

3005-0604250008

OCT 21 2004

CH2M HILL
Mound, Inc.
1 Mound Road
P.O. Box 3030
Miamisburg, OH
45343-3030

ER/WM-116/04
October 20, 2004



CH2MHILL

Ms. Margaret L. Marks, Director
Miamisburg Closure Project
U. S. Department of Energy
1075 Mound Road
Miamisburg, OH 45342

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
Statement of Work Requirement 055 - Regulator Reports
MAIN HILL WATER TOWER BUILDING DATA PACKAGE, FINAL

Dear Ms. Marks:

Attached for your records is the following Final document:

- Main Hill Water Tower, Building Data Package (includes Work Plan), Final

If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact me at 937-865-4203.

Sincerely,

A handwritten signature in black ink, appearing to read "David A. Rakel".

David A. Rakel
CERCLA Lead

DAR/ms

Enclosures

cc: David Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (1) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, MCP, w/o attachments
Randy Tormey, DOE/OH, (1) w/attachments
Robert Perrygo, DOE/HQ, (1) w/attachments
CERCLA Documents, CH2M Hill, (1) w/attachs
Chris Watson, CH2M Hill, (1) w/attachments
ER Records, CH2M Hill, (1) w/attachments
Admin Record (2) w/attachments

DCC (1) w/attachments
Frank Bullock, MMCI, (3) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) w/attachments
John Lehew, CH2M Hill, w/o attachments
Dave Rakel, CH2M Hill, w/o attachments
Val Darnell, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, w/o attachments
file

3005-0604250008



**Environmental
Restoration
Program**

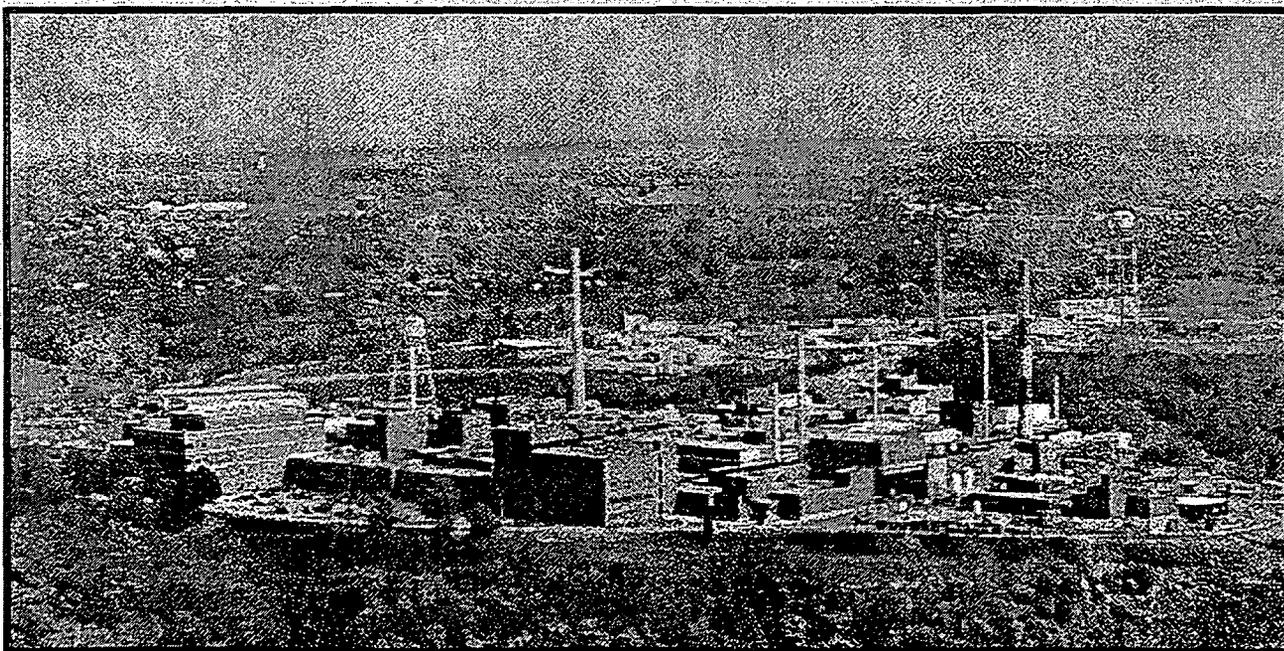


Miamisburg Closure Project Building Data Package

Main Hill Water Tower

(Demolition)

Final
October 2004



MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available
(March 19, 2004) for public
information in the CERCLA Public
Reading Room, 305 E. Central Ave.,
Miamisburg, Ohio.

**Main Hill Water Tower,
Building Data Package**

Questions can be referred to Paul Lucas at
(937) 847-8350 ext. 314

U.S. Department of Energy
U.S. Environmental Protection Agency
Ohio Environmental Protection Agency

This page intentionally left blank.

BDP Main Hill Water Tower

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		March 2004
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	N/A
PUBLIC REVIEW DRAFT	The public review period was 19 March through 18 April 2004	March 2004
DRAFT PROPOSED FINAL (incorporates Core Team comments)	Text changes were made in response to Ohio EPA and USEPA comments	April 2004
FINAL		October 2004

This page intentionally left blank.

TABLE OF CONTENTS

Section	Page
1.0 General Overview	1
1.1 Introduction	1
1.2 Scope.....	1
2.0 Main Hill Water Tower Overview.....	2
2.1 Past and Current Uses of the Main Hill Water Tower	2
2.3 Summary of Environmental Concerns and Findings –Main Hill Water Tower	3
2.4 Radiological Information for the Main Hill Water Tower	5
3.0 Site Description.....	5
3.1 Site/Vicinity Location and Characteristics	5
3.2 Description of Structures, Roads, and Other Improvements in Proximity to the Main Hill Water Tower.....	5
3.3 Current and Past Uses of Buildings in Proximity to the Main Hill Water Tower	5
4.0 Records Review.....	6
4.1 General/Historical CERCLA Information	6
4.2 Specific Record Sources for the Main Hill Water Tower	7
4.2.1 Occurrence Reports	7
4.2.2 Spills and Releases.....	7
4.2.3 Associated PRS Overview.....	8
4.3 Review of Structure Drawings.....	8
4.4 Aerial Photographs.....	8
4.5 Interviews	8

Tables

Table 1: Summary of Environmental Concerns and Findings	3
Table 2: PRSs in Proximity to the Main Hill Water Tower.....	8

TABLE OF CONTENTS

continued

Appendices

Appendix A	General Listing of Acronyms
Appendix B	Map of Montgomery County
Appendix C	Figures
Appendix D	Structure Drawing
Appendix E	Aerial Photographs
Appendix F	Environmental Appraisal Report of the Mound Plant (Excerpt)
Appendix G	Radiological Information
Appendix H	Radon Information
Appendix I	Asbestos Information
Appendix J	Lead Information
Appendix K	Chemical Information
Appendix L	Soil Sampling, Vicinity
Appendix M	Occurrence Reports
Appendix N	PRS Information
Appendix O	Work Plan

1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the construction demolition of the Main Hill Water Tower and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and structure.

Recognized Environmental Condition: The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a likely release, a past release, or a material threat of a release of any hazardous substances or petroleum into structures, or into the air, ground, groundwater, or surface water near the buildings.

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for the Main Hill Water Tower located at the Department of Energy (DOE) Miamisburg Closure Project (MCP) in Miamisburg, Ohio. The investigation performed to support this BDP models procedures found in *ASTM Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-00).

The scope of the investigation included the Main Hill Water Tower, the soil beneath, and a 15-foot wide perimeter border around the structure. The investigation of the Main Hill Water Tower included the following:

- A) A structure and perimeter inspection.
- B) An examination of historical aerial photographs and maps.
- C) A review of federal and state regulatory agency records.
- D) Personnel interviews.
- E) A review of site records for:
 - 1) History of spills, releases and chemical inventories
 - 2) Past sampling data
 - Radiological survey
 - Soil sampling
 - Lead-based paint
 - Asbestos
 - Radon

In addition to the structure investigation conducted by site contractor personnel, documents were reviewed. Information used to compile BDPs includes the following:

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- Operable Unit 9 (OU-9) Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Structure Drawings
- Potential Release Site (PRS) information
- MD-22153, Mound Site Radionuclides By Location, June 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

2.0 MAIN HILL WATER TOWER OVERVIEW

The Main Hill Water Tower (Figure 3) is a 100,000-gallon elevated steel water tank and tower. It contains a 50,000-gallon capacity for service water and a 50,000-gallon capacity for fire reserve. The tank dimensions are approximately 28 feet diameter with a 16-foot shell height, and it has a cone roof and an elliptical bottom. The tank is supported by four legs, each approximately 107 feet tall. The overall height of the structure is approximately 133 feet.

The water tower is located on the "Main Hill" of the Mound site (west of Building 28 and east of P [Powerhouse] Building), in the north central portion of the site (Figure 1).

2.1 Past and Current Uses of the Main Hill Water Tower

The tower was originally erected and put in service in 1941 in Weldon Springs, Missouri. Because of the steel shortage following World War II, the tower was dismantled, moved to Ohio, and re-erected on the Main Hill of the Mound site in 1948. The top of the tank was replaced in 1990.

It has served the same function as a water storage tank for service water and fire reserve water since it was erected at the Mound site.

Safe Shutdown activities will be conducted prior to the commencement of demolition.

2.3 Summary of Environmental Concerns and Findings –Main Hill Water Tower

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	<p>No previous lead surveys or sampling data could be found for the Main Hill Water Tower.</p> <p>On March 15, 2004, Mr. Chris Ahlquist (an Industrial Hygienist with CH2M Hill Mound) collected real-time readings on the lead content of the paint coating on several areas of the water tower's structural steel surface. All areas tested were found to contain lead. Since the structure is scheduled for imminent demolition, areas which are going to be torch cut will be stripped of paint prior to the cutting process in order to alleviate the potential for airborne lead exposure. (Appendix J).</p>	<p>Any disturbances of the affected paint coatings by close worker contact (i.e. sanding, grinding, scraping, etc.), will necessitate the use of appropriate Personal Protective Equipment (PPE) and engineering controls as required under the OSHA Construction Standard for Lead (29 CFR 1926.62). These determinations were made by Mr. Chris Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.</p> <p>Waste Management performed worst-case scenario calculations to determine that structure demolition debris containing lead-based paint meets the waste acceptance criteria at the Stoney Hollow Landfill or other approved construction demolition and debris (CD&D) landfill. Currently Stoney Hollow is Mound's only approved landfill.</p> <p>Also see Soil Sampling at the end of this table.</p>
Chemicals	The interior surface of the water tower tank is coated with a rust inhibitor (product name NO-OX-ID).	Per Waste Management, the presence of this coating will not effect debris disposition. No further action required.
Ballasts associated with Fluorescent Lamps	N/A	N/A
Air Emissions	N/A	N/A
Asbestos	On January 20, 2004, Mr. Chris Ahlquist performed a survey of all exposed areas of the Main Hill Water Tower in order to identify all asbestos-containing materials prior to demolition of the structure. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist. A paper wrap on the exterior of the pipe riser inside the central column was identified as suspect for containing asbestos. The material was sampled and analyzed for asbestos content and found to not contain asbestos. No other materials suspect for asbestos were identified. (Appendix I)	No further action required.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Drainage Sumps	N/A	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Predemolition surveys are not feasible as the structure is elevated approximately 100 feet above the ground.	Following demolition, radiological surveys will be performed on the debris piles to determine end disposition per Waste Management direction. Results of radiological surveys will be provided in the Closeout Report.
Septic System	N/A	N/A
Wastewater	N/A	N/A
Stains & Corrosion	N/A	N/A
Storage Tanks	Approximately 49 feet south of the water tower is a 50,000 gallon above ground tank used for #2 fuel oil storage. The tank was installed in the mid 1990s and provides standby fuel for the two boilers in P Building. There is a secondary containment concrete barrier around the tank.	Demolition (per Work Plan, Appendix O) will be performed in a manner that ensures the water tower falls to the north, away from the fuel oil tank. The fuel oil tank is believed to have had no environmental impact on the water tower. No further action necessary.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	N/A	N/A
HVAC	N/A	N/A
Energetic Materials	N/A	N/A
Soil Contamination	Appendix L contains graphics showing all soil sample locations within 15 feet of the perimeters of the Main Hill Water Tower, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All results are below applicable screening levels (Core Team approved or the more stringent of either 10^{-6} Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1).	Historical soil sampling showed no indication of radiological contamination. However, because the tower had lead-based paint and had previously been sand blasted prior to repainting, soil samples will be collected from around the base following demolition to confirm that no lead hazard exists. A soil sampling plan will be developed in coordination with the Core Team. If contamination is detected, the Core Team will be notified and appropriate actions taken. If a removal action is indicated, it will be performed under an approved action memorandum or the CRA process. Analytical results will be provided in the Closeout Report.

N/A: Not applicable

2.4 Radiological Information for the Main Hill Water Tower

Predemolition radiological surveys are not feasible as the structure is elevated 100 feet above the ground. Following demolition, radiological surveys will be performed on the debris piles to determine end disposition per Waste Management direction. Copies of the radiological surveys will be provided in the Main Hill Water Tower Closeout Report.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

The Main Hill Water Tower is located at the DOE MCP site, formerly known as the Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan Engineer District in 1946, consisted of two hills and an intervening valley that runs approximately east and west. The 124-acre tract acquired in 1981 was an undeveloped mixture of fields and woods that undulates and slopes downward to the west, away from the main site. This area was acquired to serve as a buffer and has been used as a staging area and parking area for contractors working onsite.

To the west lie a railroad line and the north south trending Miami-Erie Canal. The northern boundaries of the site abut the residential area of Miamisburg, Ohio. Mound Road marks the northern half of the eastern perimeter of the facility then veers east, away from the southern half of the eastern boundary. A public golf course (belonging to the City of Miamisburg), the Miamisburg Mound Memorial Park, old agricultural fields, residential lots, and vacant wooded lots border the facility along Mound Road. Benner Road formed the southern property line of the Mound Plant (at the 300-acre stage), with agricultural fields and farms occupying the lands beyond.

3.2 Description of Structures, Roads, and Other Improvements in Proximity to the Main Hill Water Tower

The area under and around the Main Hill Water Tower is covered with grass. The water tower is bordered to the east by Building 28, to the south by a 50,000-gallon above ground fuel oil storage tank, to the west by P Building, and the north by an asphalt roadway and a large dirt area (previously occupied by the recently demolished Buildings W and GW).

3.3 Current and Past Uses of Buildings in Proximity to the Main Hill Water Tower

Current buildings and above ground tank in proximity to the water tower include:

- Building 28 (Ceramic Fabrication Facility), located approximately 54 feet east of the water tower, is a 11,329 square-foot building currently used as a maintenance and

machine shop. Building 28 is leased from DOE to MMCIC who leases it to a private enterprise.

- P Building (Powerhouse Building), located approximately 57 feet west of the water tower is a one-story (with mezzanine), 15,143 square-foot building that contains the facilities and equipment necessary to provide the site with centralized process and breathing air, steam and condensate, chilled water supply and return, potable water, and electrical power distribution. It is in the process of being prepared for demolition.
- A 50,000 gallon above ground tank, used for storage of #2 fuel oil, is located approximately 49 feet south of the water tower. It has a concrete secondary containment barrier around it.

Previous buildings in proximity to the water tower include:

- GW Building (Receiving/Inspection), located north/northwest of the water tower, was built in 1968, and demolished in 2003. It was a two-story building with 9,782 square feet of floorspace.
- W Building (Warehouse Building), located north of the water tower, was built in 1948 and demolished in 2003. It was a single-story building with 32,484 square-feet of floorspace.

These buildings are believed to have had no adverse environmental impact on the Main Hill Water Tower.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report did not include the Main Hill Water Tower, as it was not used for chemical storage.

The Mound Plant was identified as a contaminated site on the National Priorities List (NPL) under CERCLA (Superfund) in 1989. The Mound Plant was originally listed due to volatile organic compound (VOC) contamination in the western end of the lower valley area. The

cleanup of the site was originally to be accomplished under the CERCLA mandated procedures for regulating Superfund Sites using the operable unit (OU) system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the site did not fit the profile for a cleanup strategy based on the operable units. The DOE, the United States Environmental Protection Agency (USEPA), and OEPA designed a new decision making process for the cleanup of the site.

The new process is known formally as a "removal site evaluation process" and informally as the "Mound 2000 Process." For a more detailed description, refer to the *Work Plan for Environmental Restoration of the DOE Mound Site, the Mound 2000 Approach*. The Mound 2000 Process system divided the site into geographical parcels containing more than 400 PRSs with approximately equal numbers of PRSs concerned with potentially contaminated soil and with potential contamination in or associated primarily with building operations. A PRS is an area where knowledge of historic or current use indicates that the site may have had releases of radioactive and/or hazardous materials. The PRSs were initially identified and documented as part of the Mound site scoping process under the Federal Facility Agreement (FFA). The original list of PRSs can be found in the OU9- Site Scoping Report Volume 12, Site Summary Report, 1994. One of the objectives of the Site Scoping report was to provide a comprehensive summary of PRSs identified through the scoping process. Subsequent to the 1994 Site Scoping Report, additional PRSs have been identified as information became available, bringing the site total to 440 PRSs. The assignment of a PRS does not necessarily mean that there is a threat to human health or the environment. The tabulation of all PRSs simply provides an explicit means of tracking and evaluating all potential releases onsite, the need for further action, and the identification of the authority responsible for action.

Through the process described above, the specific PRSs in the vicinity of the Main Hill Water Tower are listed in Table 2 along with their binning status. Their locations are shown on Figure 2. All of the six PRSs in the vicinity of the water tower have been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with the Main Hill Water Tower have been identified.

4.2 Specific Record Sources for the Main Hill Water Tower

4.2.1 Occurrence Reports

- None

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, six are at or near the Main Hill Water Tower, as identified in Table 2. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 2 - PRSs in Proximity to the Main Hill Water Tower

PRS	CERCLA or Bldg. Related	Binning Status	Comments
113 through 117	CERCLA	NFA*	Powerhouse Soils
126	CERCLA	NFA	Building 28 Solvent Storage Area/Shed

* NFA: No Further Assessment

4.3 Review of Structure Drawings

Structure drawings were reviewed and no significant items were identified. A copy of the original drawing is included in Appendix D.

4.4 Aerial Photographs

Aerial photographs from 1959 (following construction), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

Alan Upshaw (Utilities Manager) and Gary Weidenbach (a site Building Manager) were interviewed regarding possible environmental concerns related to the water tower and its demolition. Both indicated that there were no significant items related to the water tower.

Appendix A

General Listing of Acronyms

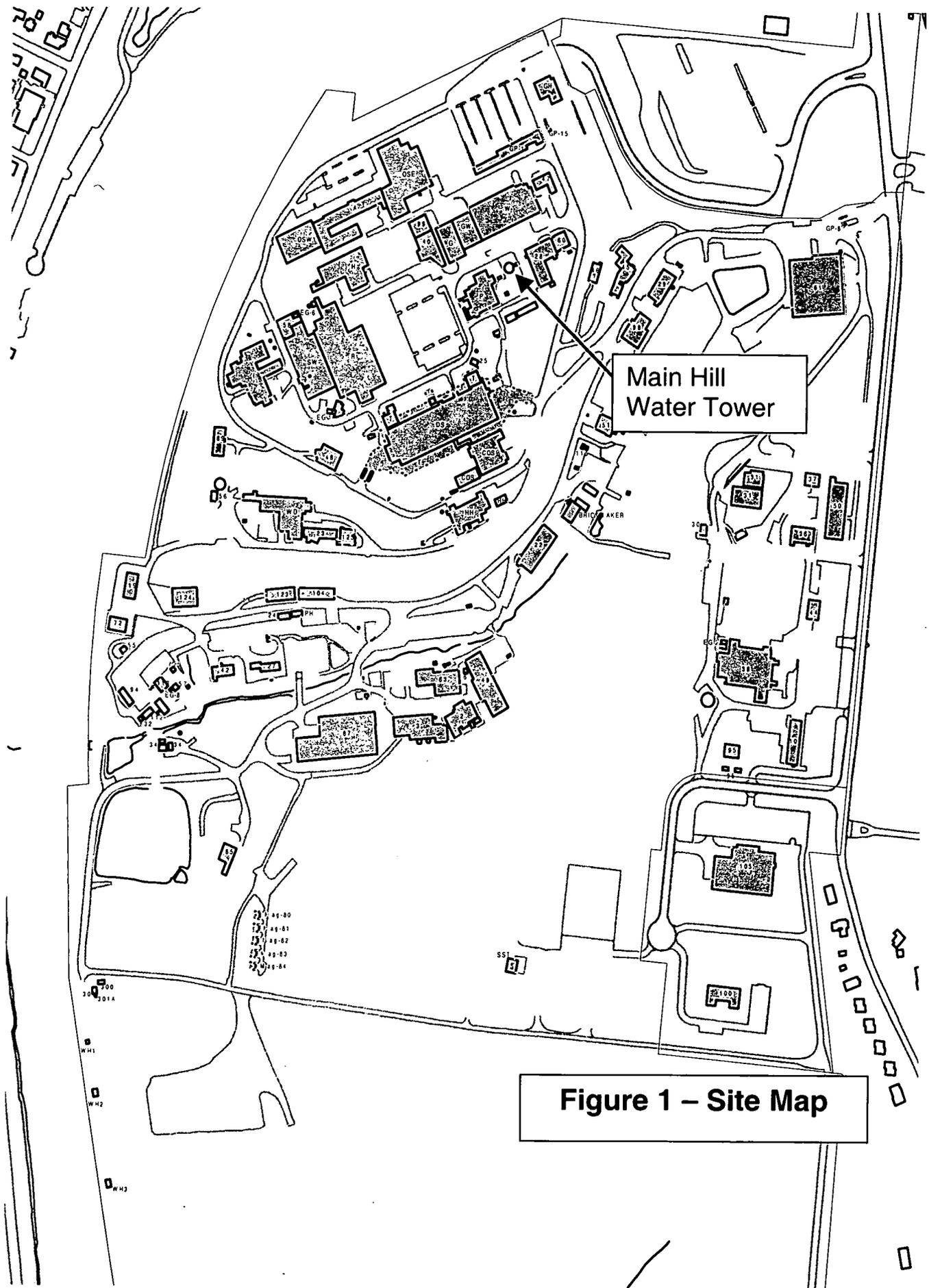
ASTM	American Society for Testing and Materials
BDP	Building Data Package
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
cm ²	centimeters squared
CWA	Clean Water Act
DOE	United States Department of Energy
DPM	disintegrations per minute
EPA	United States Environmental Protection Agency
ER	Environmental Restoration (Program)
FFA	Federal Facility Agreement
HAZMAT	hazardous materials
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCP	Miamisburg Closure Project
N/A	not applicable
NPDES	National Pollutant Discharge Elimination System
OEPA	Ohio Environmental Protection Agency
OU	Operable Unit
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
PRS	Potential Release Site
RI/FS	Remedial Investigation/Feasibility Study
RAPCA	Regional Air Pollution Control Agency
RCRA	Resource Conservation and Recovery Act
RSDS	Radiological Survey Data Sheet
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Appendix B

Map of Montgomery County

Appendix C

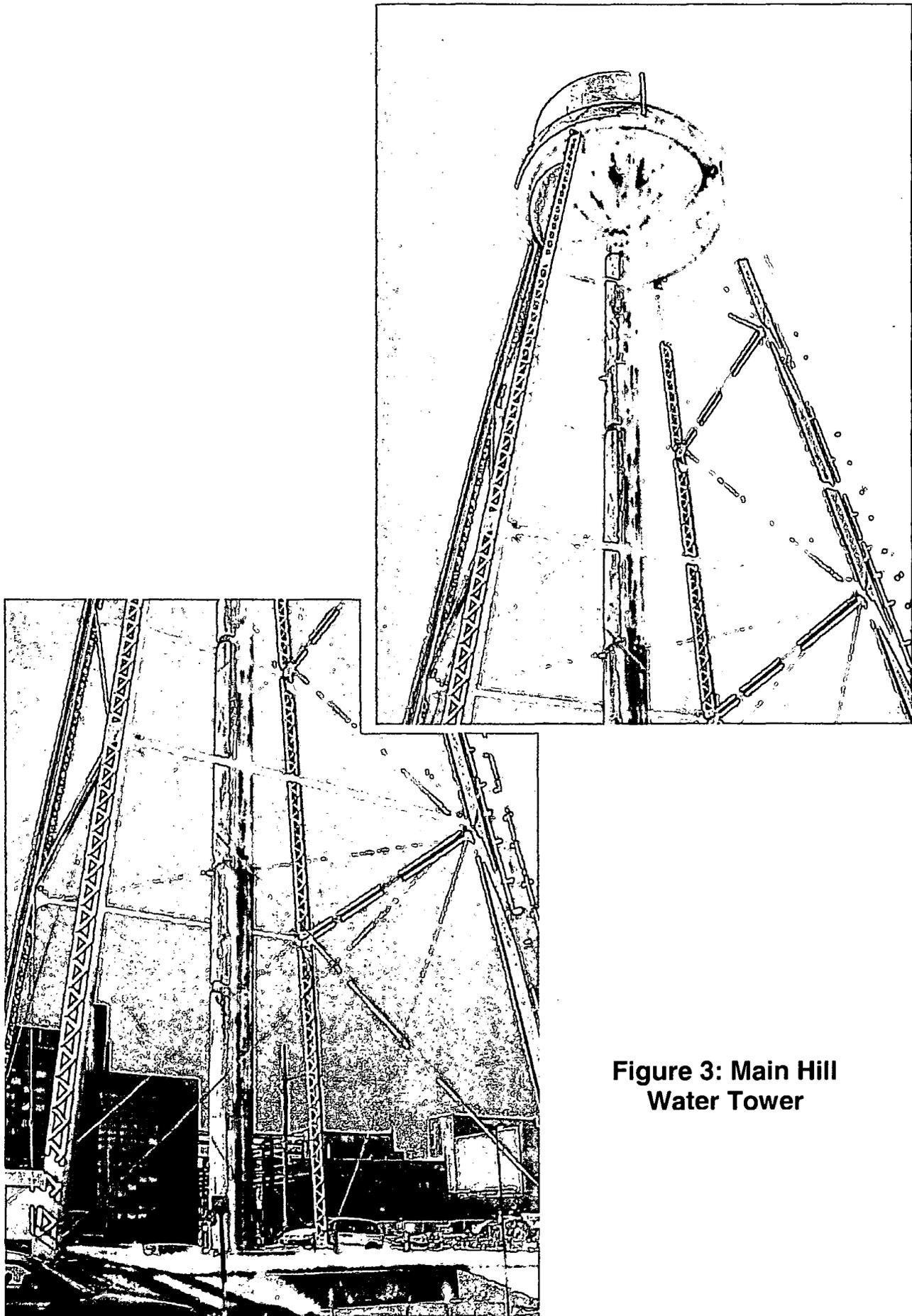
Figures



Main Hill
Water Tower

Figure 1 – Site Map

C 1063

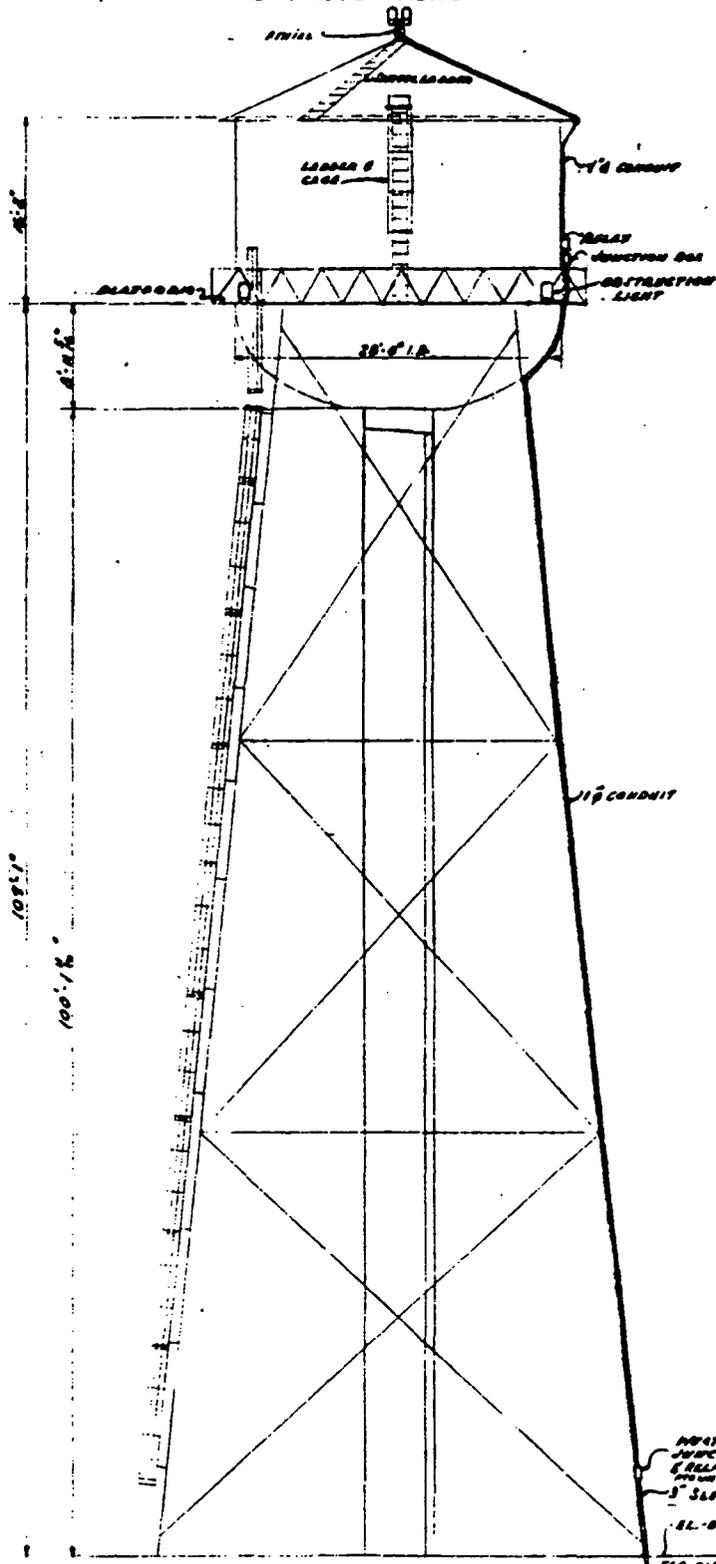
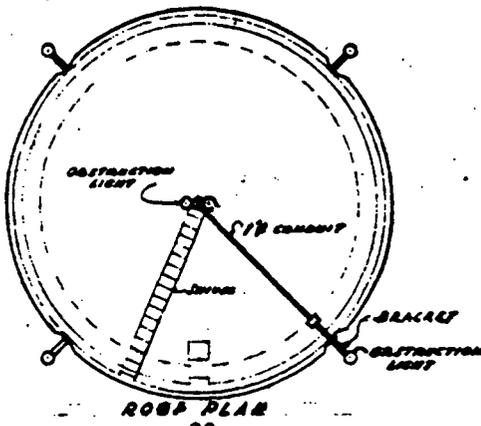


**Figure 3: Main Hill
Water Tower**

C3063

Appendix D

Structure Drawing



D1061

EL. 876-0 ABOVE

FOR DIRECT SERIAL REC'DR CABLE SEE DRAWING 42-3, CL. 1

Appendix E

Aerial Photographs

1959

Main Hill
Water Tower

E1082

1996

Latest aerial of Main Hill Water Tower

E2062

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

This appendix is intentionally blank.
The water tower was not included in the Environmental Appraisal;
accordingly, no report excerpt is available.

Appendix G

Radiological Information

This appendix is intentionally blank.
See Section 2.4 for radiological information.

Appendix H

Radon Information

This appendix is intentionally blank.
Radon level is not applicable for open air demolitions.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 3/15/04 4:36PM
Subject: Main Hill Water Tower

Val -

Lead-Based Paint:

No previous lead surveys or sampling data could be found for the Main Hill Water Tower. On March 15, 2004, Mr. Chris Ahlquist (an Industrial Hygienist with CH2M Hill Mound) collected real-time readings of the lead content of the paint coating several portions of the water tower's structural steel using a Niton Model XL-309 XRF Lead Analyzer; all areas tested were found to contain lead. Since the structure is scheduled for imminent demolition, areas which are going to be torch cut will be stripped of paint prior to the cutting process in order to alleviate the potential for airborne lead exposure.

Any disturbance of the affected paint coatings by close worker contact (i.e. sanding, grinding, scraping, etc.), will necessitate the use of the appropriate Personal Protective Equipment (PPE) and engineering controls as required under the OSHA Construction Standard for Lead (29 CFR 1926.62).

These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

In addition, Waste Management performed worst-case scenario calculations to determine that structure demolition debris containing lead-based paint meets the waste acceptance criteria at the landfill.

Asbestos

On January 20, 2004, Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a survey of all exposed areas of the Mound Site Main Hill Water Tower in order to identify all asbestos-containing materials prior to demolition of the structure. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. A paper wrap on the exterior of the pipe riser inside the central column was identified as suspect for containing asbestos. This material was sampled and analyzed for asbestos content and found *not* to contain asbestos. No other materials suspect for asbestos were identified.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Hanson, W. Doug; Hose, Russell; Ransbottom, Robert

I 1061

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val
Date: 3/15/04 4:36PM
Subject: Main Hill Water Tower

Val -

Lead-Based Paint:

No previous lead surveys or sampling data could be found for the Main Hill Water Tower. On March 15, 2004, Mr. Chris Ahlquist (an Industrial Hygienist with CH2M Hill Mound) collected real-time readings of the lead content of the paint coating several portions of the water tower's structural steel using a Niton Model XL-309 XRF Lead Analyzer; all areas tested were found to contain lead. Since the structure is scheduled for imminent demolition, areas which are going to be torch cut will be stripped of paint prior to the cutting process in order to alleviate the potential for airborne lead exposure.

Any disturbance of the affected paint coatings by close worker contact (i.e. sanding, grinding, scraping, etc.), will necessitate the use of the appropriate Personal Protective Equipment (PPE) and engineering controls as required under the OSHA Construction Standard for Lead (29 CFR 1926.62).

These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor.

In addition, Waste Management performed worst-case scenario calculations to determine that structure demolition debris containing lead-based paint meets the waste acceptance criteria at the landfill.

Asbestos

On January 20, 2004, Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a survey of all exposed areas of the Mound Site Main Hill Water Tower in order to identify all asbestos-containing materials prior to demolition of the structure. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. A paper wrap on the exterior of the pipe riser inside the central column was identified as suspect for containing asbestos. This material was sampled and analyzed for asbestos content and found *not* to contain asbestos. No other materials suspect for asbestos were identified.

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Hanson, W. Doug; Hose, Russell; Ransbottom, Robert

J log 1

Appendix K

Chemical Information

This appendix is intentionally blank.

Appendix L

Soil Sampling, Vicinity

Main Hill Water Tower Detects

Locatio	Sample	Collection	Value_name	Measured	Value	Detection	Chem	Start_dept	End_depth	CAS_numbe	Lab	Data	Project_code	Comments
H002	H002	20001031	Cesium-137	0.030000	PCI/G	0.010000	RAD	0.000000	3.000000	10045-97-3			FIREREPAIR	0
H002	H002	20001031	Lead-210	0.310000	PCI/G	0.270000	RAD	0.000000	3.000000	14255-04-0			FIREREPAIR	0
S0108	3061	19831001	Plutonium-238	0.360000	PCI/G	0.010000	RAD	0.000000	0.000000	13981-16-3			RSS	2
H002	H002	20001031	Radium-226	1.000000	PCI/G	0.330000	RAD	0.000000	3.000000	13982-63-3			FIREREPAIR	11
H002	H002	20001031	Thorium-232	0.330000	PCI/G	0.040000	RAD	0.000000	3.000000	7440-29-1			FIREREPAIR	1

Comments Duplicate entries in the Comment column indicate values for RAD daughters and long lived decay.

(Blank) No criteria checked

0 Value is less than criteria checked in file "Final RBGVs Constr Worker-Site Employee_Rev5.xls"

1 Value is greater than 10-6 Risk-Based Guideline Value

2 Value is greater than the OU9 Soil Backgroun Value

3 Value is greater than the Screening Value (10-6 RBGV + background or as agreed)

4 Value is greater than the Cleanup Objective (10-5 RBGV + background or as agreed)

5 Value is greater than the MCL

6 Value is greater than the Guide Value based on the Hazard Index = 1

7 Value is greater than the Hot Spot Criteria (3x10-5 + background or as agreed)

8 Value is greater than the Guide Value based on the Hazard Index = 1 + background

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.

Comparison values for results with comments are provided on the "Comparisons for Soil Analytical Restuls" table at the end of this appendix.

L 2 of 10

Main Hill Water Tower Non-Detects

Locatio	Sampl	Collection_d	Value_name	Measured_v	Value_u	Detection_li	Chem_	Start_dept	End_depth	CAS_num	Lab	Data	Project_code
H002	H002	20001031	Actinium-227	0.130000	PCI/G	0.130000	RAD	0.000000	3.000000	14952-40-0	U		FIRERREPAIR
H002	H002	20001031	Americium-241	0.030000	PCI/G	0.030000	RAD	0.000000	3.000000	14596-10-2	U		FIRERREPAIR
H002	H002	20001031	Cobalt-60	0.010000	PCI/G	0.010000	RAD	0.000000	3.000000	10198-40-0	U		FIRERREPAIR
H002	H002	20001031	Plutonium-238	10.020000	PCI/G	10.020000	RAD	0.000000	3.000000	13981-16-3	U		FIRERREPAIR
H002	H002	20001031	Thorium-230	2.710000	PCI/G	2.710000	RAD	0.000000	3.000000	14269-63-7	U		FIRERREPAIR
S0108	3061	19831001	Thorium-232	2.000000	PCI/G	2.000000	RAD	0.000000	0.000000	7440-29-1	U		RSS

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.

019837

LABORATORY DATA QUALIFIERS (LABQUAL)

The following qualifiers will be applied to the organic analysis results by the laboratory in accordance with CLP SOW direction:

ORGANICS

U	Indicates compound was analyzed for but not detected. The associated sample quantitation limit will be the CRQL, corrected for dilution and for percent moisture.
J	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) assuming a 1:1 response, 2) when the qualitative data indicated the presence of a compound that meets the volatile, semivolatile, and pesticide/Aroclor identification criteria, and the result is less than the CRQL but greater than zero.
N	Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds, where identification is based on a mass spectral library search.
P	Used for pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns.
C	Applies to pesticide results where the identification has been confirmed by GC/MS.
B	Used when the analyte is found in the associated blank as well as in the sample. This flag must be used for a TIC as well as for a positively identified target compound.
E	Identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	Identifies all compounds identified in an analysis at a secondary dilution factor.
A	Indicates that a TIC is a suspected aldol-condensation product.

INORGANICS

B	Indicates that the reported value was obtained from a reading that was less than the CRDL but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates that the analyte was analyzed for but not detected.
E	Indicates the reported value is estimated because of the presence of interferences.
M	Duplicate injection precision was not met.
N	Spiked sample recovery not within control limits.
S	Reported value was determined by the Method of Standard Additions (MSA).
W	Post-digestion spike for Furnace AA analysis is out of control limits, while sample absorbency is less than 50% of spike absorbency.
*	Duplicate analysis not within control limits.
+	Correlation coefficient for the MSA is less than 0.995.

L4 of 10

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

U	The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.
J	The associated numerical value is an estimated quantity.
R	The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.
N	Presumptive evidence of the presence of the material.
NJ	Presumptive evidence of the presence of the material at an estimated quantity.
UJ	The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

SUB-QUALIFIER CODES

ORGANICS

D	Duplicates
B	Qualified due to blank
C	Qualified due to calibration
H	Holding time exceeded
K	Qualified due to surrogate recovery
L	Qualified due to Laboratory Control Sample
S	Qualified due to matrix spike recovery
I	Qualified due to internal standard
N	Tentative identification (only for TICs)
P	Pesticide/PCB results have >25 percent difference on two different columns
+	Positive bias (added after subqualifier)
-	Negative bias (added after subqualifier)

INORGANICS

D	Duplicates
B	Qualified due to blank
C	Qualified due to calibration
H	Holding time exceeded
L	Qualified due to Laboratory Control Sample
S	Qualified due to matrix spike recovery
I	Qualified due to interference
+	Positive bias (added after subqualifier)
-	Negative bias (added after subqualifier)
Examples of final qualification might be J-C, UJ-S(+), UJ-BC(-), etc.	

The subqualifiers have been included to clarify any reports you may use. The subqualifiers have been captured when it was included in the electronic data submitted by the contractor. Most of the data in MEIMS does not include them.

The above data was extracted from the OU9 Site Wide Quality Assurance Project Plan, pages 9-16 and Appendix H page 3-1. It was updated from the Methods Compendium.

LS of 10

Comparisons for Soil Analytical Results

Screening Level (RBGV 10-6 + background, or as agreed)

7440-38-2	Arsenic	1.06E+01	MG/KG
7440-41-7	Beryllium	2.25E+03	MG/KG
7440-43-9	Cadmium	3.00E+03	MG/KG
18540-29-9	Chromium VI	4.50E+02	MG/KG
7440-02-0	Nickel	1.13E+04	MG/KG
55684-94-1	1,2,3,6,7,8-HxCDF	1.99E-04	MG/KG
19408-74-3	1,2,3,7,8,9-HxCDD	4.81E-04	MG/KG
57117-41-6	1,2,3,7,8-PeCDF	3.97E-05	MG/KG
57117-31-4	2,3,4,7,8-PeCDF	3.97E-04	MG/KG
1746-01-6	2,3,7,8-TCDD	1.99E-05	MG/KG
51207-31-9	2,3,7,8-TCDF	1.99E-04	MG/KG
37871-00-4	HpCDD	1.99E-03	MG/KG
38998-75-3	HpCDF	1.99E-03	MG/KG
34465-46-8	HxCDD	1.99E-04	MG/KG
3268-87-9	OCDD	1.99E-02	MG/KG
39001-02-0	OCDF	1.99E-02	MG/KG
36088-22-9	PeCDD	3.97E-05	MG/KG
118-96-7	2,4,6-Trinitrotoluene	9.94E+01	MG/KG
121-82-4	RDX	2.71E+01	MG/KG
72-54-8	4,4'-DDD	1.66E+01	MG/KG
72-55-9	4,4'-DDE	1.31E+01	MG/KG
50-29-3	4,4'-DDT	2.18E+01	MG/KG
309-00-2	Aldrin	1.75E-01	MG/KG
319-84-6	Alpha-BHC	4.73E-01	MG/KG
12674-11-2	Aroclor-1016	1.49E+00	MG/KG
11104-28-2	Aroclor-1221	1.49E+00	MG/KG
11141-16-5	Aroclor-1232	1.49E+00	MG/KG
53469-21-9	Aroclor-1242	1.49E+00	MG/KG
12672-29-6	Aroclor-1248	1.49E+00	MG/KG
11097-69-1	Aroclor-1254	5.95E+01	MG/KG
11096-82-5	Aroclor-1260	1.49E+00	MG/KG
319-85-7	Beta-BHC	1.66E+00	MG/KG
60-57-1	Dieldrin	1.86E-01	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.29E+00	MG/KG
76-44-8	Heptachlor	6.62E-01	MG/KG
1024-57-3	Heptachlor Epoxide	3.28E-01	MG/KG
1336-36-3	Polychlorinated Biphenyls (PCBs)	1.49E+00	MG/KG
8001-35-2	Toxaphene	2.71E+00	MG/KG
122-66-7	1,2-Diphenylhydrazine	3.73E+00	MG/KG
106-46-7	1,4-Dichlorobenzene	1.24E+02	MG/KG
108-60-1	2,2'-oxybis(1-chloropropane)	4.26E+01	MG/KG
88-06-2	2,4,6-Trichlorophenol	2.71E+02	MG/KG
121-14-2	2,4-Dinitrotoluene	4.38E+00	MG/KG
606-20-2	2,6-Dinitrotoluene	4.38E+00	MG/KG
91-94-1	3,3'-Dichlorobenzidine	6.62E+00	MG/KG
99-09-2	3-Nitroaniline	7.84E+01	MG/KG
100-01-6	4-Nitroaniline	7.84E+01	MG/KG
92-87-5	Benzidine	1.30E-02	MG/KG

56-55-3	Benzo(a)anthracene	4.08E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.08E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.08E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.08E+01	MG/KG
111-44-4	Bis(2-chloroethyl)ether	2.71E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.13E+02	MG/KG
86-74-8	Carbazole	1.49E+02	MG/KG
218-01-9	Chrysene	4.08E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-01	MG/KG
118-74-1	Hexachlorobenzene	1.86E+00	MG/KG
87-68-3	Hexachlorobutadiene	3.82E+01	MG/KG
67-72-1	Hexachloroethane	2.13E+02	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E+00	MG/KG
78-59-1	Isophorone	3.14E+03	MG/KG
621-64-7	N-Nitroso-di-n-propylamine	4.26E-01	MG/KG
62-75-9	N-Nitrosodimethylamine	5.84E-02	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.08E+02	MG/KG
87-86-5	Pentachlorophenol	2.48E+01	MG/KG
630-20-6	1,1,1,2-Tetrachloroethane	6.95E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.88E-01	MG/KG
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
75-35-4	1,1-Dichloroethene	1.21E-01	MG/KG
96-18-4	1,2,3-Trichloropropane	4.26E-01	MG/KG
96-12-8	1,2-Dibromo-3-Chloropropane	2.12E+00	MG/KG
107-06-2	1,2-Dichloroethane	7.61E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
107-13-1	Acrylonitrile	5.15E-01	MG/KG
71-43-2	Benzene	1.45E+00	MG/KG
100-44-7	Benzyl Chloride	1.75E+01	MG/KG
75-27-4	Bromodichloromethane	4.81E+01	MG/KG
75-25-2	Bromoform	3.77E+02	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform (Trichloromethane)	5.15E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane (Methylene Chloride)	2.03E+01	MG/KG
106-93-4	Ethylene Dibromide (1,2-Dibromoethane)	3.37E-02	MG/KG
127-18-4	Tetrachloroethene	1.87E+01	MG/KG
79-01-6	Trichloroethene	5.09E+00	MG/KG
75-01-4	Vinyl Chloride	4.14E-01	MG/KG
14952-40-0	Actinium-227	4.48E+00	PCI/G
14952-40-0	Actinium-227+D	5.63E-01	PCI/G
14952-40-0	Actinium-227 long lived decay	5.63E-01	PCI/G
14331-83-0	Actinium-228	1.93E-01	PCI/G
14596-10-2	Americium-241	6.31E+00	PCI/G
14683-10-4	Antimony-124	9.84E-02	PCI/G
14234-35-6	Antimony-125	4.83E-01	PCI/G
14234-35-6	Antimony-125+D	4.83E-01	PCI/G
13981-41-4	Barium-133	6.07E-01	PCI/G
13981-41-4	Barium-133m	4.41E+00	PCI/G
14798-08-4	Barium-140	1.13E+00	PCI/G
13966-02-4	Beryllium-7	4.11E+00	PCI/G

13982-38-2	Bismuth-207	1.75E-01	PCI/G
14331-79-4	Bismuth-210	5.51E+01	PCI/G
14331-79-4	Bismuth-210m	1.00E+00	PCI/G
15229-37-5	Bismuth-211	4.66E+00	PCI/G
14913-49-6	Bismuth-212	9.87E-01	PCI/G
14733-03-0	Bismuth-214	1.17E-01	PCI/G
13967-74-3	Cerium-141	3.80E+00	PCI/G
14762-78-8	Cerium-144	8.87E+00	PCI/G
14762-78-8	Cerium-144+D	3.21E+00	PCI/G
13967-70-9	Cesium-134	1.23E-01	PCI/G
13967-70-9	Cesium-134m	1.74E+01	PCI/G
10045-97-3	Cesium-137	3.81E+01	PCI/G
10045-97-3	Cesium-137 +D	7.62E-01	PCI/G
10045-97-3	Cesium-137 long lived decay	7.62E-01	PCI/G
14392-02-0	Chromium-51	6.89E+00	PCI/G
13981-50-5	Cobalt-57	2.46E+00	PCI/G
13981-38-9	Cobalt-58	1.95E-01	PCI/G
13981-38-9	Cobalt-58m	4.78E+03	PCI/G
10198-40-0	Cobalt-60	7.06E-02	PCI/G
10198-40-0	Cobalt-60m	4.71E+01	PCI/G
13981-15-2	Curium-244	9.20E+00	PCI/G
14683-23-9	Europium-152	1.65E-01	PCI/G
14683-23-9	Europium-152m	6.57E-01	PCI/G
15585-10-1	Europium-154	1.50E-01	PCI/G
14391-16-3	Europium-155	6.98E+00	PCI/G
14596-12-4	Iron-59	1.50E-01	PCI/G
13981-28-7	Lanthanum-140	7.61E-02	PCI/G
14255-04-0	Lead-210	2.10E+00	PCI/G
14255-04-0	Lead-210+D	1.80E+00	PCI/G
14255-04-0	Lead-210 long lived decay	1.82E+00	PCI/G
15092-94-1	Lead-212	1.66E+00	PCI/G
15067-28-4	Lead-214	8.92E-01	PCI/G
13966-31-9	Manganese-54	2.25E-01	PCI/G
13982-78-0	Mercury-203	9.47E-01	PCI/G
13994-20-2	Neptunium-237	7.01E+00	PCI/G
13994-20-2	Neptunium-237+D	1.04E+00	PCI/G
13967-76-5	Niobium-95	2.48E-01	PCI/G
13967-76-5	Niobium-95m	3.73E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
PU-238/239	Plutonium-238/239	6.21E+00	PCI/G
15117-48-3	Plutonium-239	6.21E+00	PCI/G
PU-239/240	Plutonium-239/240	6.21E+00	PCI/G
14119-32-5	Plutonium-241	5.06E+02	PCI/G
13982-10-0	Plutonium-242	6.33E+00	PCI/G
13981-52-7	Polonium-210	2.09E+00	PCI/G
13966-00-2	Potassium-40	3.81E+01	PCI/G
14331-85-2	Protactinium-231	2.83E+00	PCI/G
14331-85-2	Protactinium-231+D	4.00E+00	PCI/G
14331-85-2	Protactinium-231 long lived decay	1.28E+00	PCI/G
13981-14-1	Protactinium-233	1.01E-01	PCI/G
15100-28-4	Protactinium-234	1.27E+01	PCI/G
15100-28-4	Protactinium-234m	1.20E+00	PCI/G

15623-45-7	Radium-223	3.24E+00	PCI/G
13233-32-4	Radium-224	5.91E+00	PCI/G
13981-53-8	Radium-225	2.17E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
13982-63-3	Radium-226+D	2.09E+00	PCI/G
13982-63-3	Radium-226 long lived decay	2.73E+00	PCI/G
15262-20-1	Radium-228	1.47E+00	PCI/G
15262-20-1	Radium-228+D	1.47E+00	PCI/G
15262-20-1	Radium-228 long lived decay	1.83E+00	PCI/G
13968-53-1	Ruthenium-103	1.40E+01	PCI/G
13967-48-1	Ruthenium-106	8.77E-01	PCI/G
13967-48-1	Ruthenium-106+D	9.09E-02	PCI/G
13967-63-0	Scandium-46	1.22E-01	PCI/G
14391-65-2	Silver-108m	1.14E+02	PCI/G
14378-38-2	Silver-109m	8.50E-02	PCI/G
13966-32-0	Sodium-22	3.98E-01	PCI/G
13967-73-2	Strontium-85	1.07E+00	PCI/G
13967-73-2	Strontium-85m	3.55E+01	PCI/G
14158-27-1	Strontium-89	1.80E+01	PCI/G
10098-97-2	Strontium-90	1.01E+01	PCI/G
10098-97-2	Strontium-90+D	7.70E-01	PCI/G
14133-76-7	Technetium-99	2.14E+02	PCI/G
14913-50-9	Thallium-208	4.98E-02	PCI/G
15623-47-9	Thorium-227	2.09E+00	PCI/G
14274-82-9	Thorium-228	7.08E+00	PCI/G
14274-82-9	Thorium-228+D	1.61E+00	PCI/G
14274-82-9	Thorium-228 long lived decay	1.61E+00	PCI/G
15594-54-4	Thorium-229	1.89E+00	PCI/G
15594-54-4	Thorium-229+D	5.06E-01	PCI/G
15594-54-4	Thorium-229 long lived decay	5.06E-01	PCI/G
14269-63-7	Thorium-230	1.01E+01	PCI/G
14269-63-7	Thorium-230+D	2.00E+00	PCI/G
14269-63-7	Thorium-230 long lived decay	1.99E+00	PCI/G
7440-29-1	Thorium-232	8.60E+00	PCI/G
7440-29-1	Thorium-232+D	1.47E+00	PCI/G
15065-10-8	Thorium-234	1.76E+01	PCI/G
13966-06-8	Tin-113	3.56E+01	PCI/G
15832-50-5	Tin-126	6.91E+00	PCI/G
10028-17-8	Tritium	7.58E+03	PCI/G
14158-29-3	Uranium-232	2.90E+00	PCI/G
13968-55-3	Uranium-233	1.03E+01	PCI/G
13968-55-3	Uranium-233+D	4.80E-01	PCI/G
13968-55-3	Uranium-233 long lived decay	4.82E-01	PCI/G
U-233/234	Uranium-233/234	4.82E-01	PCI/G
13966-29-5	Uranium-234	1.16E+01	PCI/G
13966-29-5	Uranium-234+D	1.20E+00	PCI/G
15117-96-1	Uranium-235	1.67E+00	PCI/G
15117-96-1	Uranium-235+D	1.60E+00	PCI/G
15117-96-1	Uranium-235 long lived decay	4.20E-01	PCI/G
U-235/236	Uranium-235/236	3.10E-01	PCI/G
7440-61-1	Uranium-238	1.28E+01	PCI/G
7440-61-1	Uranium-238+D	5.31E+00	PCI/G

7440-61-1	Uranium-238 long lived decay	1.29E+00	PCI/G
13982-39-3	Zinc-65	3.11E-01	PCI/G
13967-71-0	Zirconium-95	2.57E-01	PCI/G

Appendix M

Occurrence Reports

This appendix is intentionally blank.
There were no occurrence reports related to the water tower.

Appendix N

PRS Information

MOUND PLANT
PRS 113/114/115/116/117
FORMER TANK SITE - POWERHOUSE FUEL OIL STORAGE
TANKS AND SOIL CONTAMINATION

RECOMMENDATION:

Potential Release Sites (PRSs) 113, 114, 115, 116, and 117 were identified to address fuel oil and toluene contamination in the soil located on the east side of the powerhouse.

PRSs 114-117 are the four underground fuel oil tanks that were removed. Removal of the tanks and contaminated soils was initiated in 1995 and completed in 1996. The treatment of the soils is ongoing in accordance with the Action Memorandum for the Fuel Oil Storage Removal Action (FOSRA). The On-Scene Coordinator (OSC) Report for the FOSRA will document residual levels and the requirements for this removal per the Ohio Bureau of Underground Tank Regulations (BUSTR).

PRS 113 refers to a single toluene soil gas detection prior to the removal activities. Toluene was identified at a concentration of 447 parts per billion (ppb), which is below the 414,800 ppb calculated acceptable soil gas concentration.

Therefore, since these PRSs are part of an active removal action, NO FURTHER ASSESSMENT is recommended.

CONCURRENCE:

DOE/MB:

Arthur W. Kleinrath 3/19/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:

Timothy J. Fischer 3/18/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:

Brian K. Nickel 3/18/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 5/8/97 to 6/16/97

No comments were received during the comment period.

Comment responses can be found on page 1, 2 of this package.

**MOUND PLANT
PRS 126/127
SOLVENT STORAGE SITE - OUTSIDE AREA NEXT TO
BUILDING 28**

RECOMMENDATION:

Potential Release Sites (PRSs) 126 and 127 refer to the temporary storage locations for waste solvents generated by the Building 28/60 operations. The solvents were used in cleaning operations during the manufacture of weapon components. There are no historical records of any spill or leak of solvents from either of the waste solvent storage areas.

Volatile organic compounds (VOCs) were detected in the surrounding soil gas samples collected in 1993. All the VOC concentrations were below the calculated acceptable soil gas criteria. Samples analyzed for plutonium and thorium were below their respective radiological guideline criteria, 25 pCi/g for plutonium-238 (Mound ALARA) and 15 pCi/g for subsurface thorium (40 CFR 192.41). Therefore, PRSs 126/127 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB:

Arthur W. Kleinrath 10/3/96
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA:

Timothy J. Fischer 10/3/96
Timothy J. Fischer, Remedial Project Manager (date)

OEPA:

Brian K. Nickel 10/3/96
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 10/15/96 to 11/15/96

- No comments were received during the comment period.
- Comment responses can be found on page _____ of this package.

Appendix O

Work Plan

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: Water Tower Demolition

2. WORK PACKAGE NUMBER. BOSS-39197-02

[Note: Mark this section in color]

Office Master Copy
 Field Working Copy
 Review Copy
 Other Copy
 (Original Approval Signatures)
 (Original Field Sign -Offs)

Revision Description: (attach page revisions to form)

1. Add caution that no personnel be within 200 ft. to the SE or SW of the tower during the pull due to potential backlash.
2. Add caution to use cages around glass of cab of excavators or use Volvo hauler instead of excavator to pull on tower.
3. Added caution to steam line disconnect to check for backflow from Building 28 prior to disconnect.
4. Added OSHA letter from Bill Johanan to Appendix D

Reviewed by:	Name	Signature	Date
Project Engineering:	R.C. Anderson	R.C. Anderson	4/14/04
Project Superintendent/Foreman:	M.M. Stromberg	M.M. Stromberg	4/14/04
Radiological Operations:	N/A		
Industrial Safety & Hygiene:			4-14-04
Waste Management:	N/A		
Environmental Safeguards & Compliance:	N/A		
Building Manager:	Gary Weidenbach	G.S. Weidenbach	4.14.04
Other:			

Approved by:

CH2M Hill Project Manager

4/14/04

Kurt Keller

[Signature]

Name

Signature

Date

~~0106110~~
0108101

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

Office Master Copy Field Working Copy Review Copy Other Copy
(Original Approval Signatures) (Original Field Sign -Offs) [Note: Mark this section in color]

Note: The Project Engineer is responsible for completing Sections 1 through 10.

1. WORK PACKAGE TITLE: Main Hill Water Tower Demolition

2. WORK PACKAGE NUMBER. BOSS-39197-02

3. WORK PACKAGE SCOPE:

Prepare the Main Hill Water Tower for demo after it has been drained and disconnected by the Utilities Group. Preparation includes partially torch cutting and shimming structural members to allow the tower to be dropped. After the tower has been prepared, it will be pulled over using cables attached to heavy duty equipment, then cut-up and disposed. Remove piers to 3 feet below grade. Collection of soil samples and site restoration will be conducted under a separate work plan after a sampling plan has been approved through the Core Team.

4. WORK LOCATION:

Building #: _Main Hill Water Tower

Room #:

Other:

5. WORK PACKAGE PHASES:

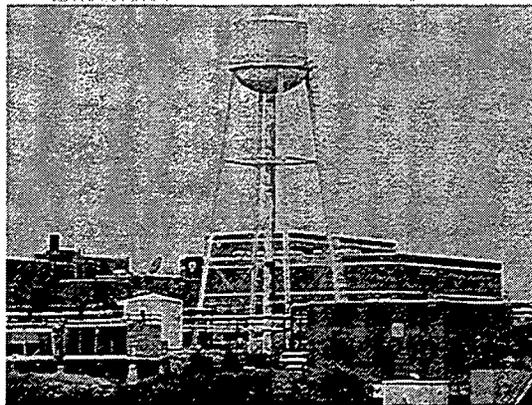
1. Prepare water tower for demolition
2. Pull water tower over
3. Cut-up water tower and dispose
4. Remove in-ground structures
5. Soil Sampling
6. Site Restoration

Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

- | | |
|--------------------------------------------------------------------------------------------------------|-------------------------------------|
| 1. 400 ft. - 3/4" dia. IWRC wire rope | 2. shims for tower demo preparation |
| 3. 2- 1- 1/2" dia. Shackles | |
| 4. Tracked excavators with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment. | |
| 5. Rubber tired and tracked front-end loaders. | 6. Fog Cannon |
| 7. Transport equipment for debris as required. | 8. Aerial lift/manlift |

Note: Insert any materials that require long lead procurement or special order. Don't list common items such as PPE.



7.14 Temporary Utilities

The only temporary utility that may be required is water. If domestic water is utilized, ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions. Coordinate with Utilities Group/Utilities Package for services needed.

7.15 Misting Requirements

Position hoses to wet the expected impact zone of the water tower.

7.16 Temporary Facilities

This project will use the existing BOSS project trailer complex located in the existing Mound "C" parking lot.

7.17 Temporary Communications

Temporary communications are required (cell phone, radios) as equipment for hearing plant announcements and emergency notifications will have been removed during safe shutdown activities. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

8.0 Preliminary Activities and Verifications

8.1 Contact Jerry Patton at 865-4003 to coordinate demolition activities with business in Building 28 and with traffic constraints.

8.2 The paint on the water tower was tested by Industrial Hygiene and was determined to be lead-containing. Therefore, strip lead-based paint using solvents or mechanical means to at least 6 inches on each side of where cuts are to be made. Follow directions of Industrial Hygiene for PPE. Follow MSDS sheet recommendations if using a solvent. Use workers with Lead Awareness Training and use proper PPE including gloves, face shield, and work clothes for protection from caustic chemicals.

NOTE: If at any time during preparation and demolition of the Water Tower, paint chips are discovered on the ground, they are to be collected by a Lead Awareness trained person and disposed of according to Waste Management directions.

8.3 Verify that domestic water and fire lines under tank. Have been disconnected or LOTO and post indicators and fire hydrants have been removed under Utility Work Package FTS-39192

verified by _____ date: _____
Allen Upshaw or designee/email

8.4 Using heavy duty equipment, remove two abandoned wooden poles to the north of the Main Hill Water Tower. (See photos in Appendix C)

8.5 LOTO and/or disconnect utilities on stanchion line to south of Water Tower.

8.5.1 LOTO and disconnect aerial feed to SST box located on stanchion line to the southeast of the Water Tower

8.5.2 LOTO and disconnect DDC line which feeds from Power House to Building 28. Contact Steve Ford for information phone # 865-3155 or cell# 673-2900

8.5.3 LOTO and disconnect old security data line (ADT). Contact J.D. Hill for information phone # 865-5103 or cell # 608-8213

8.5.4 LOTO and disconnect MOLAN lines on stanchion line. Contact Gary Young for information phone # 865-4547 or cell # 673-7140

8.5.5 Contact Al Hodapp in Building 28 to arrange for shutdown of air compressor. LOTO air compressor, then sever and cap air line that goes from Building 28 onto the stanchion line. Contact Al Hodapp in Building 28 to restart air compressor. Check for leaks.

8.5.6 Confirm that Argon line is currently disconnected. If not LOTO the line. Cut and cap the line at Building 28 and at the site of the former Argon tank near Building 25. **Note:** This line will be reconnected by the Utilities group to the new Nitrogen tank being installed in place of the Argon tank. Contact Allen Upshaw for details phone # 865-4894 or cell # 673-2874.

8.5.7 Confirm steam and condensate lines and brine supply and return lines have been previously disconnected. **Note:** the steam and condensate lines appear to be disconnected at the east side of the Power House. The brine supply and return appear to be disconnected at the south side of the Power House. **CAUTION HAZARD:** Make certain standalone heat supply in Building 28 doesn't backfeed into steam line.

8.5.8 Confirm with Bill Tonne, Facility Manager for T Building, that the fuel lines can be loto and drained. **Note:** these feed among other things EG-3 which supplies back-up power to T Building. If Bill Tonne gives his approval, coordinate with Power House personnel to LOTO and drain fuel lines in stanchion.

CAUTION HAZARD: Struck by moving equipment.

- Maintain the following distances from operating equipment:
- Shear – 75 feet
- Hoe Ram – 50 feet
- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

WARNING NOISE HAZARD: Wear hearing protection while running heavy-duty equipment and during torch cutting when occupational noise limits may be or are exceeded. Follow the requirements of MD-10286 D9.

CAUTION HAZARD: Heat/Cold Stress. Follow the requirements of MD-10286 D13/D16

CAUTION HAZARD: A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). Obtain and follow Hot Work permit per MD-10286 O2.

- 9.2 Obtain and follow a Hot Work Permit for the required torch cutting
- 9.3 Turn on water hoses and wet down the expected impact zone.
- 9.4 Use a manlift and required tie-offs to access elevated work areas.
- 9.5 Perform steps 2 and 7 of the Engineered Drop Plan by Envirocon to remove a section of the center vertical riser and piping and to remove a section of the cat ladder.

CAUTION HAZARD: If the cut gap on the central riser closes or narrows, stop work and consult with the on site Envirocon Job Supervisor before proceeding.

OLD POINT: Roadway has been blocked and adjacent structures have been evacuated.

Bill Wahler or designee/email: _____

Date and Time: _____

IMPORTANT

- 9.6 Follow in detail and step-by-step the attached Engineered Drop Plan by Envirocon, except for steps 2 and 7 which may be performed prior to the remainder of the plan. Envirocon will have a Job Supervisor on site during torch cutting and demolition of the Water Tower. This supervisor will be the only person allowed to modify the Engineered Drop Plan.

CAUTION HAZARD: During pull, do not allow any personnel to be within 200 feet of the tower on the southeast or southwest due to potential backlash from the cables.

CAUTION HAZARD: When pulling on tower, use cages around glass on the cab of excavators or use Volvo haulers instead of excavators to pull on tower.

- 9.7 **Note:** Cut one coupon from the vertical standpipe and one from the tank after demolition and have analyzed for possible build-up of Radium scale. If contamination is found, debris will be handled per Mound Document MD-80036 Radiological Protection Procedures. If contamination is found on the debris, survey results and a suggested path forward will be presented to the Core Team for concurrence

10.0 Debris Sizing

- 10.1 Heavy duty equipment will be used to cut-apart the tower after it has been dropped. **NOTE:** Work to clear the roadway As Soon As Possible to allow the resumption of normal traffic.
- 10.2 Stage the debris in piles to allow rad surveys by the assigned RCT
- 10.3 When given the go-ahead of the RCT, load the debris into trucks for transport to the Metal Recycler or sanitary landfill as deemed appropriate by the Waste Management PoC.

NOTE: To date: No significant rad contamination has been found on roofs of buildings downwind of the R, SW and T Buildings, therefore it is assumed that the water tower debris will not be contaminated. However: if rad contamination is found on the debris,

**JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)**

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2a. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286, Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.
2b. Draining of fuel oil and glycol	Spillage	Have spill kits available
2c. Removal of Lead Based Paint	Lead Exposure Caustic Chemical Burns	Use workers with Lead Awareness Training and appropriate PPE. Follow chemical MSDS sheet. Wear appropriate PPE including gloves, face shield, and work clothes.
2d. Torch cut rebar or to weaken structural members	Burns, fire Lead-based paint Premature failure Noise Hazard	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -Strip lead-based to at least 6" on either side of areas to be torch cut. Follow IH and MSDS directions for using solvents or mechanical means for stripping. - Follow engineered, stamped drop plan. - Wear hearing protection while torch cutting when occupational noise limits may be or are exceeded..
2e. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected prior to demo by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit, circuits on stanchion line south of water tower, and fuel storage tank south of water tower.
2f. Water tower demolition	Vehicle Traffic Hazard Fugitive dust Premature failure Struck by falling tower Struck by sheared pull cables	-Control traffic with flagmen as necessary -Use water mister to reduce opportunity for fugitive dust. - Follow engineered, stamped dropplan. -Sound warning that tank drop is imminent. - Secure area by removal of all non-essential personnel - No personnel to be within 200 feet of tower to the southeast or southwest due to potential cable backlash. - When pulling on tower, use cages around glass on the cab of excavators or use Volvo haulers instead of excavators to pull on tower.

CG of #101

**W L J ENGINEERING
7435 JAMAICA ROAD
MIAMISBURG, OHIO
45342
(937) 866-9065**

April 14, 2004

Mr. Kurt Kehler
Project Manager
CH2M Hill, Mound
Miamisburg, Ohio

Subject: Structural Review of Demolition Plan for Removal of
Main Hill Water Tower Re: OSHA 1926 CFR 850.1a.

Please be advised that the Demolition Plan by Environcon, Inc.
for the referenced structure removal appears to be structurally acceptable based on our
site inspection and this process for demolition.

Please feel free to call if you have any questions concerning this letter.

Thank you.

Sincerely,


William L. Johanan P.E.

cc. file



07 of 101
#0

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

Office Master Copy (Original Approval Signatures) Field Working Copy (Original Field Sign -Offs) Review Copy [Note: Mark this section in color] Other Copy

Note: The Project Engineer is responsible for completing Sections 1 through 10.

1. WORK PACKAGE TITLE: Main Hill Water Tower Demolition

2. WORK PACKAGE NUMBER. BOSS-39197-01

3. WORK PACKAGE SCOPE:

Prepare the Main Hill Water Tower for demo after it has been drained and disconnected by the Utilities Group. Preparation includes partially torch cutting and shimming structural members to allow the tower to be dropped. After the tower has been prepared, it will be pulled over using cables attached to heavy duty equipment, then cut-up and disposed. Remove piers to 3 feet below grade. Collection of soil samples and site restoration will be conducted under a separate work plan after a sampling plan has been approved through the Core Team.

4. WORK LOCATION:

Building #: _Main Hill Water Tower

Room #:

Other:

5. WORK PACKAGE PHASES:

- 1. Prepare water tower for demolition
- 2. Pull water tower over
- 3. Cut-up water tower and dispose
- 4. Remove in-ground structures
- 5. Soil Sampling
- 6. Site Restoration

Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

- 1. 400 ft. - 3/4" dia. IWRC wire rope
- 2. shims for tower demo preparation
- 3. 2- 1- 1/2" dia. Shackles
- 4. Tracked excavators with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.
- 5. Rubber tired and tracked front-end loaders.
- 6. Fog Cannon
- 7. Transport equipment for debris as required.
- 8. Aerial lift/manlift

Note: Insert any materials that require long lead procurement or special order. Don't list common items such as PPE.



101
08 of 110

NOTE: All field changes to the work package must be documented in the Job Status Log

7.0 DETAILED WORK STEPS:

- 7.1 **Site Information for Main Hill Water Tower**
The Main Hill Water Tower is an elevated steel water tank and tower. With a capacity of 50,000 gallon domestic service and 50,000 gallon fire reserve. The water column is 125 ft. to water line when full. Due to a shortage of steel after the war, this tank was obtained from surplus from the Weldon Springs Ordnance Plant, Weldon Springs, Mo. in 1948. Maxon Construction Company (a subcontractor to Giffell's and Vallet, who was a subcontractor to Monsanto Chemical Company subcontractor) had a contract with "Ohio Erection Company", of the Cincinnati, OH area to dismantle a water tower at Weldon Springs Missouri, and to re-erect the tower at the Mound site.
Around 1990, the top of the tower was replaced due to corrosion.
- 7.2 **National Historic Preservation Act (NHPA)**
The Main Hill Water Tower is not listed as a historic structure with the Ohio Historic Preservation Office (OHOP); therefore, no mitigative documentation package is required.
IMPORTANT: However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at x 3691. If necessary, work will be suspended until which time the items or artifacts have been recovered.
- 7.3 **Hazard Identification**
Elevated work, torch cutting on lead based paint, rigging, and controlled demolition are hazards that will be encountered. All work will be conducted per requirements of MD-10286, the Mound Safety and Industrial Hygiene Manual. The preparation and demo will strictly follow the directions given in the Engineered Tank Drop Plan, by Envirocon, Inc., stamped Feb. 27, 2004.
Silica dust may be encountered during pier removal, so misting will be required.
- 7.4 **Permits**
A Hot Work Permit will be required to perform the required torch cutting.
An Excavation Permit will be required to remove in-ground structures.
A Confined Space Permit is anyone enters the pit below the tower.
- 7.5 **Waste/Staging Areas**
The water tower debris is expected to be free-releasable. After the water tower is dropped, it will be cut-up and staged into debris piles in the area of the former W Building. Debris pile surveys will be performed to verify that the debris may be free-released per Mound Document MD-80036 Radiological Protection Procedures. Debris will be sent to a metal recycler if it is free released, unless the metal recycler cannot accept the lead based paint. In that case, the releaseable metal will be sent to a licensed Construction Debris and Demolition landfill. On the other hand, if the debris is found to not be free releasable, it will be taken to the rail spur and disposed as low level waste.
- 7.6 **Pre-Job Briefing**
A pre-job briefing will be conducted prior to beginning any work. All personnel involved in the task will be present for the briefing. A pre-job briefing sheet will be used to record decisions made during these meetings and retained with the work package. Signatures of all involved will denote concurrence with the plans and conditions set forth in the meeting. Instruction in the work package will be discussed as well as job safety requirements, Radiation Work Permit requirements, plus any past problems and lessons learned.
- 7.7 **Mock-up preparation and Practice Torch Cutting**
Prepare a mock-up of the tower using the materials in Appendix F.
- 7.8 **Lockout/Tagout**
Any remaining energy sources or adjacent overhead lines will be Locked-out/Tagged-out as appropriate prior to the commencement of work.
- 7.9 **NESHAPS**
Although the water tower cannot be adequately characterized prior to demolition due to safety concerns. the

offsite estimated dose equivalent (EDE) for the Main Hill Water Tower should not exceed 0.1 mrem/year. The actual dose will be determined from survey measurements taken after the water tower is on the ground. A conservative EDE was calculated based on historical data for naturally contaminated rusty metal. This dose was less than the 0.1 mrem/year threshold, therefore USEPA approval is not required for this project.

7.10 Utilities

All electrical services and utilities associated with the Main Hill Water Tower will be terminated prior to commencement of demolition.

IMPORTANT

Remove or relocated the light pole to the north of the water tower that is in the drop zone for the tower. (See Power and Light Poles map in the Drawing Section in Appendix C)

7.11 Site Access Control

Access to the work zone boundary will be controlled by fencing and/or barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the work zone.

The roadways adjacent to the water tower will be closed during preparation and dropping of the tower. The debris will extend across the roadway, which runs to the north of the water tower and power house. The roadway will remain closed until the debris is removed. Adjacent buildings 28 and P, will be evacuated during preparation and dropping of the water tower. Note: Notify Jerry Patton of MMCIC with plans for tower demolition.

The work zone may not be entered by anyone not directly involved with the demolition unless they have contacted the Project Construction Manager or Project Foreman in advance.

7.12 Installation Of Fugitive Emissions Control

The goal of fugitive emission controls is no visible dust. The expected source of dust will be from the water tower impacting the ground. Mitigating controls to be employed to meet requirements of OPA 980014 Section 2.11, Mound Fugitive Dust Control Plan include, but are not limited to:

- Use of dust suppression equipment including fog cannons and water misting nozzles operated by trained personnel. The goal of dust suppression equipment/personnel will be to provide adequate amounts of water to control fugitive particulate emissions while not over saturating the area and creating run-off problems.
- Controlled water misting of the building demolition area and common waste zone by misters installed on equipment, portable towers or operated by trained personnel.
- Wetting of the roadways used when hauling the debris.

The intent will be to add enough water to control fugitive emissions without over-saturating the area and creating undesirable run-off. Periodic inspections will be made by the Job Superintendent or designee to assure fugitive emissions controls are achieving the desired effect and meeting acceptable standards. Should it be determined that best available technology (BAT) requires alternate dust suppression methods, other dust control methods will be utilized.

7.13 Sediment/Storm Water Control

In order to prevent excess debris, soils, silt or other deleterious materials from entering surface streams or the storm sewer system, a retention barrier will be erected where appropriate per the requirements of OPA 980099, Storm Water Pollution Prevention Plan, Issue 2, December 2003. This barrier will consist of straw bales or equivalent and industry standard "silt fence". The barrier will be placed around the perimeter fence. Also, cover field grates with covers/sheeting for silt protection of sewer gratings. Coordinate and evaluate effectiveness of controls by periodic inspections throughout demolition activities with Environmental Compliance PoC. If the fence is not functioning properly, take steps to re-enforce or alter the configuration until satisfactory results are achieved.

7.14 Temporary Utilities

The only temporary utility that may be required is water. If domestic water is utilized, ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions. Coordinate with Utilities Group/Utilities Package for services needed.

7.15 Misting Requirements

Position hoses to wet the expected impact zone of the water tower.

7.16 Temporary Facilities

This project will use the existing BOSS project trailer complex located in the existing Mound "C" parking lot.

7.17 Temporary Communications

Temporary communications are required (cell phone, radios) as equipment for hearing plant announcements and emergency notifications will have been removed during safe shutdown activities. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

8.0 Preliminary Activities and Verifications

8.1 Contact Jerry Patton at 865-4003 to coordinate demolition activities with business in Building 28 and with traffic constraints.

8.2 The paint on the water tower was tested by Industrial Hygiene and was determined to be lead-containing. Therefore, strip lead-based paint using solvents or mechanical means to at least 6 inches on each side of where cuts are to be made. Follow directions of Industrial Hygiene for PPE. Follow MSDS sheet recommendations if using a solvent. Use workers with Lead Awareness Training and use proper PPE including gloves, face shield, and work clothes for protection from caustic chemicals.

NOTE: If at any time during preparation and demolition of the Water Tower, paint chips are discovered on the ground, they are to be collected by a Lead Awareness trained person and disposed of according to Waste Management directions.

8.3 Verify that domestic water and fire lines under tank. Have been disconnected or LOTO and post indicators and fire hydrants have been removed under Utility Work Package FTS-39192

verified by _____ date: _____
Allen Upshaw or designee/email

8.4 Using heavy duty equipment, remove two abandoned wooden poles to the north of the Main Hill Water Tower. (See photos in Appendix C)

8.5 LOTO and/or disconnect utilities on stanchion line to south of Water Tower.

- 8.5.1 LOTO and disconnect aerial feed to SST box located on stanchion line to the southeast of the Water Tower
- 8.5.2 LOTO and disconnect DDC line which feeds from Power House to Building 28. Contact Steve Ford for information phone # 865-3155 or cell# 673-2900
- 8.5.3 LOTO and disconnect old security data line (ADT). Contact J.D. Hill for information phone # 865-5103 or cell # 608-8213
- 8.5.4 LOTO and disconnect MOLAN lines on stanchion line. Contact Gary Young for information phone # 865-4547 or cell # 673-7140
- 8.5.5 Contact Al Hodapp in Building 28 to arrange for shutdown of air compressor. LOTO air compressor, then sever and cap air line that goes from Building 28 onto the stanchion line. Contact Al Hodapp in Building 28 to restart air compressor. Check for leaks.
- 8.5.6 Confirm that Argon line is currently disconnected. If not LOTO the line. Cut and cap the line at Building 28 and at the site of the former Argon tank near Building 25. Note: This line will be reconnected by the Utilities group to the new Nitrogen tank being installed in place of the Argon tank. Contact Allen Upshaw for details phone # 865-4894 or cell # 673-2874.
- 8.5.7 Confirm steam and condensate lines and brine supply and return lines have been previously disconnected. Note: the steam and condensate lines appear to be disconnected at the east side of the Power House. The brine supply and return appear to be disconnected at the south side of the Power House.
- 8.5.8 Confirm with Bill Tonne, Facility Manager for T Building, that the fuel lines can be loto and drained. Note: these feed among other things EG-3 which supplies back-up power to T Building. If Bill Tonne gives his approval, coordinate with Power House personnel to LOTO and drain fuel lines in stanchion.
- 8.5.9 **CAUTION:** Investigate LOTO of lighting circuit at fuel tank south of the water tower. This may interfere with sprinkler line sensors and signal for tank level probe. Coordinate with Power House and

Tom Beal to assure that alarms and sprinklers will not be activated with LOTO of electrical circuits. LOTO all circuits associated with fuel tank which can be deactivated without activating alarms and sprinklers or make alternate arrangements to control these items if they will be activated

8.5.10 LOTO aerial line to storage shed west of the Water Tower, then move shed using heavy duty equipment to an area clear of the water tower drop zone.

8.6 Confirm that all lines on stanchion line have been LOTOed and/or disconnected.

verified by _____ date: _____
Bill Wahler or designee/email

8.7 Using manlifts and/or heavy duty equipment, gap all lines on stanchion line, **EXCEPT the fuel oil line**, in two places to isolate the section of the stanchion line behind the Water Tower from the rest of the structure.

8.8 Verify all Mechanical and Electrical Utility Isolation Activities for Main Hill Water Tower have been completed per work package FTS-39192.

verified by _____ date: _____
Allen Upshaw or designee/email

8.9 Work zone barricade fence has been installed, access control has been instituted and area is properly posted.

verified by _____ date: _____
Bill Wahler or designee/email

8.10 Adequate provisions have been made to protect surrounding utilities and structures.

verified by _____ date: _____
Bill Wahler or designee/email

8.11 The Pre-Job Briefing Record must be completed and signed.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.12 The Job Specific Hazards Analysis (JSHA) must be reviewed and the pre-job hazards analysis walk-down of area is complete.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.13 Notify Gary Weidenbach, X3241 (608-8207), Bldg. Mgr., of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.14 Verify that all required materials on list in Appendix F are in place at least one day prior to start of demolition.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.15 Install metal plates on roadway to protect underground gas line from tower impact.

9.0 WATER TOWER DEMOLITION SEQUENCE OF WORK

9.1 Structural Demolition

Notification of Demolition and Renovation form must be filed with the Regional Air Pollution Control Agency (RAPCA) at least **10 business days** before planned demolition of the Main Hill Water Tower.

HOLD POINT: RAPCA notification verification

Environmental Compliance PoC _____ Date to Proceed with Demo _____

HOLD POINT: NESHAP requirements completed and approved.

Environmental Compliance PoC _____ Date _____

HOLD POINT: Regulatory requirements met.

Verified by _____ date: _____
Robert Ransbottom or designee/email

HOLD POINT: 'COLD & DARK' Review Team Walk-down Completed & Project Manager Authorizes Work to Start:

Project Manager: _____ Date and Time: _____

Review Team: Program Manager, Construction Manager/Foreman, and Project Engineer, at minimum.

IMPORTANT NOTE: All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:

To stop unsafe work.

To stop unauthorized work, i.e., work outside the scope of this workpackage.



HOLD POINT: Before proceeding with torch cutting to weaken the tower in preparation for dropping it, check with weather authorities to verify that expected wind gusts will not exceed 25 mph. If they are expected to exceed 25 mph, postpone the demolition until they are below 25 mph.

Bill Wahler or designee/email: _____ Date and Time: _____

CAUTION HAZARD: Vehicle traffic hazard. Control traffic flow as necessary. Project Engineering will coordinate the posting of notice on GroupWise/Mound News, several days in advance and during ongoing demolition work, that traffic routes around the demolition area may be interrupted or diverted. Notify the following organizations/personnel that traffic patterns may be disrupted: Gary Morris (X4015 or 608-8242) Security (Ron Parr, X3958 or 608-8291), Fire Dept. (Tom Beal, X4897 or 608-8295), Transportation (Jeff Lentz, 865-4145), the Building Manager (Gary Weidenbach, 865-3241 or 608-8207).

WARNING HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The goal is no visible dust emissions. Periodically evaluate control methods to determine their effectiveness and to ensure drains are protected.

CAUTION HAZARD: Contact with overhead power lines with heavy-duty equipment. If any part of heavy-duty equipment has the potential to come within 10' of street lighting circuit, perform LOTO to de-energize electrical power source. This circuit must be re-energized each evening when demolition is complete for that day.

CAUTION HAZARD: Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes, (Level D PPE) and reflective vest inside construction area.

CAUTION HAZARD: Struck by moving equipment.

- Maintain the following distances from operating equipment:
- Shear – 75 feet
- Hoe Ram – 50 feet
- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

WARNING NOISE HAZARD: Wear hearing protection while running heavy-duty equipment and during torch cutting when occupational noise limits may be or are exceeded. Follow the requirements of MD-10286 D9.

CAUTION HAZARD: Heat/Cold Stress. Follow the requirements of MD-10286 D13/D16

CAUTION HAZARD: A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). Obtain and follow Hot Work permit per MD-10286 O2.

- 9.2 Obtain and follow a Hot Work Permit for the required torch cutting
- 9.3 Turn on water hoses and wet down the expected impact zone.
- 9.4 Use a manlift and required tie-offs to access elevated work areas.
- 9.5 Perform steps 2 and 7 of the Engineered Drop Plan by Envirocon to remove a section of the center vertical riser and piping and to remove a section of the cat ladder.

CAUTION HAZARD: If the cut gap on the central riser closes or narrows, stop work and consult with the on site Envirocon Job Supervisor before proceeding.

HOLD POINT: Roadway has been blocked and adjacent structures have been evacuated.

Bill Wahler or designee/email: _____

Date and Time: _____

IMPORTANT

- 9.6 Follow in detail and step-by-step the attached Engineered Drop Plan by Envirocon, except for steps 2 and 7 which may be performed prior to the remainder of the plan.. Envirocon will have a Job Supervisor on site during torch cutting and demolition of the Water Tower. This supervisor will be the only person allowed to modify the Engineered Drop Plan. Note: Cut one coupon from the vertical standpipe and one from the tank after demolition and have analyzed for possible build-up of Radium scale. If contamination is found, debris will be handled per Mound Document MD-80036 Radiological Protection Procedures. If contamination is found on the debris, survey results and a suggested path forward will be presented to the Core Team for concurrence

10.0 Debris Sizing

- 10.1 Heavy duty equipment will be used to cut-apart the tower after it has been dropped. NOTE: Work to clear the roadway As Soon As Possible to allow the resumption of normal traffic.
- 10.2 Stage the debris in piles to allow rad surveys by the assigned RCT
- 10.3 When given the go-ahead of the RCT, load the debris into trucks for transport to the Metal Recycler or sanitary landfill as deemed appropriate by the Waste Management PoC.

NOTE: To date: No significant rad contamination has been found on roofs of buildings downwind of the R, SW and T Buildings, therefore it is assumed that the water tower debris will not be contaminated. However: if rad contamination is found on the debris, it will be disposed as LLW as appropriate and a VSAP will be developed to verify that the soil in the impact zone was not contaminated.

11.0 Removal of In-ground Structures

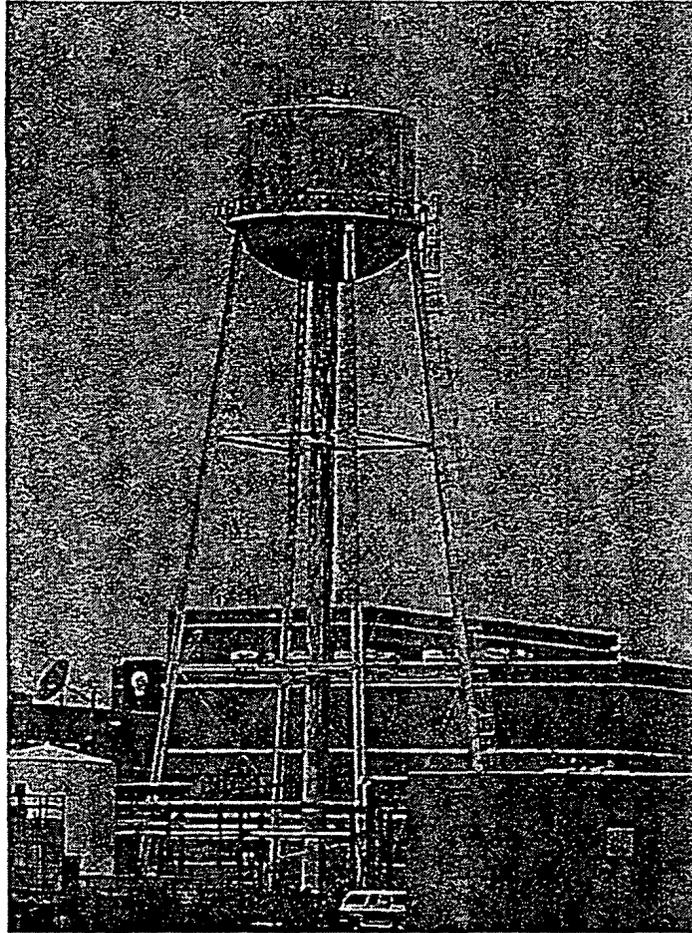
- 11.1 Obtain and follow an excavation permit per MD-10286 Op O5
- 11.2 After debris has been removed from the roadway, using heavy duty equipment remove piers and associated in-ground structures down to 3 feet below grade.

12.0 Soil Sampling and Site Restoration

12.1 Soil sampling and site restoration will happen under a separated work plan.

NOTE: Soil sampling issues were not resolved at the time this work plan was written. A sampling plan will be developed in conjunction with the Core Team. If any sample results are above clean-up objectives sample results and a suggested path forward will be presented to the Core Team for concurrence. Any removal action will be performed under an approved action memorandum or the CRA process.. Site restoration will not occur until after the sampling plan has been approved, sample results have been obtained, and any removal actions have been performed.

**Engineered Drop Plan
For
CH2M Hill Mound, Inc
Main Hill Water Tower Demolition
Solicitation No. DKB19383
Contract No. 2004-00147**



Mail Hill Water Tower

**Engineered Tank Drop Design
by**

Envirocon Inc.

101 International Way

Missoula, MT 59808

ENVIROCON

0 106 61 1606 101
110

This page intentionally left blank.

02 of 65 17 of 101
~~110~~

Table of Contents

- 1) Physical Description of Water Tower**
- 2) Description of Design Concept**
- 3) Preparation of Structure**
- 4) Attachments**

Fig. 1 Plot Plan

Fig. 2 Leg Preparation Details

Fig. 3 Step by Step Instructions

Load calculations

Tank Weight Calculation

Original Tanks Elevation Drawing

This page intentionally left blank.

1) Physical Description of Water Tower

The Main Hill Water Tower was designed to hold approximately 100,000 gallons of water. The dimensions are approximately 28' diameter with a 16' shell height. The tank is supported by 4 legs approximately 107' tall. The tank has a cone roof and elliptical bottom. The overall height is approximately 133'. Physical dimensions were obtained from site inspection and an elevation drawing provided by WGI. The calculated weight of the water tower is approximately 140,000 pounds.

The water tower legs were fabricated using 2-15" Channels with the flanges facing in opposite directions. The flanges are connected by steel flat bars riveted to the channel flanges, creating a box shaped column. The flat bars are attached to the flanges at a 45° angle to the channel web, attached the full length of the leg.

2) Description of Design Concept

In this design Envirocon has engineered a safe modification of the structure's legs, creating three hinge points whereby the 2 legs on the fall side of the water tower can be buckled under controlled conditions to make the water tower fall. The hinge points will be the column's failure points when a load is applied to the column legs.

Given the 100,000 gallon capacity of the water tower, and the calculated weight of the tank, the structure was originally designed to support approximately 1,000,000 pounds with the tank full of water. The tank will be dropped empty on a day where wind gusts are expected to be less than 25 mph. The weight of the tank at the time of the drop will be less than 1/7th the original design capacity of the support structure, consequently the water tower is one of the safest and most predictable structures to drop using this method.

3) Preparation of Structure

The 4 legs of the water tower will be cut in two similar pairs, the front pair (fall side) and the rear pair.

The pair of legs on the fall side of the water tower will be modified to create 3 hinge points in each leg below the 1st horizontal brace. The hinges are made by cutting thru one of the two channels and the lattice at specified elevations in three positions on the legs. A pull cable will be attached to the channel just below the center hinge point using a shackle. A hole will be cut in the channel web near the flange to facilitate placement of the shackle around one flange of the channel. The shackle will be situated around the point where two flat bars are riveted to the channel flange, allowing the shackle to be placed in the bottom of the "V" created by two flat bars.

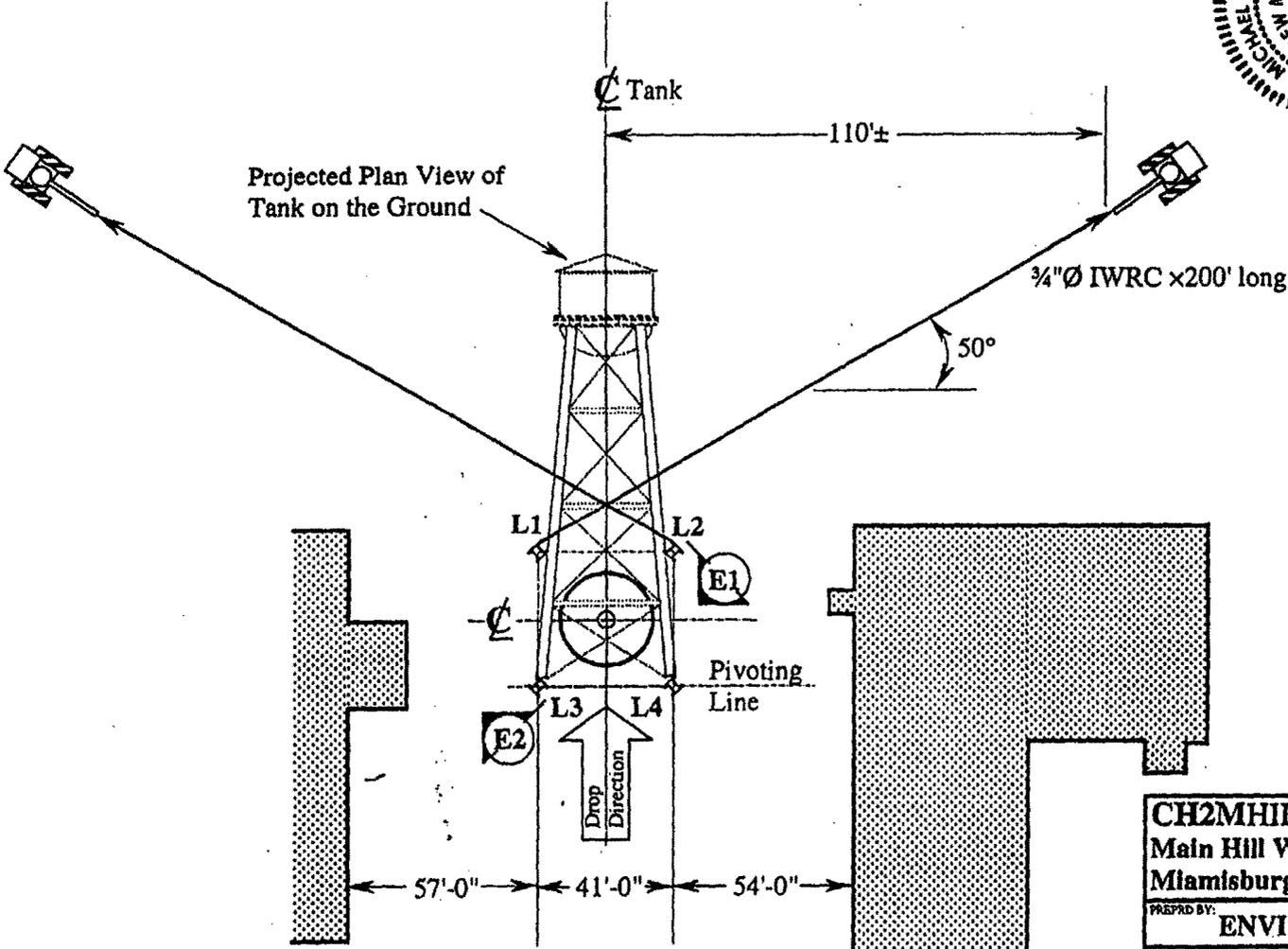
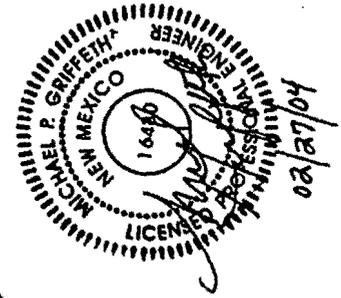
The pair of legs on the backside will be cut 50% from the back to create the pivot point for the tower to rotate on as it falls. (See Drawing for each specific cut)

0 Sept 2006 101
HH

Figure 1 Plot Plan

06 of 61 21 of 101
101

101
1920



PLAN

**CH2MHILL BOSS Project
Main Hill Water Tower Demo
Miamisburg, Ohio**

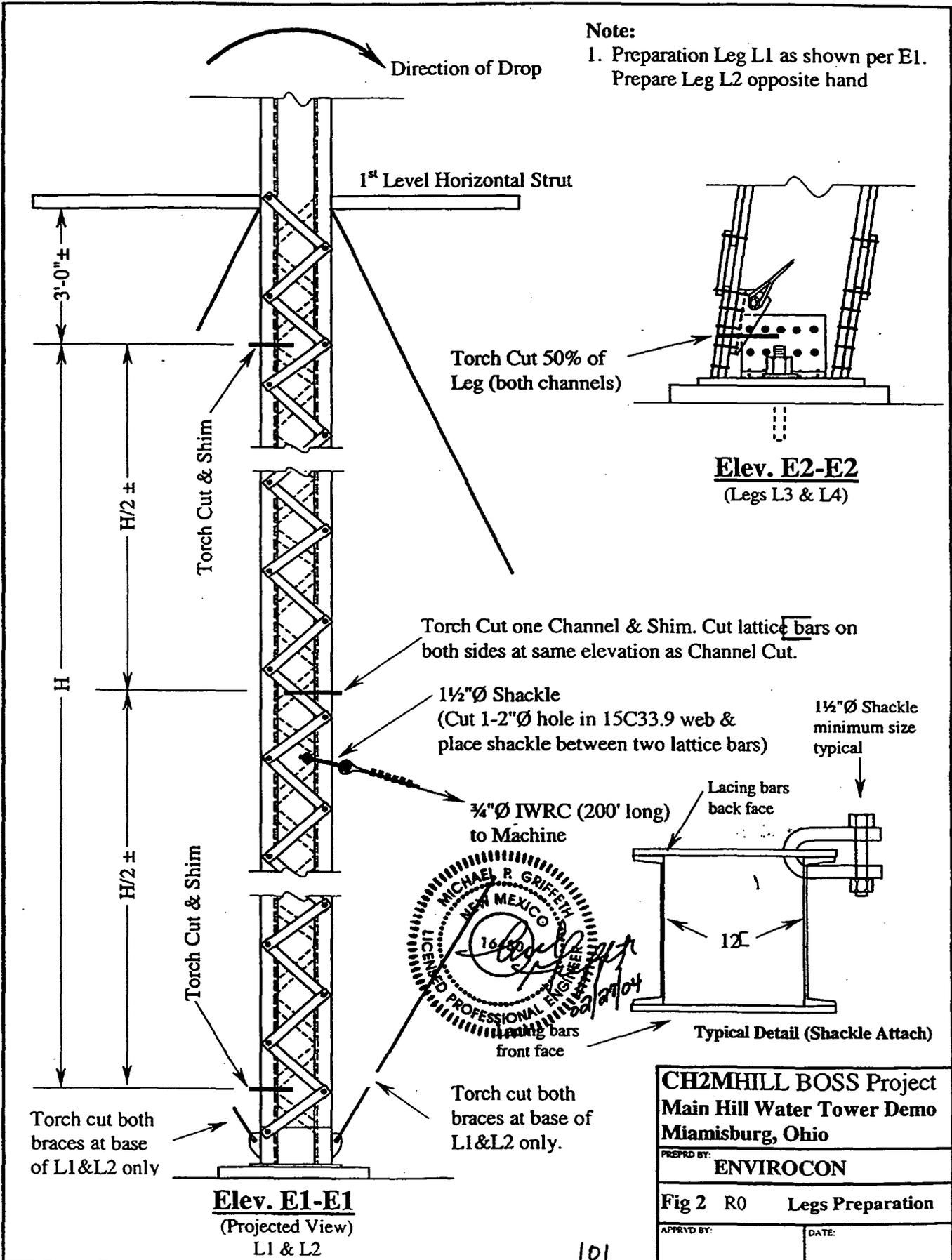
PREPARED BY: **ENVIROCON INC.**

Fig 1 R0 Site Plan

APPROVED BY: _____ DATE: _____

Figure 2 Leg Preparation Details

0806 61 2306 101
110



101
09-06-01 2406 H

Figure 3 Step by Step Instructions

0 ~~1006~~ 61 25 of ~~101~~ ~~110~~

Step by Step Guideline for Controlled Drop of Main Hill Water Tower at Miamisburg, Ohio

Demolition work shall be carried out in the sequence described below. Any changes shall be subjected to prior approval of Envirocon Inc. Health & Safety Requirements are outside the scope of this Guideline. Site Supervisor shall ensure that applicable requirements in the latest OSHA Standards shall be followed.

Pre-drop Preparation (Work may be done one day ahead of the pre-determined drop day)

1. Clear and secure a drop zone 100'± (wide)×200'± (long) measured from the back legs of the tower towards north. Protect underground services, if required.
2. Cut and remove a 20'± section of the center vertical riser to expose interior pipes. Cut and remove 30'± bottom section of the cat-ladder along one leg.
3. Lay the two 200' long ¾"Ø IWRC on the ground per Fig 1. Each 200' long pull cable can be made of 2×100' IWRC linked by 1-1"Ø shackle.
4. Check with local Weather Authority that the forecasted average wind gust speed on the planned drop day at 100'± level will be less than 25 mph.

Drop Preparation (Work shall be done only on the drop day)

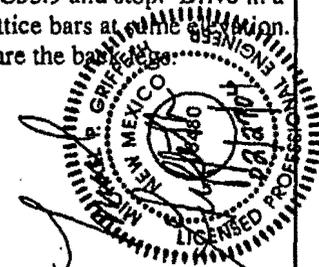
5. Check with the local Weather Authority that the forecasted average wind gust speed on the planned drop time at 100'± level will be less than 25 mph. Postpone the drop if the average wind gust speed is expected to exceed 25 mph at the drop time.
6. Place two Excavators (30,000 lbs± operating weight) at the north end of the two pull cables per Fig 1. Secure cable end to the excavator bucket.
7. Cut and remove a 15'± section of all vertical pipes in the riser. Always make a horizontal bottom cut first to check for adequacy of top support. If the cut gap closes (indicating bad corrosion in top support), pin or tie the pipe that drops to adjacent pipe. No worker shall re-enter the tower base after Step 7.
8. Install the pull cables at the mid-height of the two front legs per Fig 2. Do not put any tension in the cables. Leave the cables lying on the ground.
9. Prepare the two front legs per Fig 2. Prepare one leg at a time. Cut both bracing (two) connected to the first front leg near the bottom connection.
10. Workers shall walk around the south side of the water tower to the opposite side to prepare the second front leg, never in front or under the tower.
11. For each front leg always cut top hinge first, mid-hinge second and bottom hinge last. At each hinge location, cut 50%± of one 15C33.9 and stop. Drive in a 4"×12"×¼" shim by a hand hammer. Continue cut through the channel and drive in the rest of the shim pl. into cut gap. Cut the lattice bars at the same location.
12. Cut both bracing (two) connected to the second front leg near the bottom connection. Worker shall walk around the tower to prepare the back legs.
13. Prepare the back legs per Elev. E2-E2, Fig 2. Cut through both 15C33.9 50%± including gusset plates.
14. All workers shall leave the vicinity of the tower to a safe place (south of the Tower.)
15. Back up the Excavators simultaneously until the pull cables break the two front legs to drop the water tower.

Supporting Engineering Data

- a) Total Weight of Steel (Standard Double Ellipsoidal Tank on 4 legs) = 138,130 lbs
- b) Total Water Weight during Operation (100,000 gallons capacity) = 835,000 lbs
- c) Total Design Weight (original design) = 973,130 lbs round up = 1,000,000 lbs
- d) Approx. comp. stress in ea. channel of ea. leg during operation (no horizontal force) = 12,500 psi Steel Area = 9.90 in² (for 15C33.9)
- e) Approx. comp. stress in ea. channel of ea. leg during Drop ≈ 4,500 psi = (138130×¼)/9.9 + [(138130×5%×100'/(41'×2))/9.9]
Note: Assume a horizontal force = 5%g (including wind & seismic) applied at 100' level (See attached note)
- f) Approx. Force Required to Break One Leg (3 plastic hinges at 12'± center in 15C33.9) ≈ 4,000 lbs (See attached note)
- g) Minimum Tensile Capacity for Pulling Hardware = 10,200 lbs (¾"Ø IWRC with a SF = 5.0)
- h) Minimum Static Pull Force from an Excavator ≈ 15,000 lbs for a 30,000 lbs machine

General Safety Rules

- * Always work under the tank first and work outside the tank projected area second, such as from Step 7 to Step 8.
- * Always prepare the front legs (on a man-lift) along side of the structure, never under or in front of the structure.
- * Always prepare (in each front leg) top hinge first, mid-hinge second and bottom hinge last on the ground.
- * Always walk around the structure via the south side of the structure from one side to another.
- * Always prepare the back two legs last. Workers shall leave the Tower vicinity to a safe area south of the Tower.
- * Always use a Site Supervisor and torch men with previous drop experiences to do the job.
- * No un-authorized person shall enter the secured area until the Tower is on the ground.



CH2MHILL BOSS Project
Main Hill Water Tower Demo
Miamisburg, Ohio

PREPARED BY:
ENVIROCON INC.

Fig 3 R0 Demo Guidelines

APPROVED BY: _____ DATE: _____

101
Hill 26 of 110

Load calculations

012 of 61 27 of 101
110

February 26, 2004

Background of the Assumption

- ① If a new structure were to be designed to withstand an earthquake event, often the Design Requirements or the local Building Code may stipulate that the structure is to withstand a DBE or a SDE or both in different loading combinations depending on the functionality and a number of other factors.

Without performing a detailed dynamic analysis of the structure, a horizontal force in the range of 8%g and 3%g are often used for DBE and SDE application respectively. For a new structure with a service life expectancy of 30-40 years, this assumption is considered reasonable.

"Controlled Drop" demolition process normally takes 3-4 hours to drop a four-leg water tower such as Main Hill Water Tower. The choice of 5%g is not intended to introduce a new structural design concept but rather to demonstrate that even with such a high horizontal force the increase in compressive stress in the front leg is ≈ 850 psi.

- ② For a simple beam subjected to a point load at the mid-span, the elastic bending moment can be calculated at $PL/4$ where L is the span length. For a fixed end simple beam with the same load, the maximum moments at the mid-span and the supports is $PL/8$ at which stage the material will start to yield.

Sy for 15C33.9 is 3.2 in^3 and for simplicity and conservatism use Shape Factor = 1.25

$M_p = f_y \times Z_y = PL/8$ where

M_p is plastic moment

$f_y = 36,000$ psi (assume ASTM A36 steel)

$Z_y = S_y \times 1.25 = 3.2 \times 1.25 = 4 \text{ in}^3$

$P =$ the force required to form 3 plastic hinges

$L = 24 \pm$ span length

$$P = (36,000 \times 4 \times 8) / (24 \times 12) = 4,000 \text{ lbs}$$

The actual force required to buckle the front leg is much less than 4,000 lbs for the following reasons.

- a) A torque is applied because the position of the shackle attached to the leg
- b) A dynamic force is applied due to machine pulling

- ③ In any official Rigging Manual, a $\frac{3}{4}$ " \emptyset IWRC (Independent Wire Rope Core) Cable is listed to have a Safe Working Load (SWL) 10,200 lbs under 6x19 Classification Round Strand Group, Grade 110/120 Improved Plow, Steel Core. SWL is defined as Breaking Load /5.0. Or the SWL has a safety factor of 5.0

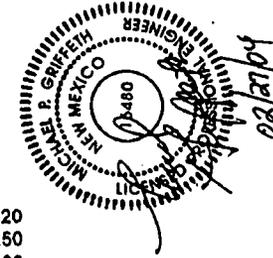


013 of 61 28 of 110

Tank Weight Calculation

044 of 61 2906 ¹⁰¹ ~~110~~

**Main Hill Water Tower
Miamisburg Ohio**



Mound Water Tank 28' OD, Approximately 100,000 Gallons

	#/Ft	Weight	Center of Mass	W x COM	
Cone Roof 31' OD	810 Sq. Ft.	12	9,720	125.41	1,218,985.20
Shell 28' OD x 18.166'	1422 Sq. Ft.	14	19,908	117.13	2,331,724.50
Bottom 28' OD Elliptical	1100 Sq. Ft.	15	16,500	104.50	1,724,250.00
Ladder	126	13	1,626	64.00	87,760.00
8 Riser Pipe Rods 5/8" x 21'-7"	173 Ln. Ft.	1.04	180	63.00	9,535.78
Cross Bracing 1-1/8" x 61' x 8 each	408 Ln. Ft.	3.38	1,379	20.00	27,580.80
Cross Bracing 1-1/16" x 44' x 8 each	352 Ln. Ft.	3.01	1,080	64.00	57,214.08
Cross Bracing 1-1/16" x 39' x 8 each	312 Ln. Ft.	3.01	939	89.80	84,332.98
Deck around Tank	176 Sq. Ft.	20	3,520	109.00	383,680.00
Horizontal Brace 2-8" Channels x 34.4' x 4 Bays	275 Ln. Ft.	11.5	3,183	36.00	113,850.00
Horizontal Brace 2-8" Channels x 27.7' x 4 Bays	222 Ln. Ft.	11.5	2,553	69.88	178,352.58
Legs					
8 ea 15" x 33.9# Channel x 107'ea	856 Ln. Ft.	33.9	29,018	63.50	1,552,484.40
Lacing 2-7/16" x 5/16" x 20" Bar 12" oc x 2 sides	1428 Ln. Ft.	3.44	4,906	63.50	262,441.04
Riser Pipe 48" x 100' x 1/2" thick	100 Ln. Ft.	258.8	26,880	50.00	1,283,000.00
Water Lines in Riser 12" & 8" Cast Iron	100 Ln. Ft.	80	8,000	50.00	400,000.00
Misc Internal Piping, Ladders & Gussets	Plug		10,000	115.00	1,150,000.00
Total Estimated Weight		138,130	=y		10,885,181.34 =x
Center of Mass =x / y			79	Feet	

Weight Estimate by Envirocon Inc. Chris Schillesci

01-20-02 19-20-510
 101

This page intentionally left blank.

016 of 61 31 of 101
110

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

Office Master Copy Field Working Copy Review Copy Other Copy
(Original Approval Signatures) (Original Field Sign -Offs) [Note: Mark this section in color]

Note: The Project Engineer is responsible for completing Sections 1 through 10.

1. WORK PACKAGE TITLE: Main Hill Water Tower Demolition

2. WORK PACKAGE NUMBER. BOSS-39197-00

3. WORK PACKAGE SCOPE:

Prepare the Main Hill Water Tower for demo after it has been drained and disconnected by the Utilities Group. Preparation includes partially torch cutting and shimming structural members to allow the tower to be dropped. After the tower has been prepared, it will be pulled over using cables attached to heavy duty equipment, then cut-up and disposed. Remove piers to 3 feet below grade. Collect soil samples. Do site restoration including grading, erosion control, seeding and mulching.

4. WORK LOCATION:

Building #: _Main Hill Water Tower

Room #:

Other:

5. WORK PACKAGE PHASES:

1. Prepare water tower for demolition
2. Pull water tower over
3. Cut-up water tower and dispose
4. Remove in-ground structures
5. Soil Sampling
6. Site Restoration

Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

- | | |
|-------------------------------------------------------------------------------------------------------|------------------------|
| 1. 400 ft. - 3/4" dia. IWRC wire rope | 2. shims |
| 3. 2- 1- 1/2" dia. Shackles | |
| 4. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment. | |
| 5. Rubber tired and tracked front-end loaders. | 6. Fog Cannon |
| 7. Transport equipment for debris as required. | 8. Aerial lift/manlift |

Note: Insert any materials that require long lead procurement or special order. Don't list common items such as PPE.



NOTE: All field changes to the work package must be documented in the Job Status Log

7.0 DETAILED WORK STEPS:

- 7.1 **Site Information for Main Hill Water Tower**
The Main Hill Water Tower is an elevated steel water tank and tower. With a capacities of 50,000 gallon domestic service and 50,000 gallon fire reserve. The water column is 125 ft. to water line when full. Due to a shortage of steel after the war, this tank was obtained from surplus from the Weldon Springs Ordnance Plant, Weldon Springs, Mo. in 1948. Maxon Construction Company (a subcontractor to Giffell's and Vallet, who was a subcontractor to Monsanto Chemical Company subcontractor) had a contract with "Ohio Erection Company", of the Cincinnati, OH area to dismantle a water tower at Weldon Springs Missouri, and to re-erect the tower at the Mound site.
Around 1990, the top of the tower was replaced due to corrosion.
- 7.2 **National Historic Preservation Act (NHPA)**
The Main Hill Water Tower is not listed as a historic structure with the Ohio Historic Preservation Office (OHOP); therefore, no mitigative documentation package is required.
IMPORTANT: However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at x 3691. If necessary, work will be suspended until which time the items or artifacts have been recovered.
- 7.3 **Hazard Identification**
Elevated work, torch cutting on lead based paint, rigging, and controlled demolition are hazards that will be encountered. All work will be conducted per requirements of MD-10286, the Mound Safety and Industrial Hygiene Manual . The preparation and demo will strictly follow the directions given in the Engineered Tank Drop Plan, by Envirocon, Inc., stamped Feb. 27, 2004.
Silica dust will be encountered during pier removal, so misting will be required.
- 7.4 **Permits**
A Hot Work Permit will be required to perform the required torch cutting.
An Excavation Permit will be required to remove in-ground structures.
- 7.5 **Waste/Staging Areas**
The water tower debris is expected to be free-releasable. After the water tower is dropped, it will be cut-up and staged into debris piles in the area of the former W Building. Debris pile surveys will be performed to verify that the debris may be free-released. If it may be free-released it is expected that the debris will be sent to a metal recycler. If it doesn't meet free-release requirements, it will be taken to the rail spur and disposed as low level waste.
- 7.6 **Pre-Job Briefing**
A pre-job briefing will be conducted prior to beginning any work. All personnel involved in the task will be present for the briefing. A pre-job briefing sheet will be used to record decisions made during these meetings and retained with the work package. Signatures of all involved will denote concurrence with the plans and conditions set forth in the meeting. Instruction in the work package will be discussed as well as job safety requirements, Radiation Work Permit requirements, plus any past problems and lessons learned.
- 7.7 **Lockout/Tagout**
Any remaining energy sources or adjacent overhead lines will be Locked-out/Tagged-out as appropriate prior to the commencement of work.
- 7.8 **NESHAPS**
The offsite estimated effective dose equivalent (EDE) for the demolition of the Main Hill Water Tower was calculated to not exceed 0.1 mrem/year. Therefore USEPA approval is not required for this project.
- 7.9 **Utilities**
All electrical services and utilities associated with the Main Hill Water Tower will be terminated prior to commencement of demolition.

IMPORTANT

Remove or relocated the light pole to the north of the water tower that is in the drop zone for the tower. (See Power and Light Poles map in the Drawing Section.)

7.10 Site Access Control

Access to the work zone boundary will be controlled by fencing and/or barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the work zone.

The roadways adjacent to the water tower will be closed during preparation and dropping of the tower. The debris will extend across the roadway, which runs to the north of the water tower and power house. The roadway will remain closed until the debris is removed. Adjacent buildings 28 and P, will be evacuated during preparation and dropping of the water tower.

The work zone may not be entered by anyone not directly involved with the demolition unless they have contacted the Project Construction Manager or Project Foreman in advance.

7.11 Installation Of Fugitive Emissions Control

The goal of fugitive emission controls is to eliminate visible dust, especially during demolition of buildings that are believed to contain radiological contamination. Best available technology (BAT) determination for the demolition of Main Hill Water Tower is reasonably available control measures (RACM). Reasonably available control measures (RACM) will be employed to maintain fugitive particulate emissions as low as reasonably achievable. Visual particulate emissions shall not exceed 20% opacity as a three-minute average for building demolition. Mitigating controls to be employed include, but are not limited to:

- Use of dust suppression equipment including fog cannons and water misting nozzles operated by trained personnel. The goal of dust suppression equipment/personnel will be to provide adequate amounts of water to control fugitive particulate emissions while not over saturating the area and creating run-off problems.
- Controlled water misting of the building demolition area and common waste zone by misters installed on equipment, portable towers or operated by trained personnel.

The intent will be to add enough water to control fugitive emissions without over-saturating the area and creating undesirable run-off. Periodic inspections will be made by the Job Superintendent or designee to assure fugitive emissions controls are achieving the desired effect and meeting acceptable standards. Should it be determined that best available technology (BAT) requires alternate dust suppression methods, other dust control methods will be utilized.

See Table 1 below for proposed fugitive dust control methods.

7.12 Sediment/Storm Water Control

In order to prevent excess debris, soils, silt or other deleterious materials from entering surface streams or the storm sewer system, a retention barrier will be erected where appropriate. This barrier will consist of straw bales or equivalent and industry standard "silt fence". The barrier will be placed around the perimeter fence. Also, cover field grates with covers/sheeting for silt protection of sewer gratings. Coordinate and evaluate effectiveness of controls by periodic inspections throughout demolition activities with Environmental Compliance PoC. If the fence is not functioning properly, take steps to re-enforce or alter the configuration until satisfactory results are achieved.

Note: Insert the activities to be performed during the job. Describe the specific methods of accomplishing these activities and appropriate level of detail based on the complexity, hazard, and skill of the craft. Activities listed must be grouped under the Work Package phases listed in item 5.

Table 1 Airborne Contaminant Protection Methods

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Building Demolition	<ul style="list-style-type: none"> • Applying dust control materials such as water and surfactants
Hauling Material and Equipment	<ul style="list-style-type: none"> • Reducing vehicle speeds (<20 mph) • When transporting materials that may become airborne, such as soils, wet the material or cover the truck beds • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Vehicle and Equipment Traffic	<ul style="list-style-type: none"> • Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Wetting roads used for transport • Minimizing unnecessary traffic on roadways, parking areas, and areas around field activities
Excavation	<ul style="list-style-type: none"> • Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Trenching	<ul style="list-style-type: none"> • Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides

020867 356 #01

Table 1 Airborne Contaminant Protection Methods (continued)

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Trenching (Continued)	<ul style="list-style-type: none"> • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Material Loading and Unloading	<ul style="list-style-type: none"> • Minimizing the material drop height during excavation and loading operations • Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Storage Piles	<ul style="list-style-type: none"> • Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover to storage pile areas at completion of project
Wind Erosion from Work Sites	<ul style="list-style-type: none"> • Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover or asphalt to project work area at completion of project

021-2-67-36-27-10
 101

7.11 Temporary Utilities

The only temporary utility that may be required is water. If domestic water is utilized, ensure backflow prevention is present. Coordinate with site Safety and Health and Environmental Compliance PoCs. Water will be used to control dust emissions. Coordinate with Utilities Group/Utilities Package for services needed.

7.12 Misting Requirements

Position hoses to wet the expected impact zone of the water tower.

7.13 Temporary Facilities

This project will use the existing BOSS project trailer complex located in the existing Mound "C" parking lot.

7.14 Temporary Communications

Temporary communications are required (cell phone, radios) as equipment for hearing plant announcements and emergency notifications will have been removed during safe shutdown activities. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

8.0 Preliminary Activities and Verifications

8.1 The paint on the water tower was tested by Industrial Hygiene and was determined to be lead-containing. Therefore, strip lead-based paint using solvents or mechanical means to at least 6 inches on each side of where cuts are to be made. Follow directions of Industrial Hygiene for PPE. Follow MSDS sheet recommendations if using a solvent.

8.2 Verify all Mechanical and Electrical Utility Isolation Activities for Main Hill Water Tower have been completed per work packages FTS-38564 and FTS-38563, respectively.

verified by _____ date: _____
Allen Upshaw or designee/email

8.3 Appropriate waste containers are staged and ready for use.

verified by _____ date: _____
Bill Wahler or designee/email

8.4 Work zone barricade fence has been installed, access control has been instituted and area is properly posted.

verified by _____ date: _____
Bill Wahler or designee/email

8.5 Adequate provisions have been made to protect surrounding utilities and structures.

verified by _____ date: _____
Bill Wahler or designee/email

HOLD POINT: Pre-Impairment Walkdown conducted and Impairment Permit per MD-10286, Section E2, obtained.

verified by _____ date _____
Bill Wahler or designee/email

8.6 The Pre-Job Briefing Record must be completed and signed.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.7 The Job Specific Hazards Analysis (JSHA) must be reviewed and the pre-job hazards analysis walk-down of area is complete.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.8 Notify Gary Weidenbach, X3241 (608-8207), Bldg. Mgr., of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

Verified by _____ date: _____
Mike Stromberg or designee/email

8.9 Verify that all materials are in place at least one day prior to start of demolition.

Verified by _____ date: _____
Mike Stromberg or designee/email

9.0 BUILDING DEMOLITION SEQUENCE OF WORK

9.1 Structural Demolition

Notification of Demolition and Renovation form must be filed with the Regional Air Pollution Control Agency (RAPCA) at least 10 business days before planned demolition of the Main Hill Water Tower.

HOLD POINT: RAPCA notification verification

Environmental Compliance PoC _____ Date to Proceed with Demo _____

HOLD POINT: NESHAP requirements completed and approved.

Environmental Compliance PoC _____ Date _____

HOLD POINT: Regulatory requirements met.

Verified by _____ date: _____
Robert Ransbottom or designee/email

HOLD POINT: 'COLD & DARK' Review Team Walk-down Completed & Project Manager Authorizes Work to Start:

Project Manager: _____ Date and Time: _____

Review Team: Program Manager, Construction Manager/Foreman, and Project Engineer, at minimum.

IMPORTANT NOTE: All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:

- To stop unsafe work.
- To stop unauthorized work, i.e., work outside the scope of this workpackage.

HOLD POINT: Roadway has been blocked and adjacent structures have been evacuated.

Bill Wahler or designee/email: _____ Date and Time: _____

CAUTION HAZARD: Vehicle traffic hazard. Control traffic flow as necessary. Project Engineering will coordinate the posting of notice on GroupWise/Mound News, several days in advance and during ongoing demolition work, that traffic routes around the demolition area may be interrupted or diverted. Notify the following organizations/personnel that traffic patterns may be disrupted: Gary Morris (X4015 or 608-8242) Security (Ron Parr, X3958 or 608-8291), Fire Dept. (Tom Beal, X4897 or 608-8295), Transportation (Brady Barnhart, X4047 or 608-8284), the Building Manager (Bill Tonne, X4354 or 673-4300), and Gary Weidenbach (X3241 or 608-8207).

WARNING HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The goal is no visible dust emissions. Periodically evaluate control methods to determine their effectiveness and to ensure drains are protected..

CAUTION HAZARD: Contact with overhead power lines with heavy-duty equipment. If any part of heavy-duty equipment has the potential to come within 10' of street lighting circuit, perform LOTO to de-energize electrical power source. This circuit must be re-energized each evening when demolition is complete for that day.

CAUTION HAZARD: Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes. (Level D PPE) and reflective vest inside construction area.

CAUTION HAZARD: Struck by moving equipment.

- Maintain the following distances from operating equipment:
- Shear – 75 feet
- Hoe Ram – 50 feet
- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

WARNING NOISE HAZARD: Wear hearing protection while running heavy-duty equipment. Follow the requirements of MD-10286 D9.

CAUTION HAZARD: Heat/Cold Stress. Follow the requirements of MD-10286 D13/D16

CAUTION HAZARD: A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead paint/galvanized/stainless steel). Obtain and follow Hot Work permit per MD-10286 O2.

WARNING

Before proceeding with torch cutting to weaken the tower in preparation for dropping it, check with weather authorities to verify that expected wind gusts will not exceed 25 mph. If they are expected to exceed 25 mph, postpone the demolition until they are below 25 mph.

- 9.2 Obtain and follow a Hot Work Permit for the required torch cutting
- 9.3 Turn on water hoses and wet down the expected impact zone.
- 9.4 Use a manlift and required tie-offs to access elevated work areas.

IMPORTANT

- 9.5 Follow in detail and step-by-step the attached Engineered Drop Plan by Envirocon. Have all materials in place at least the day before the planned demolition.

10.0 Debris Sizing

- 10.1 Heavy duty equipment will be used to cut-apart the tower after it has been dropped. Work to clear the roadway to allow the resumption of normal traffic.
- 10.2 Stage the debris in piles to allow rad surveys by the assigned RCT
- 10.3 When given the go-ahead of the RCT, load the debris into trucks for transport to the Metal Recycler or sanitary landfill as deemed appropriate by the Waste Management PoC.

NOTE: To date: No significant rad contamination has been found on roofs of buildings downwind of the R, SW and T Buildings, therefore it is assumed that the water tower debris will not be contaminated. However: if rad contamination is found on the debris, it will be disposed as LLW as appropriate and a VSAP will be developed to verify that the soil in the impact zone was not contaminated.

11.0 Removal of In-ground Structures

- 11.1 Obtain and follow and excavation permit

11.2 After debris has been removed from the roadway, using heavy duty equipment remove piers and associated in-ground structures down to 3 feet below grade.

12.0 Soil Sampling

12.1 Because the water tower has a history of lead-based paint that was removed by sand blasting, four biased samples will be collected, one each from the midway point between each set of piers. Soil samples will be analyzed for lead.

12.2 If rad contamination is found on the tower debris after demolition, a VSAP will be developed to sample soil in the impact area.

13.0 Site Restoration

13.1 After removal of in ground structures, perform any required soil sampling.

13.2 After appropriate sample results have been obtained, grade the site to match the surrounding terrain, seed, and mulch.

13.3 After site restoration is complete, remove silt fabric sewer grates, silt fences, and any utility protects that were installed.

Work Package /Preliminary Hazard Analysis (Continued)

8.COMMENTS:

Note: Comments, to identify activities/hazards that are common to multiple phases of the project (example: Wear leather gloves when handling cut pipe). Identification of these items will facilitate the addressing the items once in the pre-job briefing.

9. REVIEW SIGNATURES:

Written by: _____	Date: ___ / ___ / ___	Phone: _____
Superintendent: _____	Date: ___ / ___ / ___	Phone: _____
Foreman: _____	Date: ___ / ___ / ___	Phone: _____
Project Eng. Mgr: _____	Date: ___ / ___ / ___	Phone: _____
Industrial Safety & Hygiene: _____	Date: ___ / ___ / ___	Phone: _____
Rad. Controls: _____	Date: ___ / ___ / ___	Phone: _____
ES&C: _____	Date: ___ / ___ / ___	Phone: _____
Waste Mgmt: _____	Date: ___ / ___ / ___	Phone: _____
Bldg. Mgmt: _____	Date: ___ / ___ / ___	Phone: _____
Classification: : _____	Date: ___ / ___ / ___	Phone: _____
Other: _____	Date: ___ / ___ / ___	Phone: _____

Note: Project Manager has the authority to N/A signatures if review is not applicable.

10. USQ SCREEN / DETERMINATION REQUIRED? YES NO

Brief Explanation _____

USQ Trained Person: _____ Date: ___ / ___ / ___ Phone: _____

11. AUTHORIZATION SIGNATURE:

Project Manager: _____ Date: ___ / ___ / ___ Phone: _____

12. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: ___ / ___ / ___ Phone: _____

Project Manager: _____ Date: ___ / ___ / ___ Phone: _____

RETURN PHA TO IS&H AT JOB COMPLETION.

Appendix A

PHA/JSHA

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE INDUSTRIAL SAFETY AND HEALTH REPRESENTATIVE <i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Hazard Analyses. Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards, that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Access/Blockage:			
Blockage of exits or means of egress		Yes	Access to Buildings P and 28 blocked. [EGRESS]
Blockages/obstructions (Identify)		Yes	Roadway adjacent to Main Hill Water tower blocked
Confined space entry (permit)		No	[CONFINE]
Emergency alarms or evacuation plans required		Yes	Signal that water tower is being dropped [EMERG]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)		Yes	Access to adjacent fire hydrants will be blocked during demolition
Traffic control/flagman		Yes	Adjacent roadways will be blocked and flaggers may be required. [TRAFFIC]
Flammable/Explosive:			
Burning, welding, hot-work (Fire Watch) (permit)		Yes	Torch cutting required [BURN]
Chemical compatibility of corrosives/flammables		No	
Explosive/flammable atmosphere		No	
Explosives		No	
Fire protection system/equipment outage		No	[FIRE/EFIRE]
Fire Hazards Analysis/Fire Engineer Approval		No	[FHA/ADJA]
Flammable liquids/gases		No	[FLAM]
Powder-actuated tools (permit)		No	
Special Fire Protection Equipment Required		No	[FIREQU]
Chemicals:			
Chemical process safety		No	
Compressed gas cylinders		Yes	Gasses for torch cutting
Emergency eyewash/shower available		No	[EWASH]
Elevated/Aerial Work:			
Crane operations, overhead or mobile		No	
Critical lifts (heavy or high value loads)			[CLIFT]
Elevated work/fall protection		Yes	For torch cutting and installation of cables [ELEV]
Forklifts, aerial lifts or material handling equipment		Yes	Use of manlift for torch cutting and installation of cables
Hoisting and rigging		Yes	Cables used to pull tower over. [HOIST]
Overhead utilities (Identify)		Yes	Adjacent wires [UITL]

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE SAFETY AND HEALTH REPRESENTATIVE			
<i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.), including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout, outages, disconnects (permit)			[LOTO/ISO]
• Electrical	Yes		As required on adjacent cables
• Mechanical (steam, hydraulic, pneumatic, gravity)	No		
• Interlocks	No		[ILOCK]
• Chemical	No		
• Radiological	No		
Outages of the plant public announcement (PA) system or the emergency notification system	N/a		[OUTAGE]
Building Systems Alarms - Ensure systems are not functional by contacting: Fire Department Security Facilities Services.	N/a		-Fire Alarm Pull Boxes -Fire Suppression Water Flow Alarms -Smoke Detector Alarms -Security Systems -DDC signals
Alarm Disable/Disconnect	No		
Structure Related:			
Modification to Fire Wall/Door	No		[FIREWAL]
Penetrations into walls, floors, etc. (permit)	No		[PENETR]
Plastic sheeting or wood framing/enclosures	No		
Structural Modification	Yes		Tower demo [STRUCT]
Work impacting adjacent normally occupied areas	Yes		Buildings P and 28 and adjacent roadways. [ADJAC/BMAPP/SIGNS/NOTIF]
Temporary Requirements:			
Temporary heating facilities		No	
Temporary/portable buildings or structures		No	[FACIL]
Temporary service hook-ups (Identify)		No	
Public utilities (Identify)		No	[WATER]
Lighting/illumination/adequacy		No	[MLITE]
Miscellaneous:			
Machine guards		No	
Off-shift work		Yes	Friday prep work, Saturdadem
Repetitive work		No	[ERGO]
Other (Specify)		No	
Work in attics, ceilings, chases, or crawlspaces		No	
Work Requiring Scaffolding (inspection required)		No	[SCAFF]
Electrical:			
Electrical hazards		No	[LIVEL]

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE SAFETY AND HEALTH REPRESENTATIVE			
<i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Grounding of electrical equipment		No	
Soils/Excavation:			
Underground utilities (Identify)		Yes	[UITL]
Trenching/Shoring (permit)		No	[DIG]
Hazards due to condition of facility or terrain (Identify)		No	
Any soil disturbance		Yes	[DIG] (Note: Check for URMA) Remove in-ground structures

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE			
<i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Asbestos/Fibers:			
Asbestos		No	[ASBEST]
Removal of ceiling tiles*		No	
Insulation/man-made mineral fibers (☐ MSDS available)*		No	
Hazardous Materials:			
Beryllium		No	
Cadmium		No	
Chlorofluorcarbon (CFC)		No	[CFC]
Coal, tar or asphalt products		No	
Lead		Yes	Lead based paint
Mercury		No	
Polychlorinated biphenyls (PCBs)		No	
Carcinogens (☐ MSDS available)*		No	[CARC]
Chemical/Corrosives:			
Chemicals/solvents (☐ MSDS available)*		No	[CHEM/MSDS]
Corrosives/acids/caustics (☐ MSDS available)*		No	
*NOTE: Requires a description of the materials involved which present a hazard. Identify the physical location of the MSDS.			

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

FOR Work Packages

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE			
<i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.). Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
<i>Ventilation/Air:</i>			
Abrasive blast (<input type="checkbox"/> MSDS available)*		No	
Coating/painting (<input type="checkbox"/> MSDS available)*		No	
Dusty operations		No	[POWDER]
Foam in Place Operations		No	
Spraying/generation of mists*		No	
Ventilation or Air Monitoring requirements		No	[VENTIL/IH]
<i>Miscellaneous:</i>			
High Pressure systems		No	[HIPRES]
Lasers		No	
Noise in excess of 85 dBA		No	[NOISE]
Blood-borne pathogens*		No	
Temperature extremes (heat or cold stress)		No	[CRYRO/COLD/HEAT]
Welding, brazing, or thermal cutting operations (permit)		Yes	Torch cutting lead based paint [BURN]
Hazardous Waste Operations (HAZWOPER)*		No	
Other (specify)		No	-

*NOTE: Requires a description of the materials involved which present a hazard. Identify the physical location of the MSDS.

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

FOR Work Packages

SECTION C, RADIOLOGICAL PROTECTION - TO BE COMPLETED BY RADIOLOGICAL CONTROLS REPRESENTATIVE			
<i>Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. RWP, ALARA Plan, etc.). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)</i>			
Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
<i>Location:</i> Controlled Areas (Specify)	No		
Other (Specify)	No		
<i>Activities:</i> Digging/Soil Removal (permit)	Yes		[DIG]
• URMA			
Welding, burning, grinding, hammering, chipping, or scraping of contaminated materials	No		
Decontamination	No		
Other (Specify)	No		
<i>Sources:</i> X-Ray equipment, sealed, or unsealed sources	No		
<i>Controls:</i> Radiological Work Permit	No		[RWP/RWP=JS/RWP=N/R/RPGEN]
ALARA Plan	No		[ALARA]
Other	No		

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

SECTION D, ENVIRONMENTAL COMPLIANCE- TO BE COMPLETED BY ENVIRONMENTAL COMPLIANCE REPRESENTATIVE			
<i>Identify engineering/administrative controls as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard. Additionally, identify any activities which are DOE or EPA prescribed protective requirements. (Use Section F if additional space is needed.)</i>			
	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
<i>Conditions:</i> Fugitive Dust (refer to Table 1 below)	Yes		OPA 980014 Section 2.11 Water misting
Storm Water Runoff	No		
Erosion Control	Yes		Seeding and mulching after grading
NESHAPS Calculation	Yes		
National Historic Preservation	No		
• Artifacts found			•
Safe Drinking Water Act	No		
• Potable water			
• Backflow preventers for misting	Yes		
Emergency Spill Response Materials (Confirm process lines are drained)	No		Spill kits
Locate Monitoring Wells	Yes		
<i>Notifications:</i>			
RAPCA Notification for Asbestos	No		
RAPCA Notification for Demolition	Yes		
Emergency Spill Response Notification	No		911 or 865-4040
Other	No		

APPENDIX A

Preliminary Hazard Analysis (PHA) For Work Package Activities (Continued)

SECTION E, WASTE MANAGEMENT - TO BE COMPLETED BY WASTE MANAGEMENT REPRESENTATIVE <i>Include any required and/or other special actions to be taken because of the particular hazard. Additionally, identify any activities which are required by DOE, Nevada Test Site, Envirocare or other waste site. (Use Section F if additional space is needed.)</i>					
	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
<i>Types:</i>					
Sanitary Landfill Waste: <ul style="list-style-type: none"> • Concrete • Steel & Copper Piping • Metal Roofing • PVC • Electrical Wiring • Fiberglass Insulation • Wood 					
Recycled Metals	69 tons	2	Free-release	truck	Truck to metal recycler
Hazardous Waste: <ul style="list-style-type: none"> • RCRA Hazardous Waste • Asbestos • Other 					
Mixed Waste					
Low Level Radiological Waste: <ul style="list-style-type: none"> • Building Debris • Below grade 					
Transuranic (TRU) Waste					
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					
Material sent off-site Fill out MD-200180 Attachment 1 (see below)					
Material sent to concrete crusher Fill out MD-200180 Attachments 1 & 2 (see below)					

SECTION F - OTHER CONDITIONS, CONCERNS, OR SUPPLEMENTAL INFORMATION FROM SECTIONS A THROUGH C INCLUDING APPLICABLE LESSONS LEARNED:

Table 1 Airborne Contaminant Protection Methods

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Building Demolition	<ul style="list-style-type: none"> • Applying dust control materials such as water and surfactants
Hauling Material and Equipment	<ul style="list-style-type: none"> • Reducing vehicle speeds (<20 mph) • When transporting materials that may become airborne, such as soils, wet the materials or cover the truck beds. • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Vehicle and Equipment Traffic	<ul style="list-style-type: none"> • Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Wetting roads used for transport • Minimizing unnecessary traffic on roadways, parking areas, and areas around field activities
Excavation	<ul style="list-style-type: none"> • Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Trenching	<ul style="list-style-type: none"> • Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides

0
 36
 19
 512
 101

Table 1 Airborne Contaminant Protection Methods (continued)

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Trenching (Continued)	<ul style="list-style-type: none"> • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Material Loading and Unloading	<ul style="list-style-type: none"> • Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Storage Piles	<ul style="list-style-type: none"> • Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover to storage pile areas at completion of project
Wind Erosion from Work Sites	<ul style="list-style-type: none"> • Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover or asphalt to project work area at completion of project

037 of 61 5 20 of 101

This page intentionally left blank.

~~038 of 61 53 of 101~~ 101

Project/Activity:

Name:

JSHA CRITERIA CHECKLIST	YES	NO	N/A
1. Work performed with an unprotected 6 ft. or greater fall hazard, excluding portable ladders. See Item 14 of this checklist for further requirements.			
2. Roof work requiring the use of fall protection (within 6 ft of an unprotected edge) or special fall protection procedures.			
3. Potential hazardous chemical exposure above action levels or permissible exposure limits (PELs), or ACGIH Threshold Limit Values (TLVs).			
4. Work activity in an immediately dangerous to life or health (IDLH) breathing hazard environment.			
5. Fire or explosion hazards. Are fire hazards beyond a Hot Work Permit? (Reference O2, MD-10286)			
6. Work within close proximity of live electrical greater than 50 volts, conductors, and/or work that requires multiple locks, multiple hazard sources, or complicated lockout/tagout circumstances. (Reference MD-10444, <i>Lockout/Tagout Procedure Manual</i> , for multiple energy lockout/tagout.)			
7. Any maintenance or repair of equipment under pressure where the pressure cannot be shut off and de-energized.			
8. Work with high or extreme exposure to ionizing or non-ionizing radiation (reference MD-80036, Op 10002), noise, or heat or cold stress (reference D9, D13 & D16, MD-10286).			
9. Determined by an appropriate core team, building manager, member of general or executive management, or the IS&H manager to require a JSHA.			
10. Any onsite construction or service project directed to have JSAs based on this procedure and/or instruction from project personnel or IS&H staff.			
11. Near-miss event with the potential for loss of life or limb or disabling injury/illness if repeated.			
12. Excessive trauma/motion/vibration work situations or manual lifting involving heavy, large, and/or awkward-to-handle objects (reference MD-10407, <i>Ergonomics Program</i>).			
13. Unguarded, unmarked close clearance, pinch point, exposed moving machinery parts.			
14. Known potential falling object hazards (e.g., employees working above other employees, potential for dropping tools, falling equipment or material) or working in areas with the potential for flying objects (flying chips, sandblasting, etc.), exposure to sharp or protruding objects (e.g., working inside plenums, air mover ducts, etc.).			

MANDATORY JSHA REQUIRED TO ADDRESS ANY/ALL (YES) RESPONSES

Rev. 4L-A
08/25/03

This page intentionally left blank.

101
19 of 61 SS of HO

JOB SAFETY AND HEALTH ANALYSIS FORM

**JSHA MASTER DOCUMENT CONTROL NO:
BOSS - 39197**

SIGNATURES

DATE: 03/15/04	<input checked="" type="checkbox"/> NEW <input type="checkbox"/> REV	BUILDING: Main Hill Water Tower	JOB: Demolition of Main Hill Water Tower
DEPARTMENT/COMPANY: BOSS Project/CH2M Hill Mound, Inc.		SECTION: N/A	
OCCUPATIONS: Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians. Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety			

ORIGINATOR: Steve Davis
REVIEW/REV: Safety IH
REVIEW/REV: Foreman
REVIEW/REV: Bldg Mgr
APPROVED: Project Manager

REQUIRED PERSONAL PROTECTIVE EQUIPMENT: Hard Hat, Safety Glasses with side shields, safety shoes, safety vest	MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB: None
-------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES										
<p>Break the job down into basic steps that tell what is done first, what is done next, and so on.</p> <p>Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows:</p> <ol style="list-style-type: none"> 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder 	<p>Ask yourself for each job what accidents/illnesses could occur to the employee doing the job.</p> <p>Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident.</p> <table> <tr> <td>SB - Struck by</td> <td>CO - Caught on</td> </tr> <tr> <td>CB - Contacted by</td> <td>IB - Caught between</td> </tr> <tr> <td>SA - Struck against</td> <td>F - Fall</td> </tr> <tr> <td>CW - Contact with</td> <td>SO - Strain-overexertion*</td> </tr> <tr> <td>CI - Caught in</td> <td>E - Exposure (occ. illness)</td> </tr> </table> <p>*Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)</p>	SB - Struck by	CO - Caught on	CB - Contacted by	IB - Caught between	SA - Struck against	F - Fall	CW - Contact with	SO - Strain-overexertion*	CI - Caught in	E - Exposure (occ. illness)	<p>For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness.</p> <p>Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment.</p> <p>Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)</p>
SB - Struck by	CO - Caught on											
CB - Contacted by	IB - Caught between											
SA - Struck against	F - Fall											
CW - Contact with	SO - Strain-overexertion*											
CI - Caught in	E - Exposure (occ. illness)											
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	<ul style="list-style-type: none"> -Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary 										
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning (EWP), an ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.										
1. Site Preparation & Mobilization	Standard construction hazards.	-Demolition preparation is defined by 29CFR 1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.										
1a. Site Access Control	Struck by equipment, debris	<ul style="list-style-type: none"> -Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, non-project and non-emergency personnel must have acceptance of the BOSS Project Manager for entry. 										
1b. Emergency egress/access	Blocked access	<ul style="list-style-type: none"> -Buildings P and 28 will be evacuated and access will be blocked to those buildings the day of demolition. - Roadways adjacent to the Main Hill Water Tower will be blocked the day of demolition; the roadway north of the water tower will be blocked until it can be cleared of debris. 										

04/08/04 5627 TH 101

**JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)**

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2a. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286, Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.
2b. Torch cut rebar or to weaken structural members	Burns, fire Lead-based paint Premature failure	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -Strip lead-based to at least 6" on either side of areas to be torch cut. Follow IH and MSDS directions for using solvents or mechanical means for stripping. - Follow engineered, stamped drop plan.
2c. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected prior to demo by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit.
2d. Water tower demolition	Vehicle Traffic Hazard Fugitive dust Premature failure Struck by falling tower	-Control traffic with flagmen as necessary -Use water mister to reduce opportunity for fugitive dust. - Follow engineered, stamped drop plan. -Sound warning that tank drop is imminent.
2d. Demolish water tower debris and remove in-ground structures using excavator-mounted shear, hoe ram, grapple, loader, and bobcat.	Struck by flying debris Struck by moving equipment Noise Hazard	-Establish construction boundary. -Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Wear hearing protection while running heavy-duty equipment. Follow the requirements of MD-10286 D9

0420861578 #101

JOB SAFETY AND HEALTH ANALYSIS FORM

(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2e. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings.
3. Site Remediation & Demobilization	General Safety Note A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. General conditions during demolition/demobilization	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.

043066
 5527116
 101

JOB SAFETY AND HEALTH ANALYSIS FORM

(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2e. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings.
3. Site Remediation & Demobilization	General Safety Note A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. General conditions during demolition/demobilization	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.

044-2065-19-20-27-10
 101

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: H Safe Shutdown
2. WORK PACKAGE NUMBER.

[Note: Mark this section in color]

- Office Master Copy
 Field Working Copy
 Review Copy
 Other Copy
 (Original Approval Signatures)
 (Original Field Sign -Offs)

Revision Description: (attach page revisions to form)
 Add JSA 03-083 to allow connection of Temporary Power units.

Reviewed by:	Name	Signature	Date
Project Engineering:			
Project Superintendent/Foreman:			
Radiological Operations:			
Industrial Safety & Hygiene:			
Waste Management:			
Environmental Safeguards & Compliance:			
Building Manager:			
Other:			

Approved by:
 CH2M Hill Project Manager

Date

Name

Signature

101
~~046 of 61~~ 61 of 110

Appendix B

JOB STATUS LOG

048 of 61 63 of 101
101

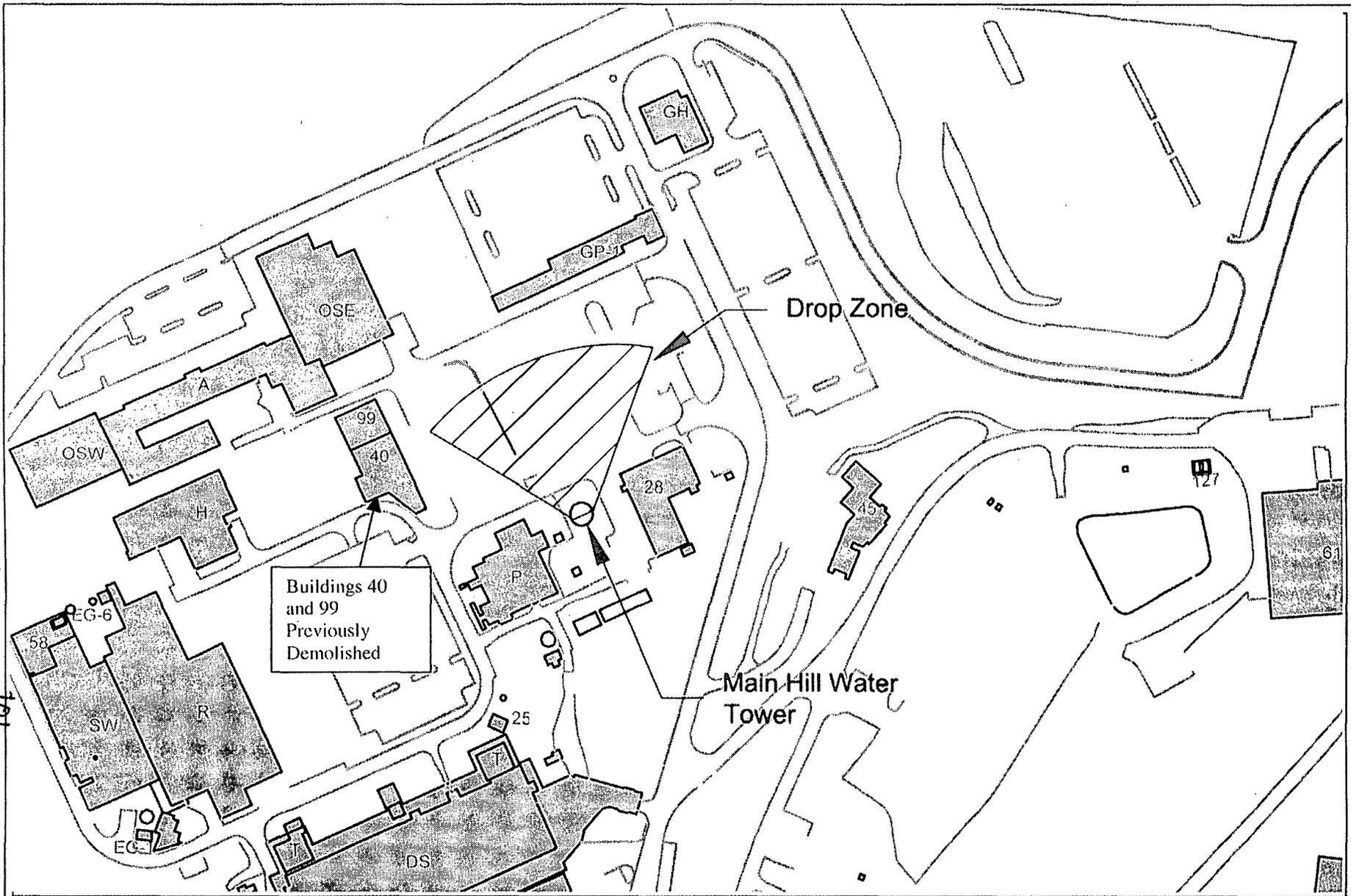
Appendix C

DRAWINGS/SKETCHES

- Drop Zone Map
- Vistamaps of Surrounding Area
- Photos

052 of 61 65 of 110 101

051 of 64 66 of 117



CH2MHILL BOSS Project

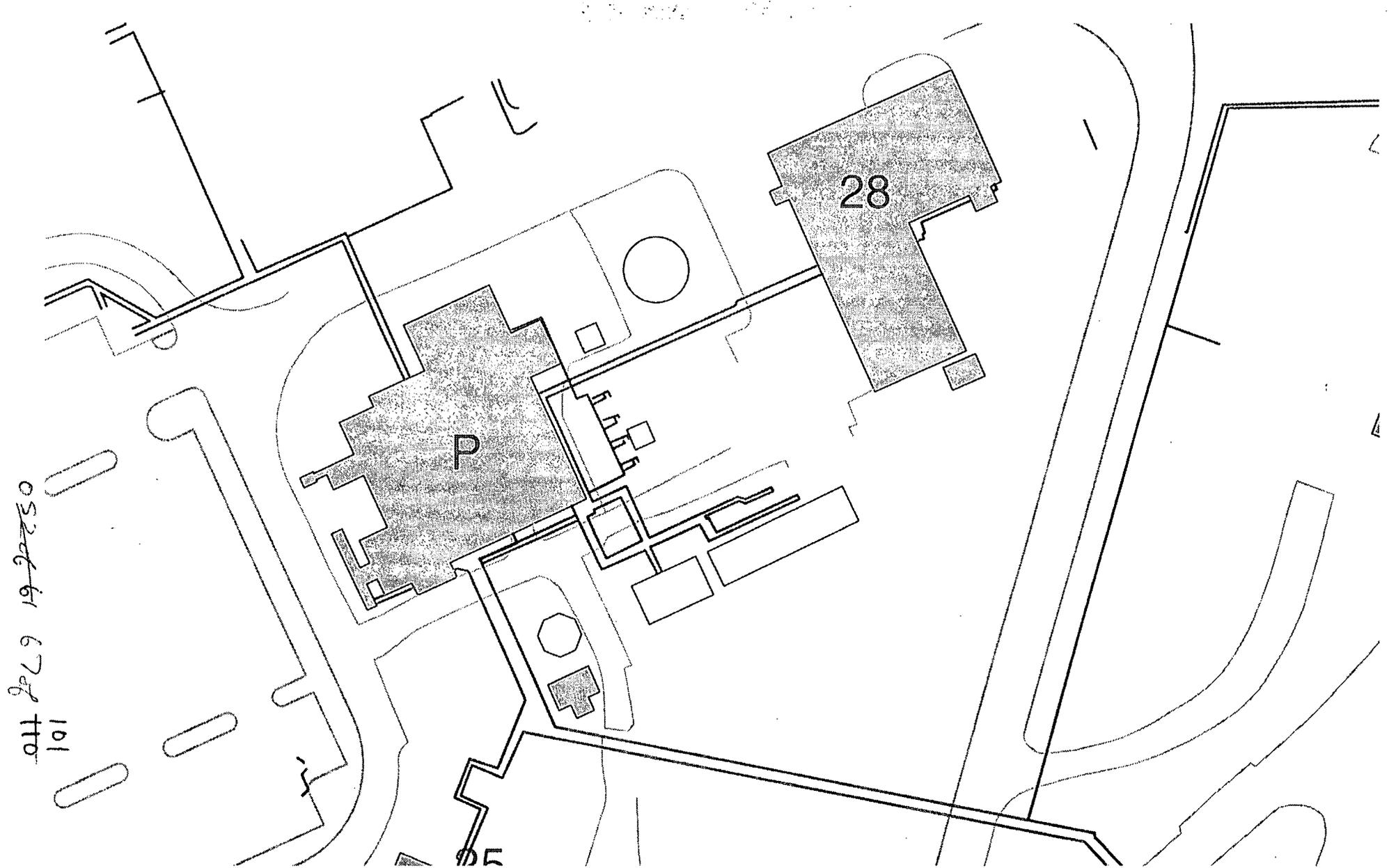
Drawing: **Main Hill Water Tower Demo**

Dwg. No. **Sketch 1**

By: **R.C. Ransbottom**

Rev: **0**

Date: **11/12/03**



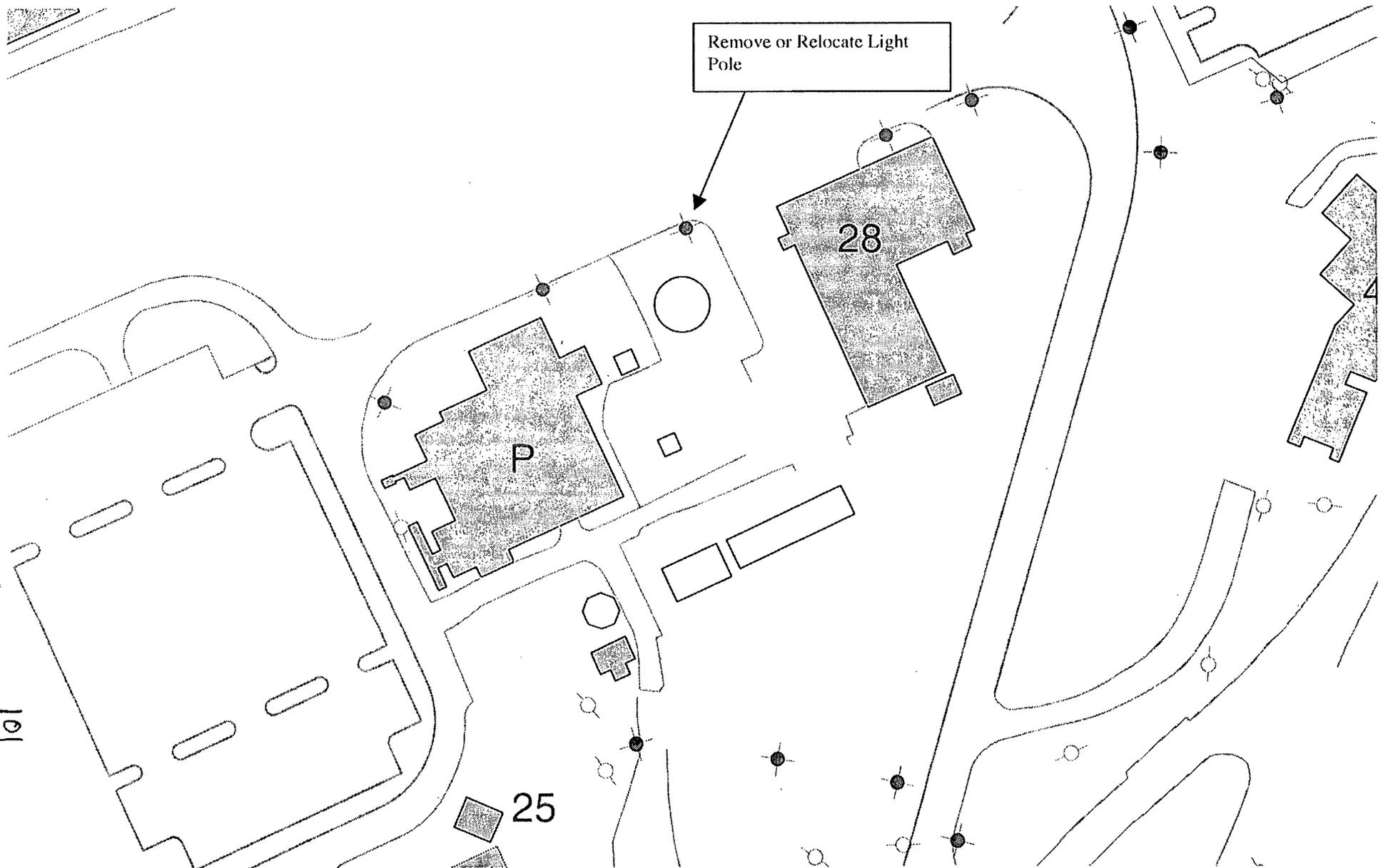
0522661 6728 tto
101

Aboveground Lines (Stanchions)

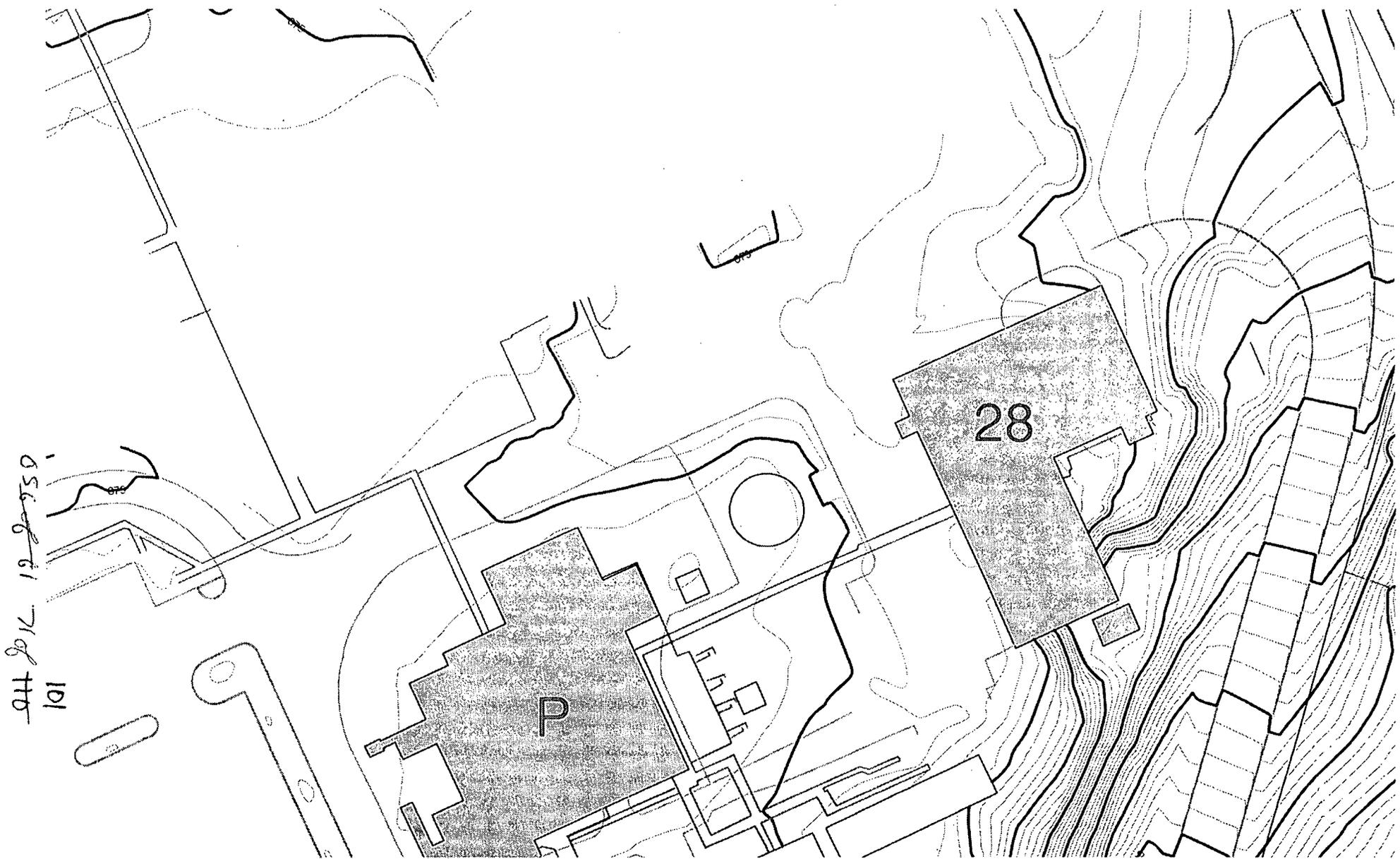


**Monitoring Wells
(None in Area)**

0472002 19 2 550
101

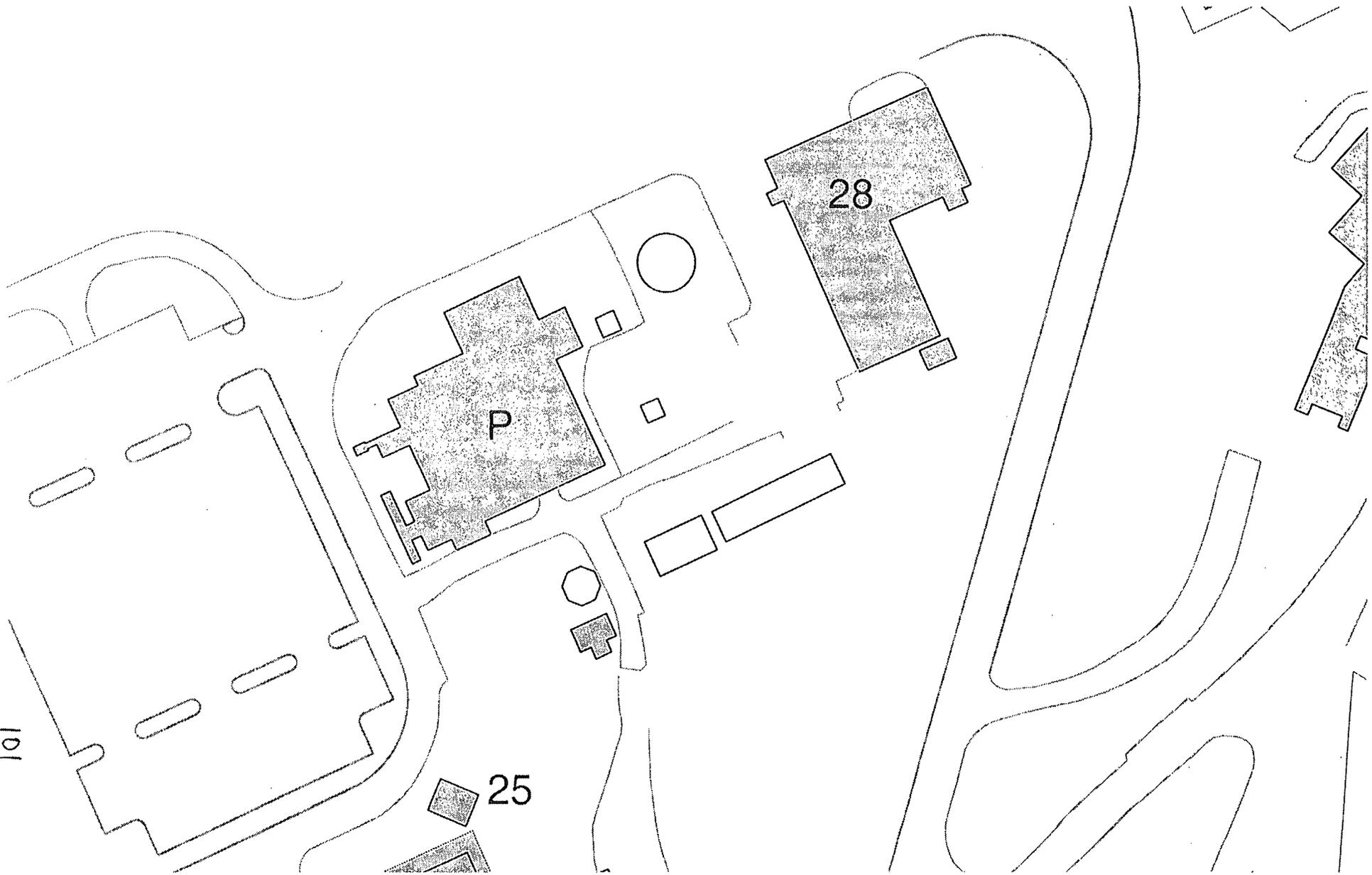


Light and Power Poles



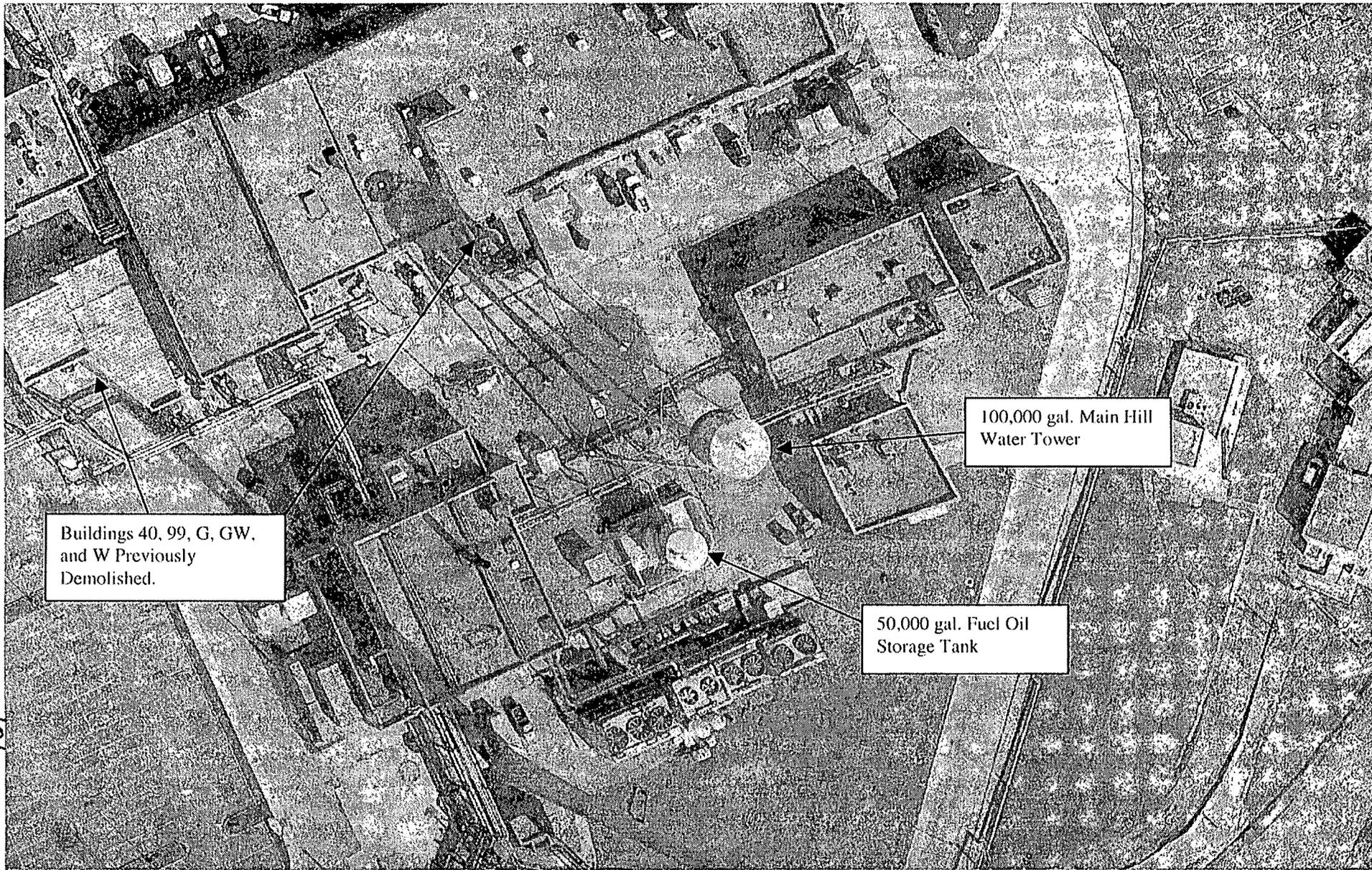
Contours

052264 726HB
101

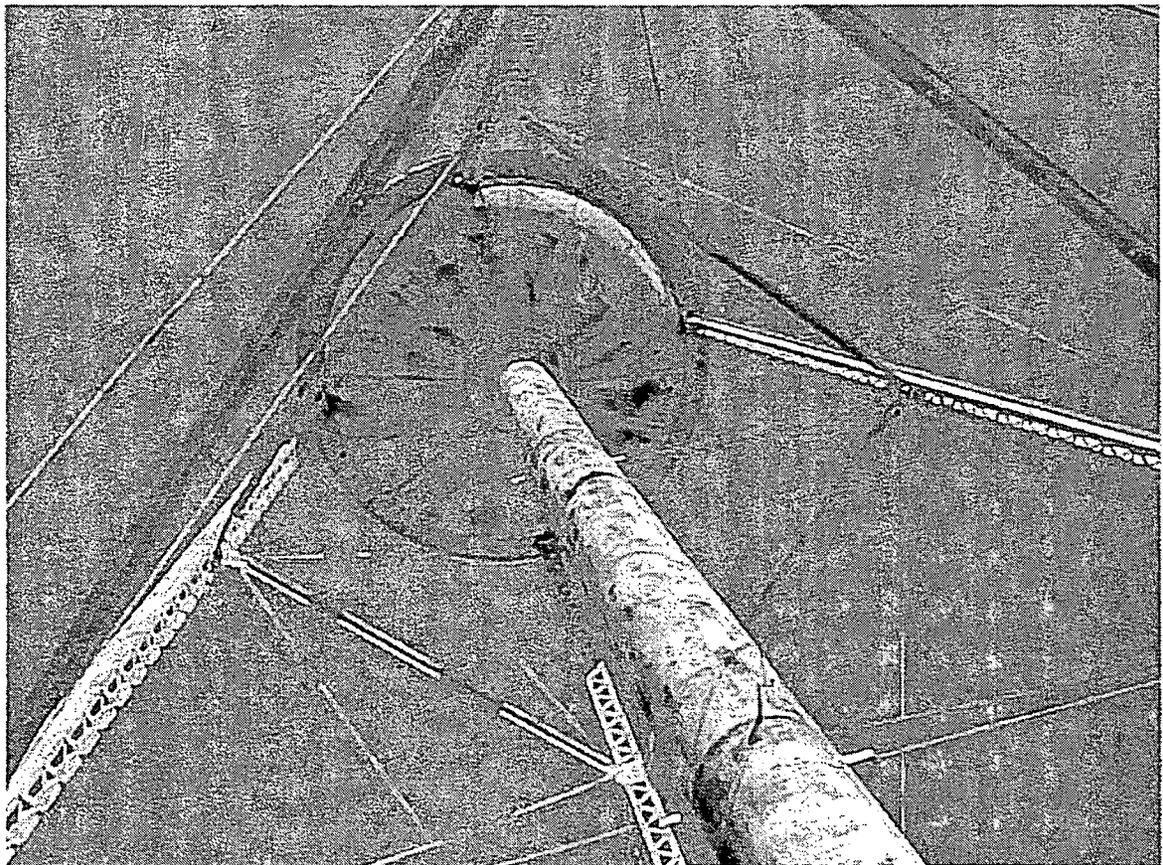
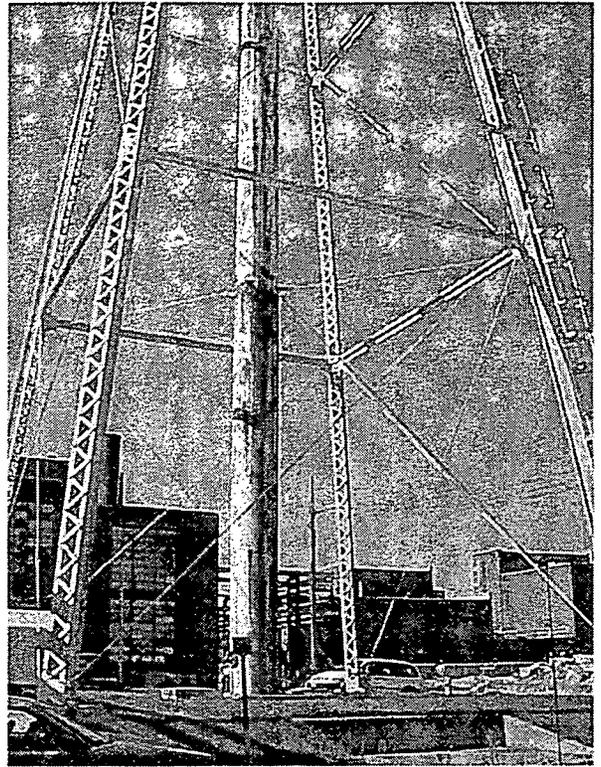
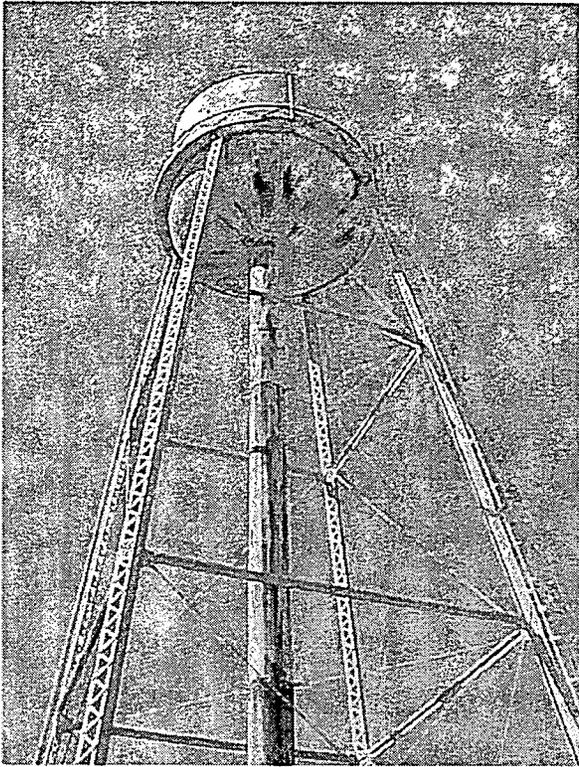


URMAs
(None in Area)

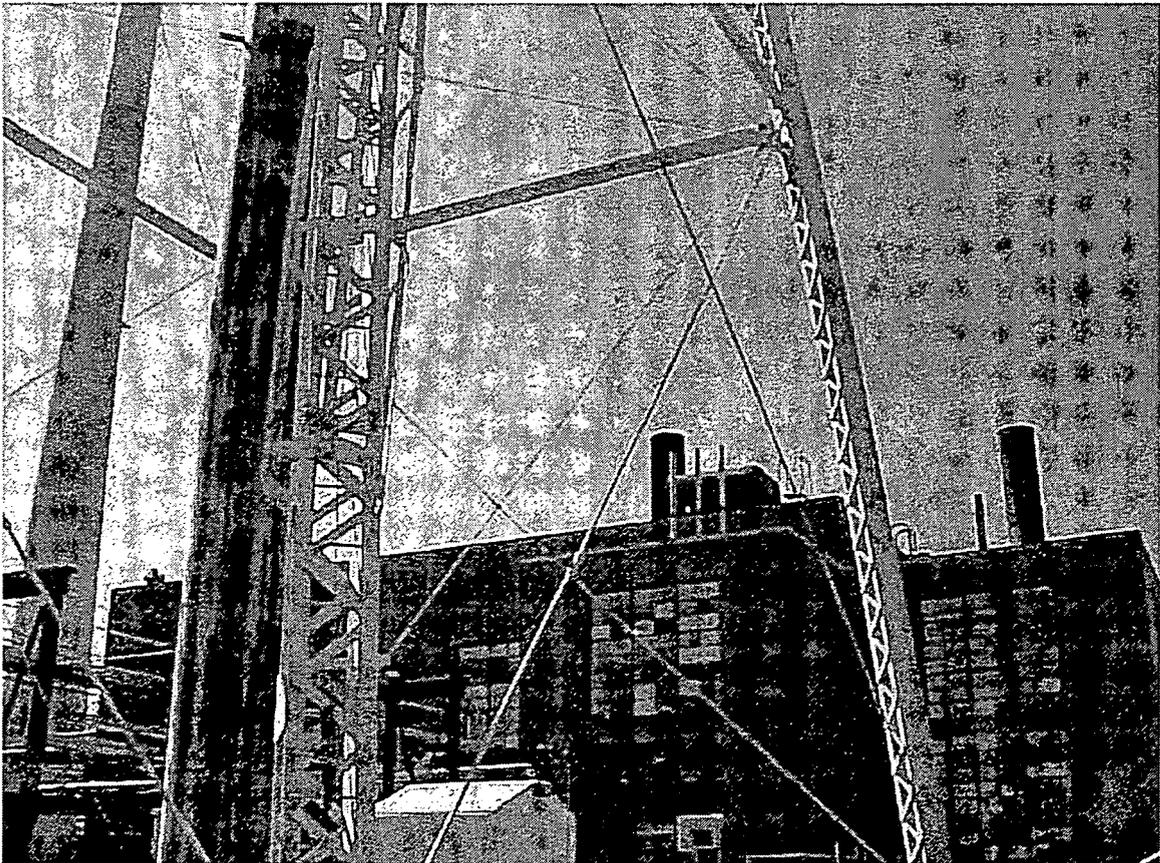
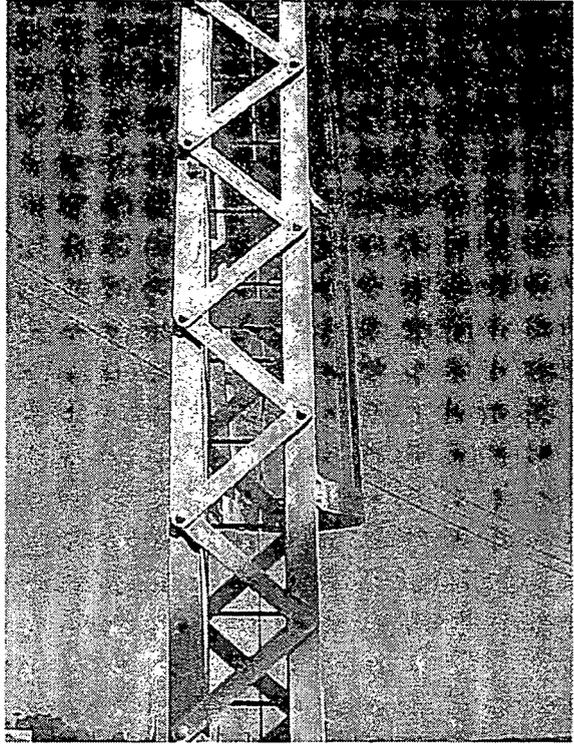
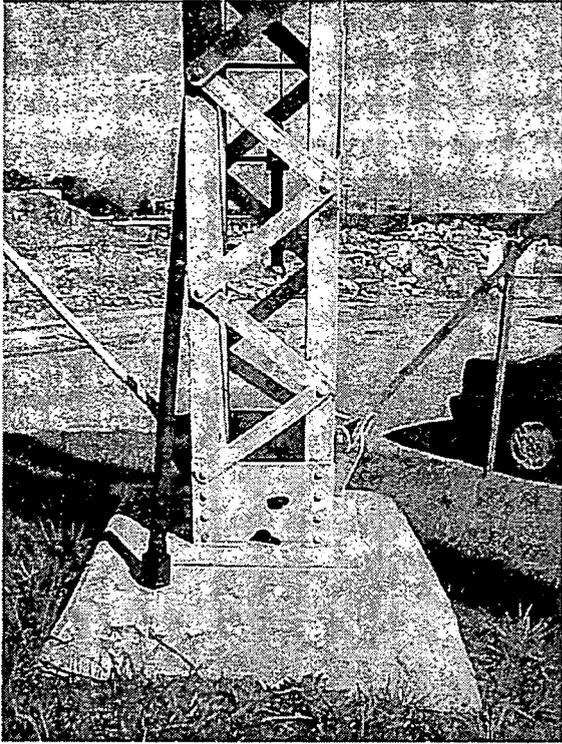
058 of 61 73 of 101



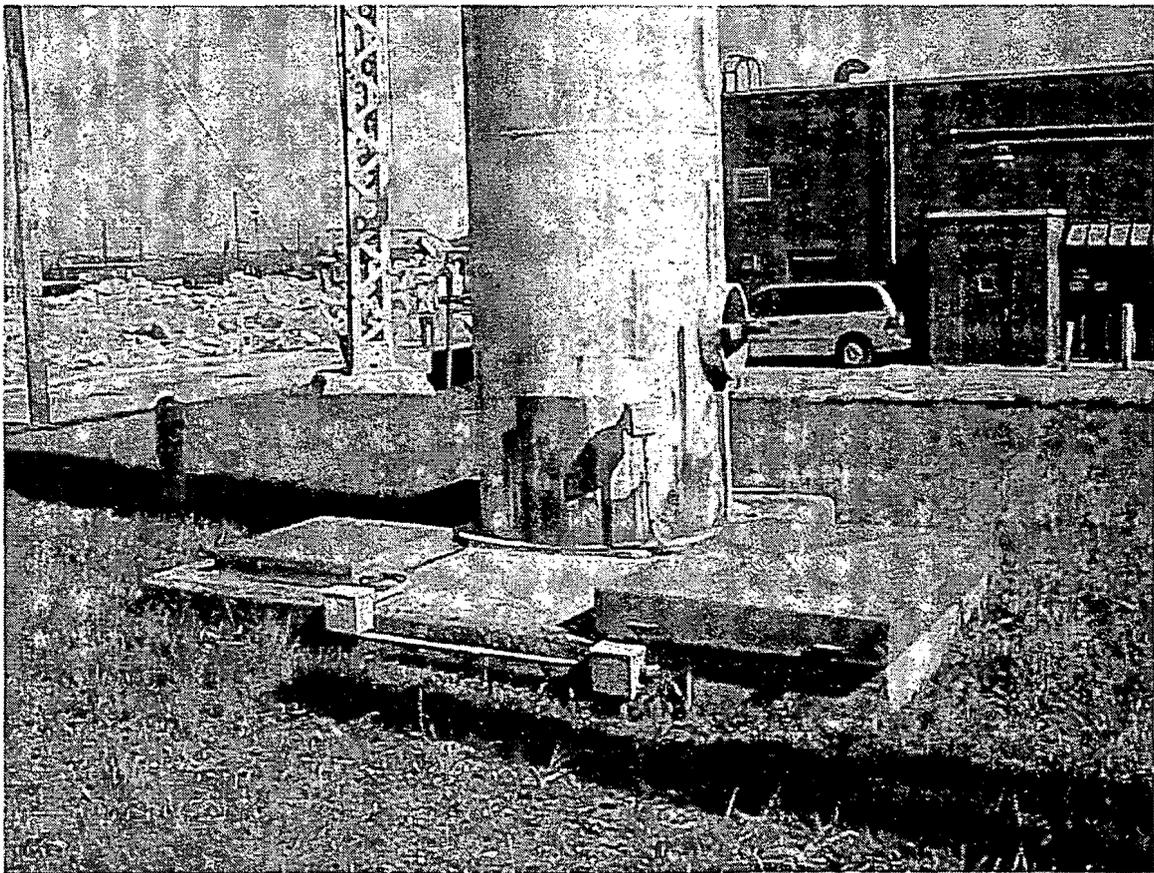
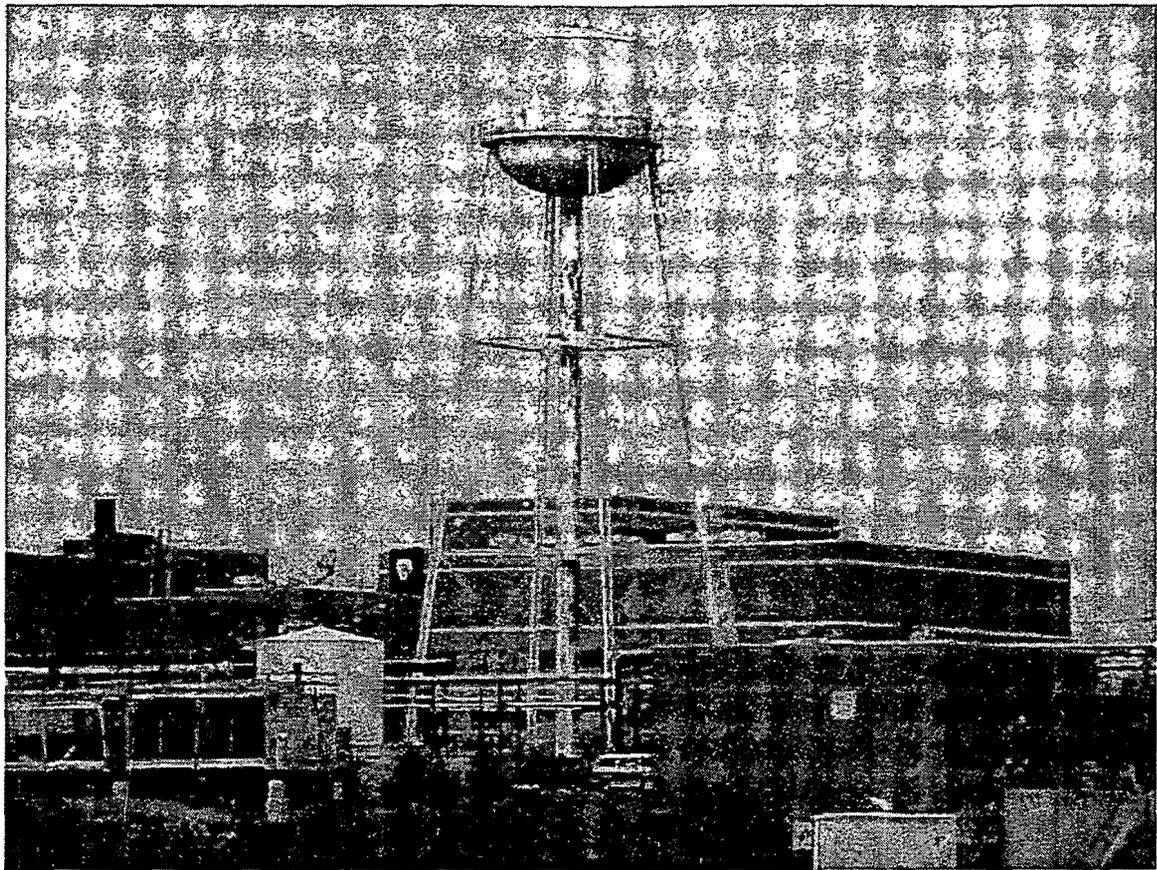
Aerial Photo



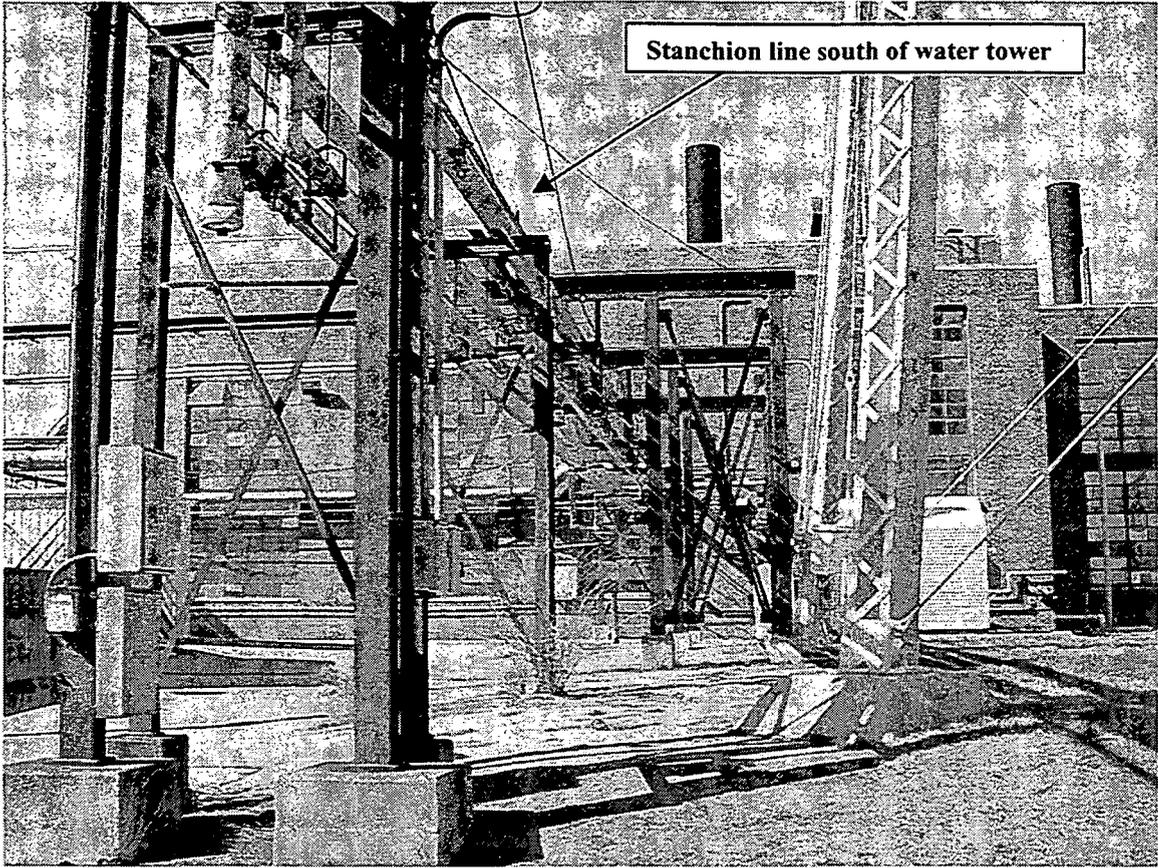
101
059-61 7406 110



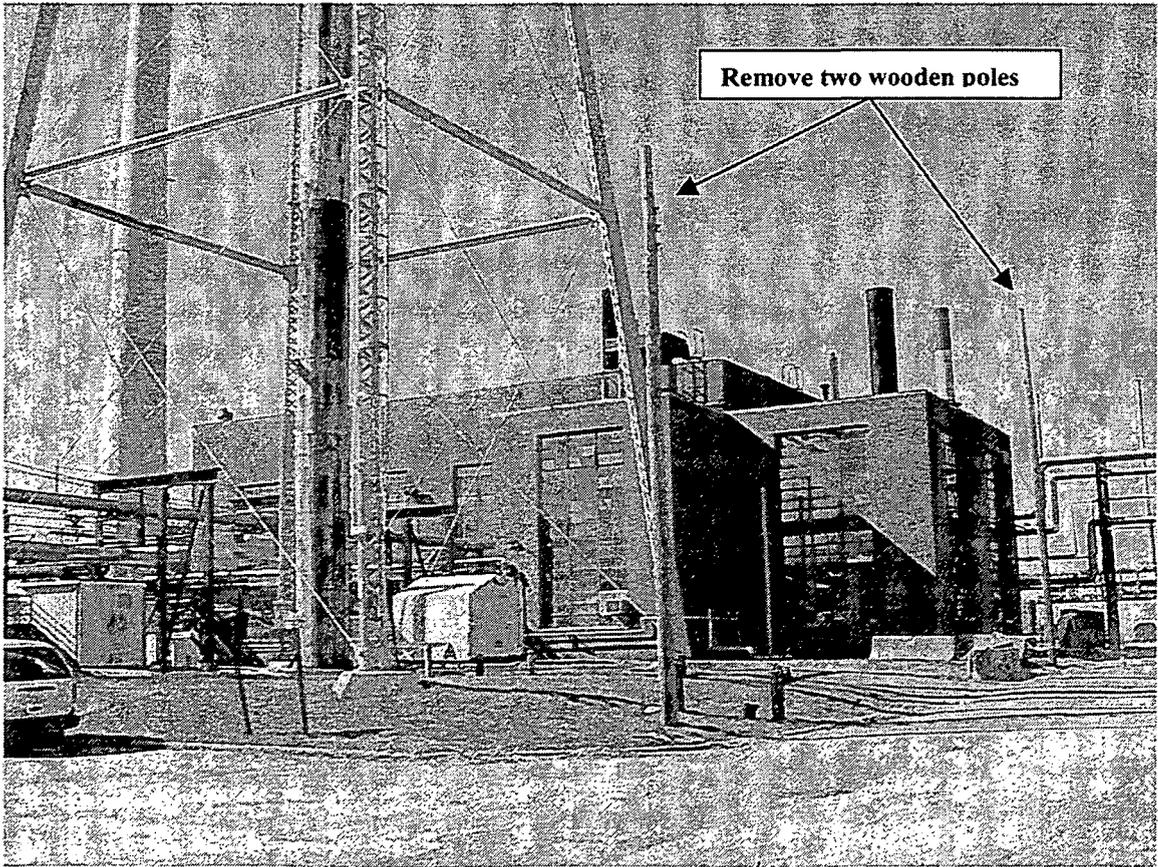
101
0606 41 7506 110



061 of 61 76 of 110 101

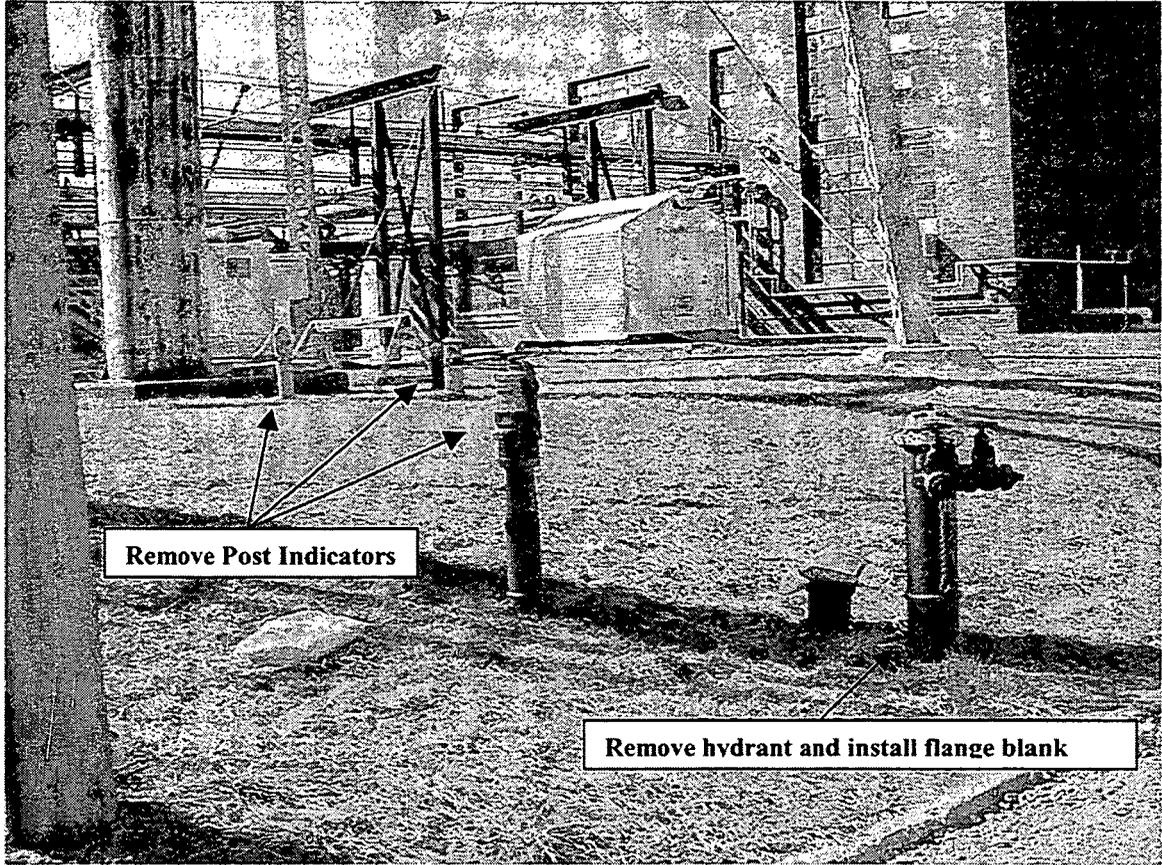


Station line south of water tower



Remove two wooden poles

07708 ¹⁰¹ ~~110~~



101
078 of 110

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

- No USQ required for this Work Package
- No RWP required for this Work Package
- Structural Engineering Survey letter, per 29 CFR 1926.850 – See Work Plan Revision Sheet
- Waste Disposition Plan
- Work Package Material List

Attachment 1 – Request To Stage Clean Hard Fill Debris at Construction Spoils Area

Work Location/ _____ Approximate Volume _____

Source of material _____

Requestor Project Group _____ Project Point of Contact _____

Name/Phone Ext _____

MSR # _____ Charge # _____

Process Knowledge (attach documentation, if more space needed):

PRS # _____ PRS Binning Status: NFA RA FA NFA Pending Stakeholder Review

Binning remarks _____

Clean up criteria for soils _____

Identify how point of origination /area is posted: (e.g. non-RMMA, URMA, SCA, CA, HCA, RMA, RMMA, FCA, etc.)
 Note: _____

Radionuclides of Concern for verification sampling: _____

Radiological Surface Contamination Not Applicable – never exposed to radionuclides circle if applicable

Survey Results: _____ <PP-1059F, Table 2-2 criteria _____ > PP-1059F, Table 2-2 criteria

In Process monitoring of excavating equipment: _____ <PP-1059F, Table 2-2 criteria _____ > PP-1059F, Table 2-2 criteria

Activation Concerns: No Yes If yes, explain

Material is released for recycle /reuse Yes No

Sending Rad POC Signature	Date
Sending Project Manager Signature	Date

Work Location/ Source of material _____

Final material use:

On-site Unrestricted Removed as LLW to disposal

Waste Management Rad POC Signature	Date
Spoils Area Foreman Signature	Date

08026 101
110

Attachment 2 — ML-9987 – D & D Solid Waste Free Release Declaration

The _____ Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) _____ have been free released in accordance with DOE Order 5400.5, MCP procedural manual MD-80043, and direction from the DOE Miamisburg Environmental Management Project (MEMP) office (letter from Provencher to Baker, MB 423-99, dated April 27, 1999). Data supporting this free release determination may be found by contacting _____, Project Manager, at _____. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

Waste Coordinator

Date

81 101
0906 110

Attachment 1, (Example) Solid Waste Debris/Roll-Off Release - ML-9901 (10/02)

SOLID WASTE ROLL-OFF RELEASE

ROLL-OFF NUMBER: _____

WASTE GENERATED: _____

BUILDING/AREA	Buildings with no Rad History		Buildings/Rooms with Rad History	COMMENTS
	ANNUAL SURVEY (DATE/NO.)	ROLL-OFF/ DEBRIS PILE SURVEY (DATE/NO.)	ITEM/AREA PRE-DEMOLITION/TRANSITION SURVEY or MARSSIM METHODOLOGY (DATE/NO.)	

09150
22
07
101

The demolition debris/solid waste being disposed of from the Mound location identified above meets the standards established by the Mound Guidance for Disposal of Solid Waste in agreement with the Ohio Environmental Protection Agency and the Ohio Department of Health Bureau of Radiological Protection. The Mound Guidance for Disposal of Solid Waste establishes standards for the survey of demolition debris and solid waste. The radiological surveys of the demolition debris/solid waste comprising this shipment were conducted in accordance with approved procedures and the use of best available technology as described in the Mound Guidance for Disposal of Solid Waste.

Waste Operations Manager or Designated Representative

Date: _____

Attachment 2 - FREE RELEASE SURVEY FOR WASTE DISPOSED OF IN ROLL-OFFS TO LOCAL LANDFILL

<p>I. BUILDINGS WITH NO RAD HISTORY (MARSSIM Non-Impacted Areas)</p> <p>ANNUAL SURVEY</p> <p>AND</p> <p>Roll-off/Debris Pile Survey</p>	<p>II. BUILDINGS/ROOMS WITH RAD HISTORY (MARSSIM Cat. 1, 2, & 3)</p> <p>PRE-DEMOLITION/TRANSITION SURVEY OR</p> <p>MARSSIM methodology for unrestricted release of building structure. Equipment/furniture left in the building for D&D or that is part of a clean-out will have a representative survey of horizontal surfaces. OR</p> <p>Item Specific free release requires a survey/evaluation in accordance with MD-80043, OP 400 or OP 500, as appropriate.</p>	<p>NOTES:</p> <p>Structural material or specific item identified as contaminated above the limits in MD-80043, Op.400 may be decontaminated and resurveyed to determine if it meets release criteria</p>
----------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

042 of 83
101

Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

85 101
0948 H0

POST JOB CONFERENCE

1. WORK PACKAGE TITLE:

2. WORK PACKAGE NUMBER.

What went well?

What could be improved?

Other Comments:

86 101
095 of 110

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

87 101
096 of 110

LESSONS LEARNED INPUT FORM

Title: (This is a brief descriptive title)

Lessons Learned Statement: (This is a brief, two or three sentence, summary of the lesson that was learned)

Discussion: (This is background and detail of what happened)

Analysis: (Discussion of what went wrong, or right and what should be done in the future)

Recommended Actions: (Identify specific corrective actions)

Submitted by: _____ Date: _____

OPTIONAL

Mail to: Lessons Learned Program Manager, Bldg. 61 or appropriate Project or Functional Manager

88 101
09706 110

Appendix F

**MATERIAL LIST
AND
PREPARATION DETAILS**

89 101
0987 110

Main Hill Water Tower Demolition

Tank Design Information

- Water Tower designed to hold ~ 100,000 gal.
- Overall Height ~ 133.0' to top of Tank
- Tank Diameter ~ 28.0'
- Length of Legs ~ 107.0'
- Tower Base at legs ~ 41.0' sq.
- Water Tower designed to support ~ 1,000,000 lbs. (When Tank is Full of Water)
- Weight of the Tank when empty is 1/7th the design capacity or ~142,858 lbs.
- Calculated material weight of water tower ~140,000 lbs.

Tank Drop Preparation Materials

- 2 ea. - (1- 40' Man Lift and 1 - 60' Man Lift)
- Grinders, paint removers, etc. for preparing torch cut areas on water tower
- 2ea. - Torch Sets and Back up Bottles
- 10 ea. - 15C33.9 Channel x 6' lengths purchase material for mock up torch work and shim driving.
- 2 ea. - 3/4" Dia. IWRC x 200'
- 20 ea. - 3/4" Crosby Clamps for cables (min. tensile strength for pulling hardware = 10,200 lbs.)
- 4 ea. - Softeners for cables
- 4 ea. - 2" Dia. shackles
- 24 ea. - 4" x 12" x 1/4" shims
- 2 ea. - Hammers for driving shims
- 2 ea. - 30,000 lb. Track excavators (690's or 790's)
- 6 ea. - Hand held radios for communications
- 8 ea. - Stakes for locating excavator positions
- Fencing/barriers to secure work area and drop zone
(500 lf min. for secure drop zone ~100.0' wide x ~ 200.0' long)
- 2 ea. - 1000 gal. Water tanks for dust control
- Booster pumps, fire hoses, fittings for dust control

Tank Drop Preparation Work

- A. Prior to day of tower drop perform the following work steps.
1. Install work zone and secure drop zone fencing/type boundaries.
 2. Cut and remove stanchion line piping servicing Building 28 to the South of water tower.
 3. Excavate and remove PI's to the North and under the Water Tower.
 4. Set up torch work mockup for practicing clean cutting materials and driving shims.
 5. Clean painted surfaces at torch cutting locations in preparation for torch cuts (14 locations).
 6. Locate and stake pull equipment (excavators) location for pull cables.
 7. Cut and remove 20' section center vertical riser.
 8. Locate and secure a safe area south of the tower for workers making tower cuts.
 9. Cut and remove 30' section of tower ladder.
 10. Blow holes for 2" shackles and place shackles.
 11. Install 3/4" cables, cables softeners and Crosby clamps at Legs L1 and L2.
 12. Position water tanks, pumps, and hoses for dust control.

03/30/2004; 6:05 AM

Page 1 of 2

96 101
09906 110

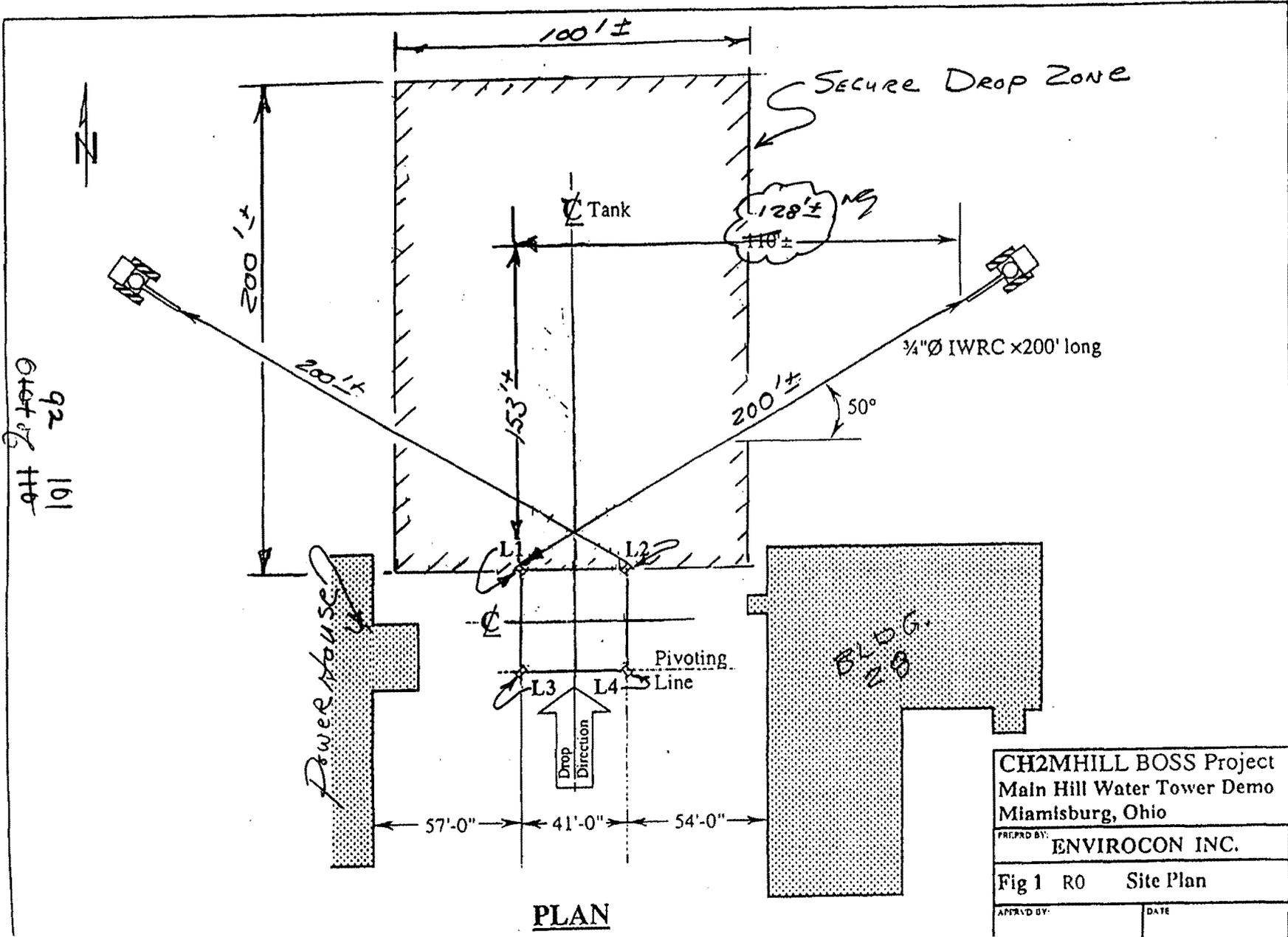
Main Hill Water Tower Demolition

- B. On day of the tower drop perform the following work steps.
1. Check local weather authority for forecasted average wind gust speeds. Wind speed to be less than 25 mph at the 100' level. Postpone drop if higher.
 2. Secure all access by foot or vehicle traffic to tower drop zone.
 3. Position excavators.
 4. Cut and remove 15' section of vertical pipes in the riser. (Horizontal bottom cuts first on all pipes).
 5. Install cables at mid point of tower legs L1 and L2.
 6. Cut X Bracing at L1 near connection.
 7. Cut Leg L1 then Leg L2 as follows:
 8. Cut Top Hinge point, (cut through 50% of one channel and stop) drive shim with hammer into 50% cut. Continue cutting through channel once shim has been placed, once shim is in place cut the lattice bars at the same elevation as top hinge.
 9. Cut Mid Hinge point, same procedure as top cut.
 10. Cut Bottom Hinge point, same procedure as top cut.
 11. Cut Leg L3 then Leg L4 by cutting 50% of both channels including gusset plates.
 12. Torch crews then exit the work area toward the secure area to the south of the tower.
 13. Once area identified as all clear the excavators will be hooked to the pull cables to begin pull of the water tower.
 14. The excavators will begin pull simultaneously until the water tower drops.

03/30/2004; 6:05 AM

Page 2 of 2

91 101
O+OO of HD



CH2MHILL BOSS Project
 Main Hill Water Tower Demo
 Miamisburg, Ohio

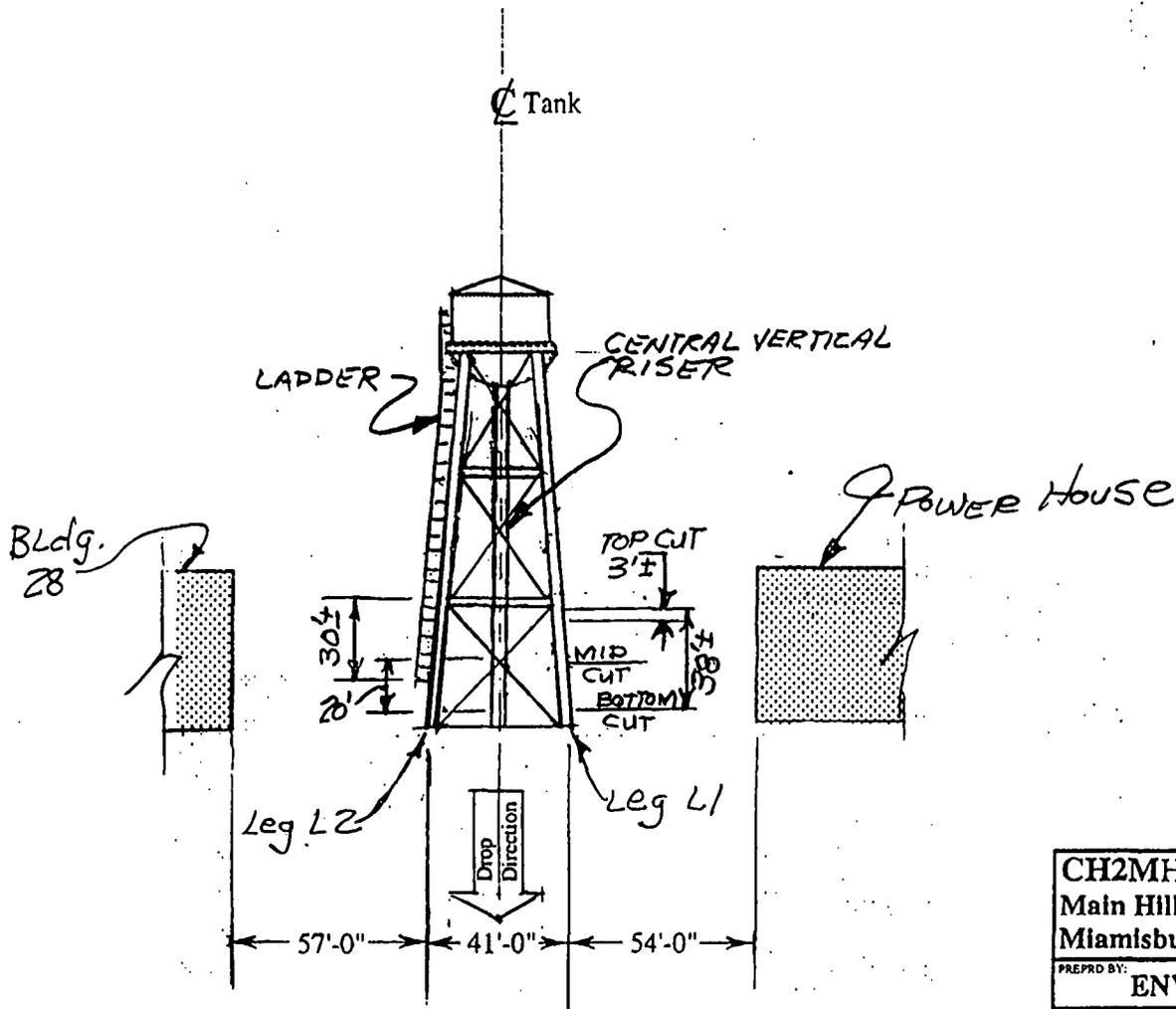
PREP'D BY:
 ENVIROCON INC.

Fig 1 R0 Site Plan

APPR'D BY:

DATE

6-10-93
101



NORTH ELEVATION

CH2MHILL BOSS Project
Main Hill Water Tower Demo
Miamisburg, Ohio

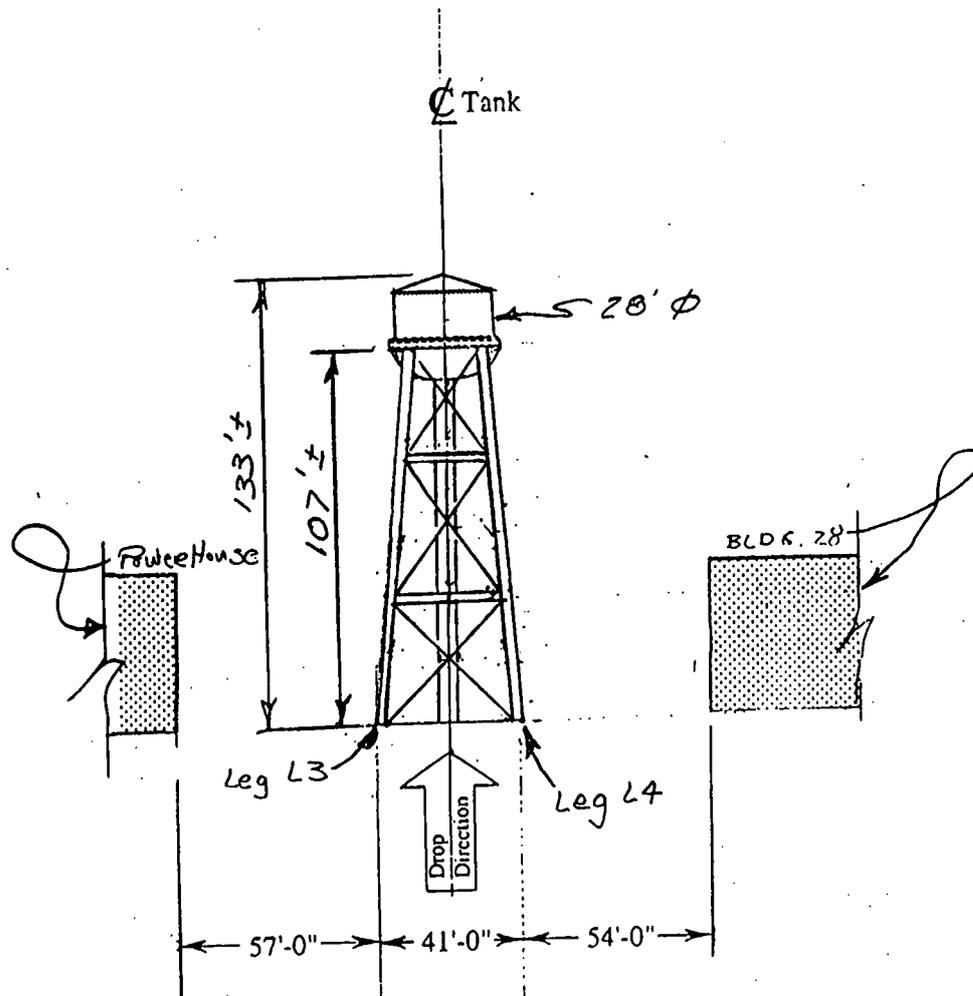
PREP'D BY:
ENVIROCON INC.

Fig 2

APPR'D BY:

DATE:

94
101
0103 of H10

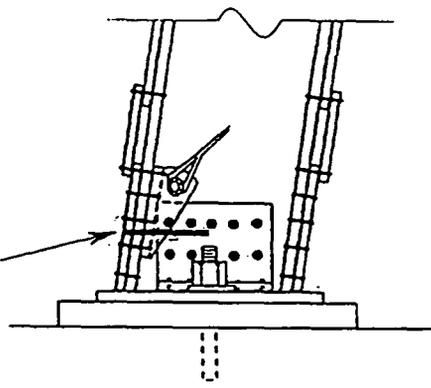
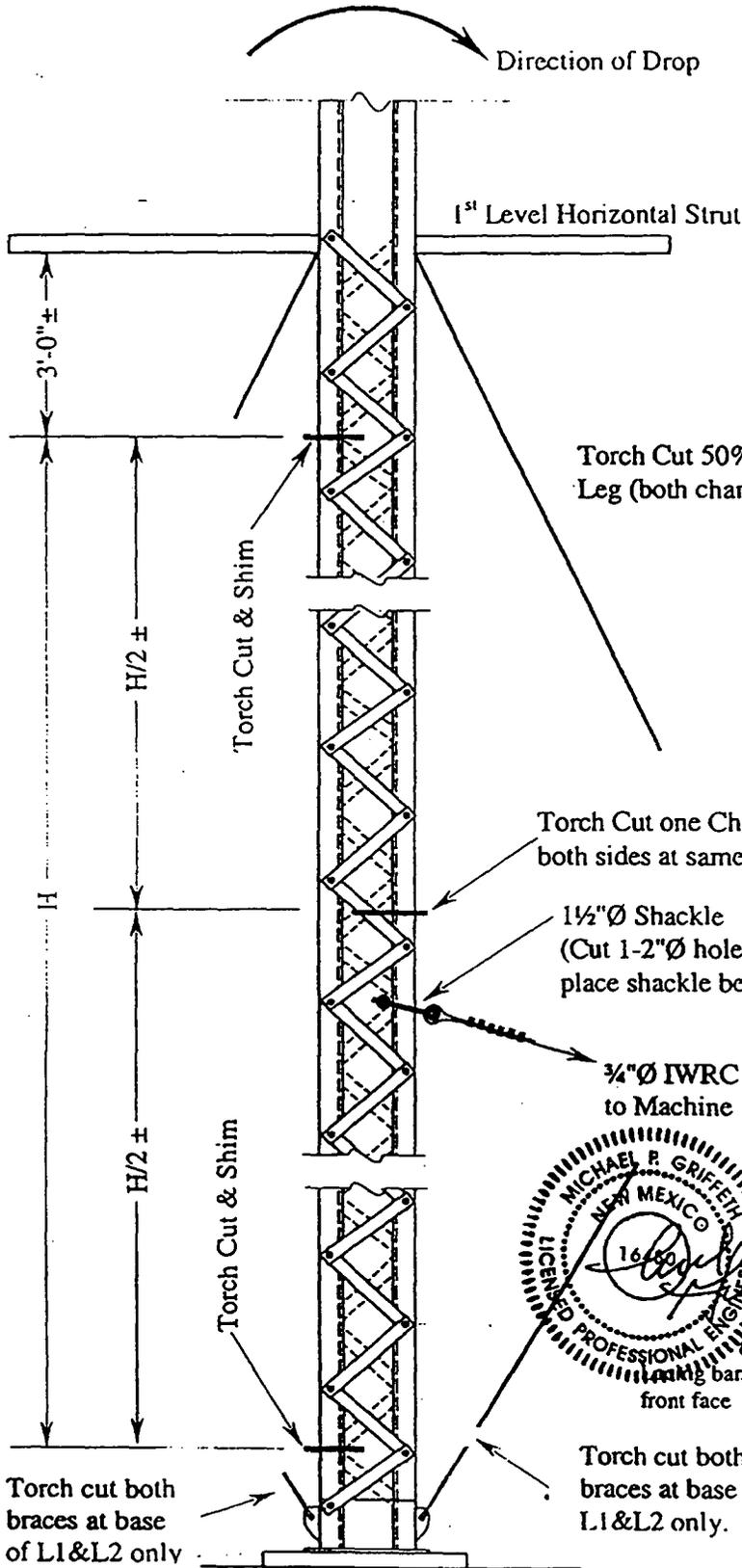


CH2MHILL BOSS Project
Main Hill Water Tower Demo
Miamisburg, Ohio

PREPARED BY:
ENVIROCON INC.

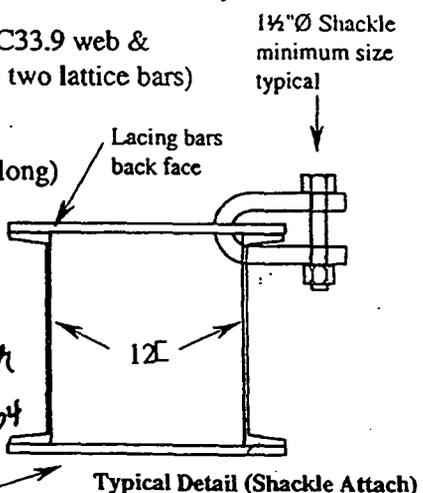
Fig 3

Note:
 1. Preparation Leg L1 as shown per E1.
 Prepare Leg L2 opposite hand



Elev. E2-E2
 (Legs L3 & L4)

MICHAEL R. GRIFFITH
 NEW MEXICO
 16880
 LICENSED PROFESSIONAL ENGINEER
 2/27/04



Typical Detail (Shackle Attach)

Elev. E1-E1
 (Projected View)
 L1 & L2

CH2MHILL BOSS Project	
Main Hill Water Tower Demo	
Miamisburg, Ohio	
PREPARED BY:	ENVIROCON
Fig 2 R0	Legs Preparation
APPROVED BY:	DATE:

95 101
 0104 of 110

Page Redacted

Contains Proprietary
Information

Page Redacted

Contains Proprietary
Information