is commonly referred to as the Security Building; the west portion is known as the Human Resources Building. Building 28 contains, among other things, offices, locker rooms, a vault and a guard post. Two new water cooled air conditioning units will be installed to service Building 28. One unit will be located the locker room area of the Security Building (Bldg 28 East); the second will be located in the utility room of the Human Resources Building (Bldg 28 West). These units replace the air conditioners currently serving these facilities. An economizer cycle will be provided with the new units to allow the use of outdoor air for cooling whenever possible. The new units will also provide balanced outdoor air flow to match the exhaust air quantity from the buildings.

The installation of the new air conditioning systems will require the demolition of the existing units and associated piping, ductwork, exhaust fans, and electrical system. The new systems to be installed will be self-contained, water cooled, microprocessor controlled units.

The waste to be generated by this upgrade consists of approximately 300 lbs of concrete block, 460 lbs of metal, 6650 lbs of equipment, 200 lbs of asbestos, and 160 pounds of conduit and wire.

This Removal Site Evaluation (RSE) has been completed by the Department of Energy (DOE) under authorities delegated by Executive Order 12580 under Section 104 of CERCLA and is consistent with Section 300.410 of the National Oil and Hazardous Substance Pollution Control Contingency Plan (NCP). This RSE addresses the existing conditions in Building 28 and the activities proposed to replace the air conditioning system. This RSE has been completed to support the decision as to whether these conditions warrant a removal action. Controls implemented to support this construction activity are also presented in this RSE to demonstrate that the proposed construction will not cause deterioration of the existing site conditions.

2.0 SOURCE TERM

Consistent with 40 CFR 300.410(a), the RSE includes a removal preliminary

assessment which is based upon readily available information as described in 40 CFR 300.410(c). A RCRA Determination/Radiological Characterization was issued in August, 1992, (see reference 1 below) to characterize the waste to be generated from this construction activity. This information was used to help complete the RSE.

Reference:

- 1) WEMCO:EM:RCRA(FME):92-047, C. G. Rieman to H. J. Draxler, "RCRA Determination and Radiological Characterization for the Air Conditioning System in Building 28", dated August 31, 1992

Process knowledge was supplemented by sampling and analyses to complete the referenced characterization. Paint samples were collected from the ductwork and air handling units and analyzed for TCLP lead. A sample of tar-like material on the bottom of an air conditioning unit in the Security Building was also collected. This sample was analyzed for TCLP metals, volatiles, and semi-volatiles and for total uranium and thorium content. A summary of the TCLP analytical results is included in the attachment.

The two paint samples collected from the ductwork were found to contain 4.45 ppm and 8.64 ppm. The regulatory limit is 5.0 ppm for characterizing a material as hazardous waste based on lead toxicity. Because the waste to be characterized is actually the painted metal (not paint alone), the lead content of the material was recalculated using a method developed specifically for evaluating materials painted with lead-based paint. The result of this calculation showed the TCLP lead content to be well below the regulatory limit of 5.0 ppm. This material is not hazardous waste. However, if paint residues are left behind at the project site, a pathway for the spread of lead contamination exists.

Process knowledge indicates that the copper piping to be removed contains lead-soldered joints. Reference 1 has characterized the lead-soldered pipe joints (and joints only) as RCRA hazardous waste (D008). A release could occur if the pipe solder were exposed to water for an extended period of time, thus allowing lead to contaminate the water.

The materials to be removed were also surveyed for radiological contamination. Fixed contamination was detected on several pieces of equipment. The highest level of fixed contamination detected was 5000 dpm/100 cm² (beta/gamma). Removable contamination was detected in two locations with a maximum level of 69 dpm/cm² (beta/gamma). All other survey readings were below the instrument detection limits. Since all surface contamination readings were below the allowable criteria for unrestricted release as established in DOE Order 5400.5, the threat of a release from radioactive contamination is negligible. Radionuclides, therefore, are not considered a source of threat for the purposes of this RSE.

TCLP analyses of the tar on the bottom of the air conditioning unit showed no presence of regulated metals, volatiles or semi-volatiles. The sample was found to contain 18 ppm of uranium; thorium was not detected. This concentration of uranium is too low to be detected by portable radiation detection instruments used at the FEMP and therefore is also below the release criteria mentioned above. Based on this information, the tar is not considered to be a source of chemical or radiological threat.

The asbestos to be removed as part of this project is contained in pipe and duct insulation. The asbestos content of these materials is based on prior testing of similar materials, the age, use or location of the materials, and knowledge of the material constituents. Asbestos-containing materials pose a hazard to humans when they become friable and the asbestos fibers are inhaled. Asbestos material could be released into the environment during this construction activity if the material is removed and handled improperly.

Historical records and process knowledge of the work area did not reveal any known use or spill of hazardous chemicals within the project area as indicated in references 1 & 2. Therefore, the materials discussed and noted above are the only potential sources of threat of release from this project.

3.0 EVALUATION OF THE MAGNITUDE OF THE POTENTIAL THREAT

Based on the above analysis, lead-soldered pipe joints and asbestos are the only sources of threat in the event of a release. The lead-soldered pipe joints contain (or are assumed to contain) concentrations of lead that are considered toxic. Therefore, this waste must be properly managed. This waste will be stored at a facility that meets the requirements for hazardous waste storage as mandated by RCRA. Some of these requirements include regular inspections, impervious storage surfaces and contingency plans for use in emergencies. These controls mitigate the threat of a release via the pathway described in Section 2.0.

Asbestos removal will be completed by a licensed "Asbestos Hazard Abatement Contractor." The following controlling activities will occur at the time of removal to prevent a release of asbestos.

- Wetting materials before and during removal
- Using glove-bag or full enclosure with negative air
- Using HEPA vacuum to clean area
- Sealing materials into leak-tight containers

These controls will mitigate the threat of an asbestos release from this project while also ensuring that residues of lead-based paint do not remain at the project site. As a result of these controls, the spread of lead contamination is prevented and the threat from this material is mitigated.

Additional protective measures to be taken in support of this project include:

- Positioning physical barriers around the work area to prevent unauthorized access.
- Providing protective clothing and respiratory protection for workers, as required.
- Making plastic tarpaulins, bags and appropriate containers readily available to contain asbestos and radiologically-contaminated materials, as required.

All activities performed in support of this project will follow applicable site policies and procedures written to control such activities. These procedures include, but are not limited to, the following:

- SSOP-0044 "Management of Soil, Debris, and Waste from a Project"
- SP-P35-010 "Unrestricted Release of Materials from FMPC"

4.0 ASSESSMENT OF THE NEED FOR REMOVAL ACTION

Consistent with 40 CFR 300.410 of the NCP, the DOE shall determine the appropriateness of a removal action. Eight factors to be considered in this determination are listed in 40 CFR 300.415(b)(2). Based on the data presented above, the following of the eight criteria listed in the NCP applies to this project.

- 40 CFR 300.415(b)(2)(i)
Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
- 40 CFR 300.415(b)(2)(iii)
Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release

As discussed previously, the potential release of lead contamination stored in drums on-site after removal of the copper piping is negligible due to storage controls. The preventive measures taken in the field during asbestos removal also mitigates the threat of an asbestos release. Therefore, while the above criteria can be applied to the Building 28 air conditioning renovation, the level of threat is negligible and a removal action is not required.

5.0 APPROPRIATENESS OF A RESPONSE

Based on the evaluation of all the above factors, it has been determined that a removal action will not be necessary and this project should be continued as a maintenance activity in support of the CERCLA remediation process and waste management. Furthermore, the controls planned in conjunction with this construction activity are adequate to mitigate any hazards at this site and to prevent deterioration

Additional protective measures to be taken in support of this project include:

- Placing physical barriers around the work area to prevent unauthorized access.
- Providing protective clothing and respiratory protection for workers, as required.
- Making plastic tarpaulins, bags and appropriate containers readily available to contain asbestos and radiologically-contaminated materials, as required.

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ATTACHMENT 1

Attachment # 1.

FEED MATERIALS PRODUCTION CENTER
CONSTRUCTION WASTE IDENTIFICATION/DISPOSITION FORM

PART I - PROJECT DESCRIPTION

Project Title A.C. Systems Bld. 2 B, Date 3, 5, 92,
 Project Description Replace A.C. Systems, UNCO Project No. 87-D-159.
 Project Location (include location draying if possible) Bldg's 2 B EAST West.
 Project Engineer H.J. Daxlet phone 6808 Const'n Dates: Start 3, 23, 92. End 7, 30, 93.

PART II - CONSTRUCTION WASTE DETAILS

Date 3, 5, 92.

WASTE TYPE	UNCONTAMINATED WASTE		CONTAMINATED WASTE	
	VOLUME Cu. Ft.	WEIGHT Pounds	VOLUME Cu. Ft.	WEIGHT Pounds
Rubble (concrete, block, etc.)	4	300		
Metal	160	460		
Process Equipment	350	6650		
Mixed Solid/Liquid				
Asbestos	12	200		
Liquid				
PCBs				
Hazardous/Radioactive Mixed				
Toxic/Radioactive Mixed				
Wood				
Other (specify)	10	160		

Condit Wife

* Also complete PART III - FUTURE USE MATERIAL OWNERSHIP AND DISPOSITION.
FORM UNCO 1271A (2/78)

ATTACHMENT 2

Fernald Site
IRS&T - RADIOLOGICAL SAFETY
RADIOLOGICAL SURVEY REPORT

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DATE: 5/2/92	LOCATION: Bldg 28 HUMAN RESOURCE	PRINT NAME: Andrew Denton / Pete Darnell	PAGE: 1 of 1
TIME: 0800	LEVEL: 580	SIGNATURE: <i>[Signature]</i>	
REASON FOR SURVEY:	Survey of EQUIPT in Bldg 28 MECHANICAL prior to Demolition		

INSTRUMENTS							
MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION-DUE DATE	BKGD. (cpm)	EFF./CF	MDA (dpm)	INSP./PERFOR TEST SAT
							YES
LA 5100	#6	α / β / γ	5/92	0.4	312	37.2	✓
S50	A302B	β / γ	8/92	40	24.7 / 4.71	NA	✓
		(3/12)					

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	DPM/100cm² ALPHA		DPM/100dm² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
		REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	CONTACT	CONTACT	AT	BT
1	DUCT	MDA		MDA	< 1K				(20)
2	DUCT	MDA		MDA	< 1K				
3	DUCT	MDA		MDA	< 1K				
4	DUCT	MDA		MDA	< 1K				(20)
5	DUCT	MDA		MDA	< 1K				
6	DUCT	MDA		MDA	< 1K				
7	DUCT	MDA		MDA	< 1K				
8	WALL A/C UNIT	MDA		MDA	< 1K				
9	INSIDE UNIT	MDA		MDA	3K				
10	DOOR UNIT	MDA		MDA	1.5K				
11	FILTER	MDA		MDA	5K				
12	Pipe to UNIT	MDA		MDA	2K				
13	BASE CONDENSER	MDA		MDA	1.5K				
14	CONDENSER	MDA		MDA	1K				
15	Motor of CONDENSER	MDA		MDA	1K				
16	Pipe to CONDENSER	MDA		MDA	< 1K				
17	CONTROL BOARD	MDA		MDA	< 1K				
18	D. ne to CONDENSER	MDA		MDA	< 1K				

NO.	DISTRIBUTION OF COPIES
1	Radiological Safety Supervisor
2	Facility Supervisor
3	Operable Unit Manager

NOTIFICATION OF SURVEY RESULTS					
SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE

Fernald Site
 IRS&T - RADIOLOGICAL SAFETY
 RADIOLOGICAL SURVEY REPORT

4207

DATE: 5/13/92	LOCATION: bldg 28 East	PRINT NAME: P. Dornell / S. Browning	PAGE: 1 of 1
TIME: 1100	LEVEL: 580'	SIGNATURE: <i>[Signature]</i>	
REASON FOR SURVEY:	Pre demolition requested survey (S. Lund), see attached map.		

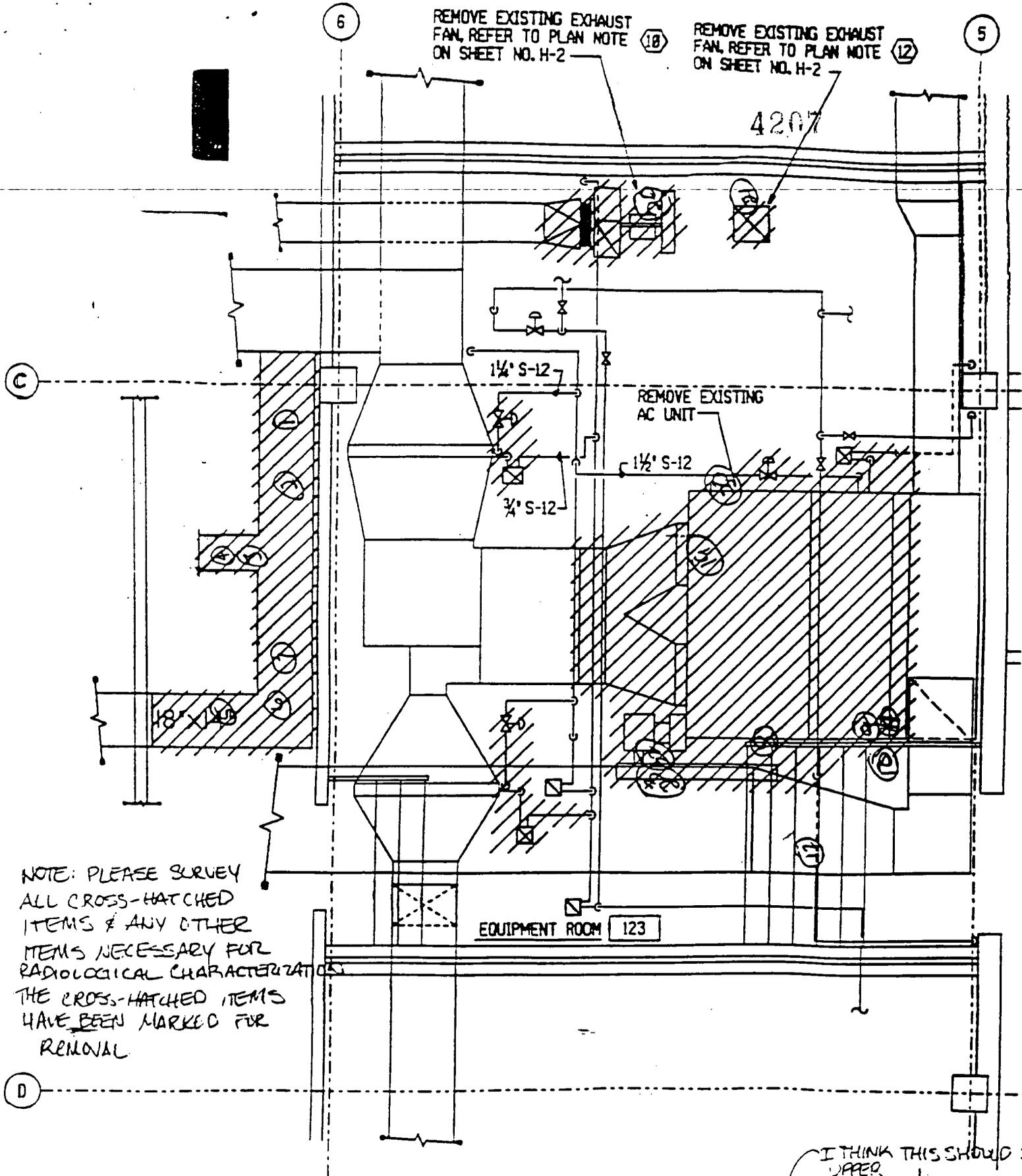
INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION- DUE DATE	BKGD. (cpm)	EFF./CF	MDA (dpm)	INSP./PERFORM TEST SAT?	
							YES	N
Lm3	89787	$\beta \gamma$	7/92	50	27.18/3.16	NA	✓	
LB5100	6	$\alpha \beta \gamma$	6/92	α 0.7 $\beta \gamma$ 1.96	α 0.310 $\beta \gamma$ 0.428	2.5 min 42.8 $\beta \gamma$ 32.5	✓	

ITEM NUMBER	LOCATION AND/OR DESCRIPTION	DPM/100cm ² ALPHA		DPM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)			
		REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ	B/ γ	γ	B/ γ
						CONTACT	CONTACT	AT FT.	AT
1	A/C unit				4K				
2	pipng				21K				
3	below A/C unit & lights (on light cord)			<MDA	2K				
4	duct work				21K				
5	duct work				21K				
6	sheet metal tube				21K				
7	sheet metal tube				21K				
8	ductwork				21K				
9	front of A/C unit				21K				
10	back of A/C unit				21K				
11	duct work				21K				
12	pipng				21K				
13	pipng				21K				
14	4 lockers				21K				
15	4 locker				21K				
16	pipng				21K				

NO.	DISTRIBUTION OF COPIES
1	Radiological Safety Supervisor
2	Facility Supervisor
3	Operable Unit Manager

NOTIFICATION OF SURVEY RESULTS					
SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE



NOTE: PLEASE SURVEY ALL CROSS-HATCHED ITEMS & ANY OTHER ITEMS NECESSARY FOR RADIOLOGICAL CHARACTERIZATION. THE CROSS-HATCHED ITEMS HAVE BEEN MARKED FOR REMOVAL.

I THINK THIS SHOULD BE UPPER

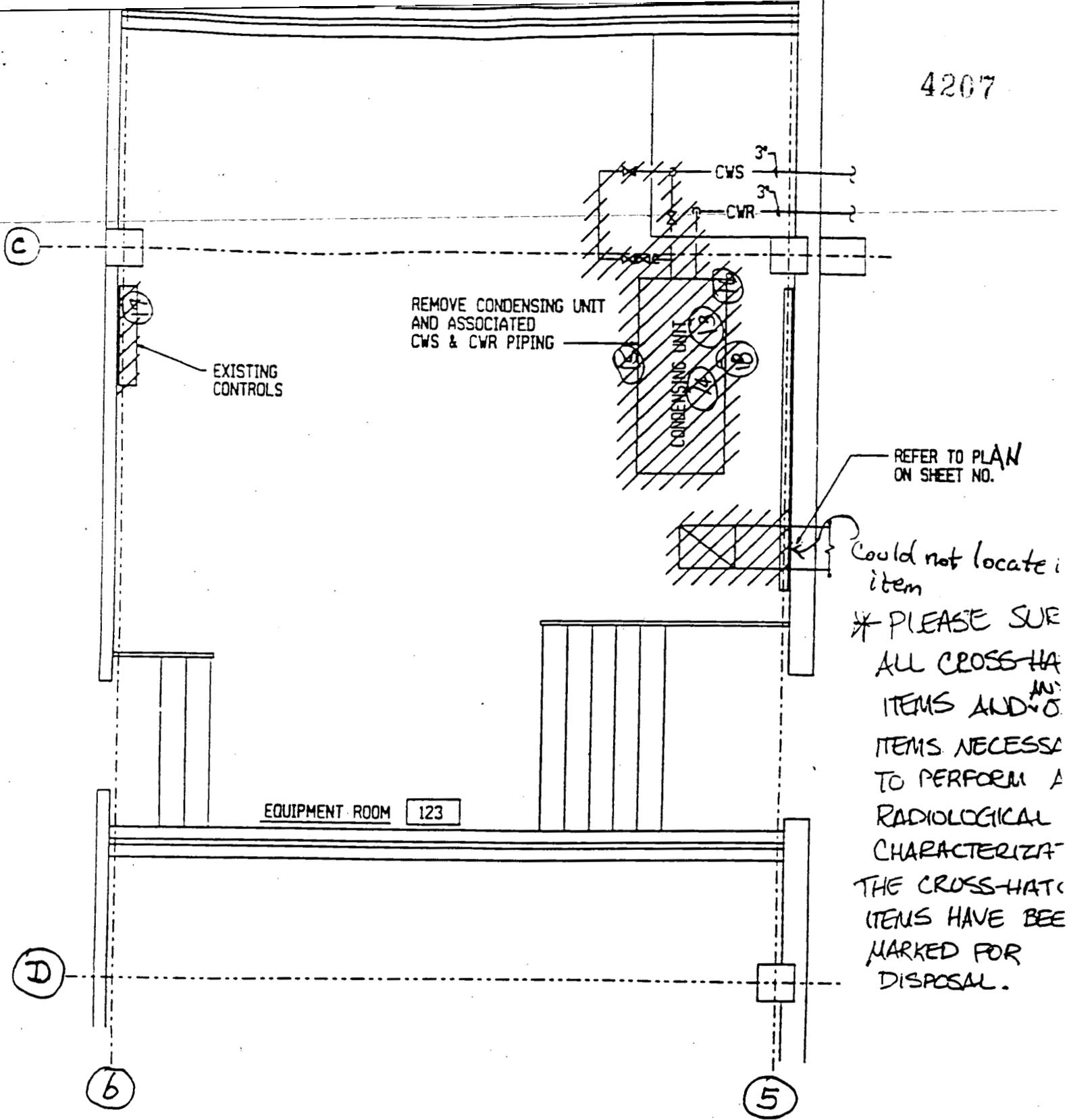
EQUIPMENT ROOM DEMOLITION PLAN - LOWER

SCALE: 3/8" = 1'-0"

BUILDING 28 WEST



Figure # 1.



I THINK THIS SHOULD SAY LOWER

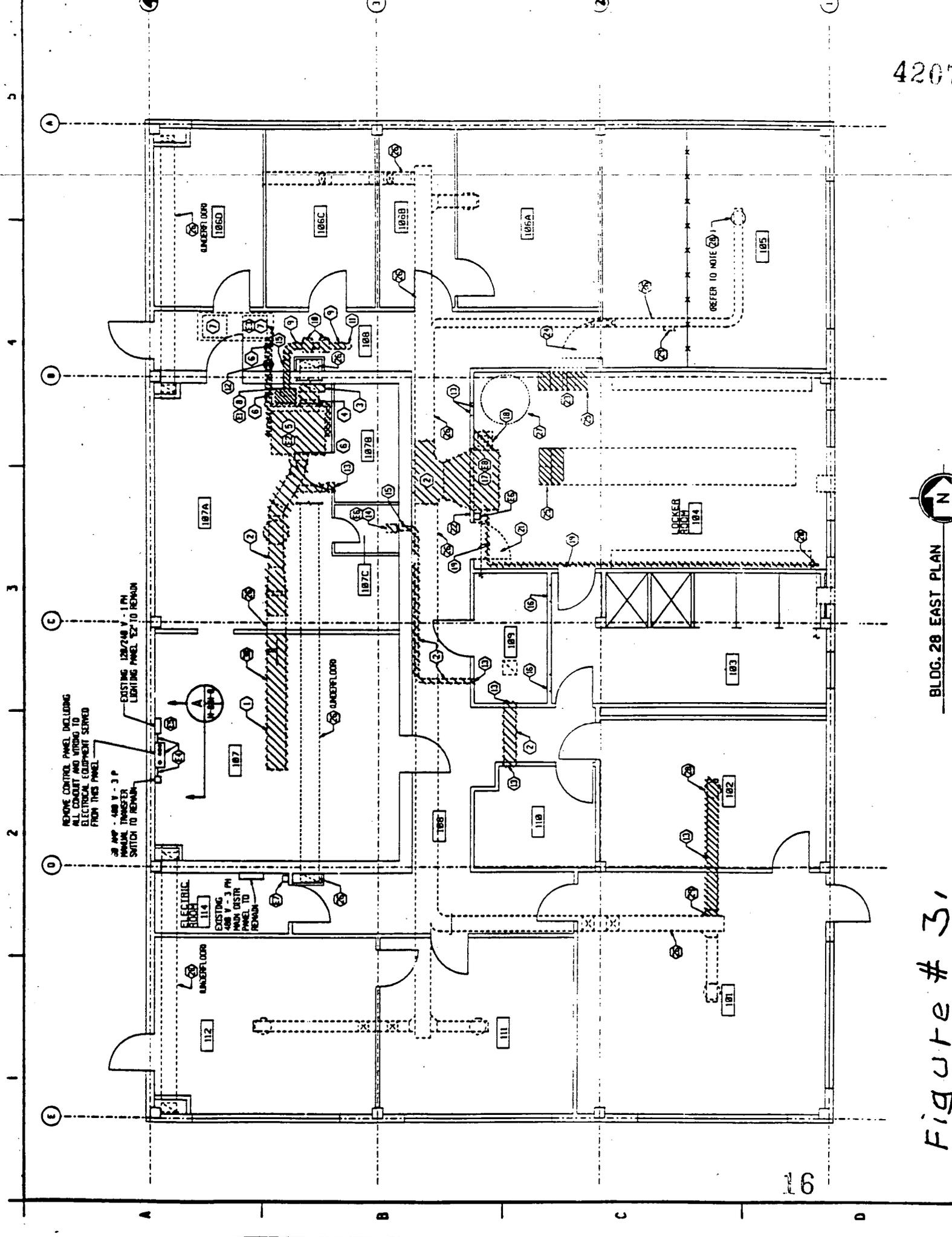
EQUIPMENT ROOM DEMOLITION PLAN - UPPER

SCALE: 3/8" = 1'-0"



BUILDING 28 WEST

Figure # 2.



BLDG. 28 EAST PLAN

Figure # 31

ATTACHMENT 3



From: C. G. Rieman (6828)

WEMCO:EM:RCRA(FME):92-047

Date: August 31, 1992

Subject: **RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE AIR
CONDITIONING SYSTEM IN BUILDING 28**

To : H. J. Draxler

- Ref: 1. WEMCO Site Standard Operating Procedure, SSOP-0044, "Management of Soil, Debris and Waste From a Project," issued June 10, 1992
2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials from FEMP," issued March 13, 1990
3. Environmental Compliance Spill/Release Incident Tracking Report, dated July 21, 1992
4. Upset Condition Documentation, issued September 18, 1990
5. DOE-2152-91, R. E. Tiller to P. Pardi, Ohio EPA, "Characterization of Metal Coated With Lead Based Paint," dated September 16, 1991

This memo transmits the RCRA determination and radiological characterization for the Air Conditioning System in Building 28. The waste to be generated consists of 4 cubic yards of rubble (concrete blocks) approximately 300 pounds, 160 cubic yards of metal, approximately 460 pounds, 350 cubic yards of process equipment, approximately 6650 pounds, 12 cubic yards of asbestos, approximately 200 pounds, 10 cubic yards of electrical conduit and wire, approximately 160 pounds, plastic, paper, rubber, cardboard and protective clothing.

PROCESS KNOWLEDGE

This construction project is located in the uncontrolled area of the FEMP, inside Building Number 28A and B, commonly known as the Guard House and Human Resources Building. This building consists of offices, locker room, vault and guard post. The building was never used to process uranium or thorium.

There were no reported releases/spills in the construction area per Reference Numbers 4 and 5.

This construction project scope includes removal of three (3) air conditioning units from three areas of the building, masonry alterations, door relocation, locker removal, cutting of wall and roof openings, removal of ducts, cooling pipes, electrical conduit and wire to accommodate the installation of the new air conditioning units.

The liquids in the process equipment will be removed and disposed of by WEMCO Maintenance personnel prior to the start of construction per appropriate Operating Procedures. The Quality Assurance Group will certify that all liquids have been removed prior to disposal.

The rubble will consist of painted concrete block from an internal wall for the relocation of the door. This paint may be lead based, so reference Number 5 will be used to determine if the concrete waste is RCRA hazardous.

The metal waste will consist of electrical conduit and wire, lockers, process equipment (air conditioning units, one with tar coating), copper water pipe with lead soldered joint; metal pipes with asbestos insulation, and painted air ducts. TCLP Lead analytical results (paint) and reference Number 5 will be used to determine the lead content of the metal ducts and air conditioning units. TCLP and analytical data is available for the tar waste.

The plastic waste will be from air barricades and for packing radiologically contaminated waste.

The paper and cardboard will be packing material from the new equipment to be installed.

The protective clothing (anti-C's, rubber gloves, etc.) will be generated if required for radiological protection.

SAMPLING AND ANALYSIS

Two paint samples were taken from the air ducts and air conditioning units, these locations are shown in Attachment Number 1. No sample was taken from the duct in the old vault room as shown in Attachment Number 1. The paint on this duct was very thin and the required amount of sample material could not be collected. This indicated that this duct was new and only painted one time, probably not painted with lead based paint. These samples were analyzed for TCLP lead, one sample result was above the regulatory limit. These analytical results are shown in Table Number 1.

One tar sample was taken from the air conditioning unit at the location shown in Attachment Number 1. This sample was analyzed for TCLP metals, volatiles, semi-volatiles, total uranium and thorium. The TCLP analytical results are shown in Table Number 1.

RADIOLOGICAL CHARACTERIZATION

The analytical result for the tar sample showed uranium to be 18 ppm and thorium was <45 ppm which would be considered uncontaminated per Reference Number 1. However, the Radiological survey indicated several areas to be above the 1000 dpm level. For proper disposal of the waste from this project, the Radiological Safety Group will have to monitor the waste for proper disposal per Reference Numbers 1 and 2.

RCRA DETERMINATION

The rubble waste (concrete blocks) to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon the process knowledge of the material and the methodology to calculate total lead content (0.70 ppm) of the waste (Reference Number 5). This calculation is shown in Attachment Number 2.

The metal waste (air ducts and Process equipment) to be generated from this project are RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon the analytical results of the tar sample, TCLP metals, volatiles and semi-volatiles, either non detect or well below the regulatory limit, and the TCLP lead result of 4.45 ppm, which is below the regulatory limit. For the TCLP lead result of 8.64 ppm above the regulatory limit, the calculation in Reference Number 5 was applied. Using this calculation, the TCLP lead for this waste is 0.07 ppm, well below the regulatory limit. The calculation is shown in Attachment Number 2.

The metal waste (black iron pipe, electrical conduit and wire) to be generated are RCRA nonhazardous (non-RCRA). These determinations are based upon process knowledge.

The metal waste (copper pipe) to be generated will be RCRA nonhazardous (a.k.a. non-RCRA) after the lead solder joints are removed. This determination is based upon process knowledge of the material.

The metal waste (copper pipe joint with lead solder) will be RCRA hazardous (a.k.a. RCRA) D008 waste.

The asbestos waste (pipe insulation) to be generated is RCRA nonhazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1572, dated February 24, 1992.

The plastic waste (sheeting and bags) to be generated is RCRA nonhazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1539, dated February 11, 1992.

The paper and cardboard waste (packing materials and packing boxes) to be generated is RCRA nonhazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1673, dated April 10, 1992.

The protective clothing (anti-C's, rubber gloves, etc.) to be generated is RCRA nonhazardous (a.k.a. non-RCRA), if it meets the conditions specified below.

- o Does not contain any entrapped liquids.
- o The waste material has not come in contact with any acutely toxic waste. Attachment Number 3 contains the list of acutely toxic waste.

No materials have been identified (except the copper lead pipe joints) that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24, (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

SUMMARY

The waste to be generated from this project (concrete, process equipment, metal pipe, ducts, copper pipe with lead joints removed are RCRA nonhazardous (a.k.a. non-RCRA). The copper lead pipe joints are RCRA hazardous (a.k.a. RCRA) D008 waste. The plastic, paper, cardboard, and protective clothing are RCRA nonhazardous if they meet the conditions specified above.

The waste will have to be monitored by the Radiological Safety Group for proper radiological disposition per Reference Numbers 1 and 2.

If any additional waste is generated from this project, an additional RCRA determination will be required for proper disposition.

If there are any questions, please call me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Rieman
Facilities and Materials Evaluation

CGR:bbs:tmk

Attachments

H. J. Draxler

-5-

WEMCO:EM:RCRA(FME):92-047

c w/att.:

J. E. Clements
C. L. Griffin
L. A. Hurst
H. J. Knue
L. M. March
B. S. Perkins
J. M. Sattler
S. G. Schneider
R. A. Thiel
J. L. Trujillo
C. S. Waugh
K. N. Wintz

Central Files
FME Files

Analytical Results
July 1, 1992

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<u>TCLP METALS</u>	920427-270 Paint, A/C Unit Bldg 28 West (ug/l)	920427-271 Paint, Duct Bldg 28 East (ug/l)	920427-274 Tar, Bldg 28 East (ug/l)	920427-273 Field Blank (ug/l)	Regulatory Limits (ug/l)
Arsenic	-----	-----	ND	ND	5000
Barium	-----	-----	ND	ND	100000
Cadmium	-----	-----	ND	ND	1000
Chromium	-----	-----	ND	ND	5000
Lead	4450	8640	ND	ND	5000
Selenium	-----	-----	ND	ND	1000
Silver	-----	-----	ND	ND	5000
Mercury	-----	-----	ND	ND	200

<u>TCLP VOLATILES</u>	920427-274 Tar, Bldg 28 East (ug/l)	920427-273 Field Blank (ug/l)	Regulatory Limits (ug/l)
Benzene	ND	ND	500
Carbon tetrachloride	ND	ND	500
Chlorobenzene	ND	ND	100000
Chloroform	ND	ND	6000
1,2-Dichloroethane	ND	ND	500
1,1-Dichloroethylene	ND	ND	700
Methyl ethyl ketone	ND	ND	200000
Tetrachloroethylene	ND	ND	700
Trichloroethylene	ND	ND	500
Vinyl chloride	ND	ND	200

<u>TCLP SEMI-VOLATILES</u>	920427-274 Tar, Bldg 28 East (ug/l)	920427-273 Field Blank (ug/l)	Regulatory Limits (ug/l)
o-Cresol	ND	ND	200000
m & p-Cresol	ND	ND	200000
1,4-Dichlorobenzene	ND	ND	7500
2,4-Dinitrotoluene	ND	ND	130
Hexachlorobenzene	ND	ND	130
Hexachloro-1,3-butadiene	ND	ND	500
Hexachloroethane	ND	ND	3000
Nitrobenzene	ND	ND	2000
Pentachloroaneni	ND	ND	100000
Pyridine	ND	ND	5000
2,4,5-Trichloroaneni	ND	ND	400000
2,4,6-Trichloroaneni	ND	ND	2000

Air Conditioning System - Building 28

4207

Analytical Results
July 1, 1992

<u>TOTAL VOLATILES</u>	920427-272 Field Blank (ug/l)
Acetone	ND
Benzene	ND
Carbon disulfide	ND
Carbon tetrachloride	ND
Chlorobenzene	ND
Cyclohexanone	ND
Ethyl benzene	ND
Ethyl acetate	ND
Ethyl ether	ND
Methyl ethyl ketone	ND
Methyl isobutyl ketone	ND
Methylene chloride	ND
2-Nitropropane	ND
Tetrachloroethylene	ND
Toluene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Trichlorotrifluoroethane	ND
Trichlorofluoromethane	ND
Total Xylenes	ND

ND = Not Detected

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