

300402-0604240001



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

SMO-051-05
April 20, 2005

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
Contract Clause C.2.1.1
Contract Deliverable #36
BUILDING HH, OSC REPORT, FINAL

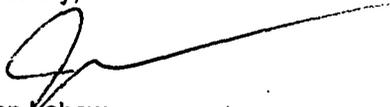
Dear Ms. Marks:

Attached is the following final document:

- Building HH, OSC Report, Final

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

Sincerely,



John Lehew
Site Manager

JL/ms
Enclosures

cc: T. Fischer, USEPA, (1) w/attachments
B. Nickel, OEPA, (1) w/attachments
R. Vandegrift, ODH, (1) w/attachments
M. Wojciechowski, Tetra Tech, w/attachments
F. Schmaltz, DOE/MCP, (1) w/attachments
L. Rawls, MCP, w/o attachments
R. Tormey, DOE/OH, (1) w/attachments
G. Desai, DOE/HQ, (1) w/attachments
CERCLA Documents, (1) w/attachments
C. Watson, (1) w/attachments
F. Bullock, MMCIC (2) w/attachments
Public Reading Room (4) w/attachments
ER Records, (1) w/attachments
DCC (1) w/attachments

Admin Record (2) w/attachments
J. Lehew, w/o attachments
D. Rakel, w/o attachments
V. Darnell, w/o attachments
B. Wier, w/o attachments
W. Webb, w/o attachments
M. McDougal, w/o attachments
MOAT Coordinator, w/o attachments
File

300402-0604240001

BUILDING HH STRUCTURE REMOVAL ACTION

PRs 148, 149, 150, 152, & 248 are closed via this OSC Report

OSC REPORT

April 2005

Final



Department of Energy
Miamisburg Closure Project



CH2MHILL

Building HH

Removal of Building HH superstructure, HH stack (PRS 248), cooling tower, three sumps (150, 151, & 152), three penthouses, three sheds, and two small attached buildings and PRSs 148, and 149, and decontamination of an underground tunnel (T to HH)

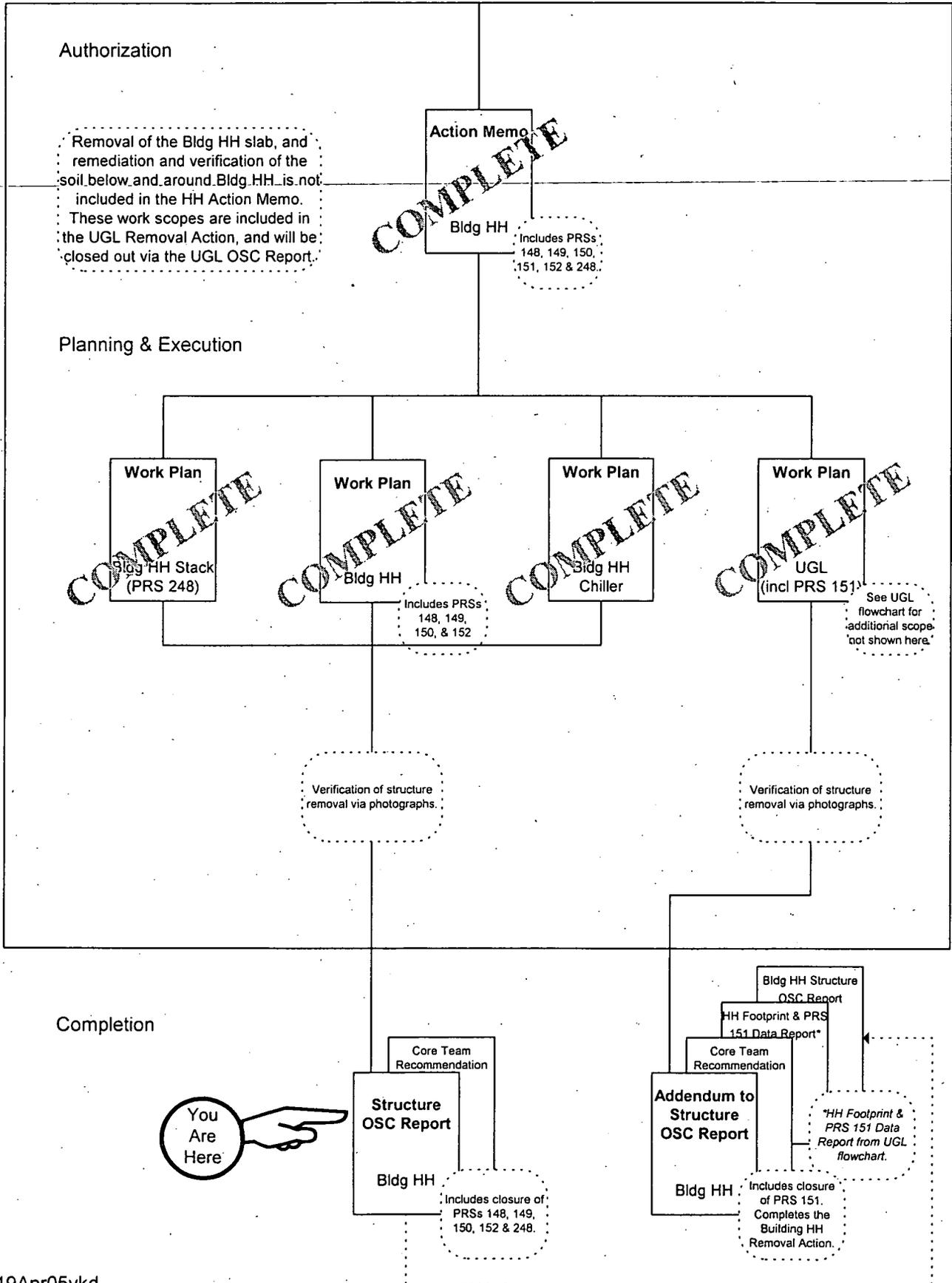


TABLE OF CONTENTS

Section	Page
Recommendation	iii
1.0 SUMMARY OF EVENTS	1
1.1 Site Conditions and Background	1
1.2 Organization of the Removal Action	2
1.3 Objectives	3
1.4 Chronological Narrative of the Removal Action	3
2.0 EFFECTIVENESS OF THE REMOVAL ACTION	4
2.1 Actions Taken by Site Contractor	4
2.2 Actions Taken by Local, State, and Federal Agencies	5
2.3 Actions Taken by Subcontractors	5
3.0 DIFFICULTIES ENCOUNTERED	6
3.1 Items that Affect the Removal Action	6
3.2 Issues of Intergovernmental Coordination	7
4.0 RECOMMENDATIONS	7
4.1 Means to Prevent Spread of Contamination	7

Figures

- Figure 1: Site Map
Figure 2: Building HH and Vicinity

Tables

- Table 1: PRSs Dispositioned with Building HH Structure Removal
Table 2: Organization of the Removal Action
Table 3: Building HH Waste Disposition
Table 4: Building HH Removal Estimated Costs

Appendices

- Appendix A: Figures
Appendix B: Tables
Appendix C: General Media Information
Appendix D: Photographic Documentation
Appendix E: Radiological Air Monitoring Results

TABLE OF CONTENTS

Acronyms

AEC	Atomic Energy Commission
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm ²	square centimeters
COC	Contaminant of Concern
DAC	Derived air concentration
DOE	Department of Energy
dpm	disintegrations per minute
EE/CA	Engineering Evaluation/Cost Analysis
HH	Hydrolysis House
LSA	Low Specific Activity
MCP	Miamisburg Closure Project
NTS	Nevada Test Site
OEPA	Ohio Environmental Protection Agency
OSC	On-Scene Coordinator
OU	Operable Unit
PRP	Potentially Responsible Party
PRS	Potential Release Site
RA	Removal Action
UGL	Underground Waste Lines
USEPA	United States Environmental Protection Agency

Recommendation

The Building HH Removal Action (authorized via the Action Memorandum EE/CA Building HH Removal Action, Final, August 2002) was performed based on radiological contamination within the building resulting from multiple processes involving radioactive wastes. The Action Memo included the demolition and disposal of Building HH, the stack (PRS 248), a cooling tower, three sumps (PRSs 150, 151, and 152), three penthouses, three sheds, two small attached buildings, and two additional structural PRSs (PRSs 148 and 149), and decontamination of an underground tunnel (connecting HH and T Buildings).

This removal action resulted in the disposal of approximately 2,788 cubic yards (cy) of radioactive waste (sent to Envirocare and the Nevada Test Site [NTS]), and approximate 920 cy of waste meeting release criteria (sent to the Stoney Hollow Landfill). The Building HH RA included only the removal of the Building HH superstructure and associated structures. Removal of the Building HH slab and foundation, and remediation and verification of soil below Building HH is authorized via the UGL Action Memorandum, and will be closed via the UGL OSC Report.

To optimize field efforts, the removal of PRS 151 was included in the UGL Work Plan as part of the slab removal. Accordingly, closure of PRS 151, decontamination surveys of HH tunnel, removal of underground drains and removal of the north wall are not included in this recommendation. A separate Core Team recommendation will be included in the Building HH Structure On-Scene Coordinator Report Addendum to document the closure of PRS 151 and conclude the HH Building RA.

Recommendation:

After a thorough review of this Building HH Structure On-Scene Coordinator Report, the Core Team agrees that PRSs 148, 149, 150, 152 & 248 are closed.



4/19/05

Paul Lucas, OSC
U.S. Department of Energy
Miamisburg, Ohio



4/19/05

Timothy J. Fischer, Remedial Project Manager
USEPA
Chicago, Illinois



4/19/05

Brian Nickel, Project Manager
OEPA
Dayton, Ohio

1.0 SUMMARY OF EVENTS

This section describes the site background and events leading up to the removal action, parties involved in supporting the removal action, chronological narrative of the removal action, and resources committed to complete the project.

1.1 Site Conditions and Background

The Building HH Removal Action (authorized via the Action Memorandum Engineering Evaluation/Cost Analysis (EE/CA) Building HH Removal Action, Final, August 2002) was performed based on radiological contamination within the building resulting from multiple processes involving radioactive wastes. The levels of radiological contamination present in Building HH warranted a Removal Action (RA) under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) and subsequent demolition of Building HH associated structures. The Action Memo included the demolition and disposal of Building HH, the stack (PRS 248), a cooling tower, three sumps (PRSs 150, 151, & 152), three penthouses, three sheds, two small attached buildings, and two additional structural PRSs (PRSs 148 and 149), and decontamination of an underground tunnel (connecting T and HH Buildings).

To optimize field efforts, the removal of PRS 151 was included in the Underline Ground Line (UGL) Work Plan as part of the slab removal. Accordingly, closure of PRS 151 is not included in this recommendation. Following removal of PRS 151 and verification of the HH to T tunnel decontamination, and the completion of the outstanding scope items listed in Section 3.1.1, an addendum to this OSC Report will be prepared with a separate Core Team recommendation to close that PRS and the Building HH RA.

The Building HH Action Memorandum only authorized the removal of the Building HH superstructure and associated structures. Removal of the Building HH slab and foundation, and remediation and verification soil below Building HH is authorized via the UGL Action Memorandum, and will be closed out in the UGL OSC Report.

Building HH Background

Building HH was a two-story, 15,276 square foot, reinforced concrete building. The building consisted of a basement, a high bay, a cooling tower, a stack, an underground tunnel, three sumps, three penthouses, three sheds, and two small-attached buildings. The main services for the building included central steam for heat, chilled ethylene glycol for cooling, and electricity.

The building was constructed in 1948 to receive and process highly acidic and highly contaminated liquid radioactive waste from the processing operations in T (Technical) Building. This waste was processed to recover bismuth for reuse. Liquid waste from this process was collected in a sump in the southwest corner of Room 6 and sent via an underground line to WD (Waste Disposal) Building. This pipeline was removed a previously. The polonium waste processing ended about 1958. In the mid-1950's, the building was also used for several projects involving separation of protactinium-231 (Pa-

231) and thorium-230 (Th-230), as well as other isotopes from some processed uranium byproduct materials obtained from other Atomic Energy Commission (AEC) operations.

In about 1960, helium-3 (He-3) separation was started in Building HH using carbon traps and thermal diffusion columns. In the early 1960s, the building was used for the separation of a variety of stable isotopes using gaseous thermal diffusion, liquid thermal diffusion, and cryogenic distillation technologies.

In the late 1970s, there was some experimental work done with uranium.

Historical information from the OU-9 Volume 7 Site Scoping Report (DOE 1993) identified two programs at Mound that initially involved synthesized cold (non-radioactive) waste while the programs were located in HH Building, and later involved uranium (after the programs were moved to other buildings) – the Reactors Fuels Program and the Reactor Waste Decontamination Program.

In the early 1980s, chemical exchange experimentation was also started in the building. The sulfur, calcium, and nitrogen isotopes were separated using packed columns.

Appendix D provides photographs of the building before, during, and after demolition.

Associated Potential Release Sites (PRs) and Previous Investigations.

Removal of the six PRs listed on Table 1 (locations shown on Figure 2) was authorized in the Building HH RA. Five of the PRs (PRs 148, 149, 150, 152, and 248) are closed via this Building HH Structure OSC Report. The remaining PRS (PRS 151) will be removed with the Building HH slab, and closed via the Addendum to the Building HH Structure OSC Report.

Removal Action. The RA for Building HH was authorized in the Action Memorandum EE/CA Building HH Removal Action, August 2002, Final.

Since DOE is the sole responsible party for cleanup of contamination in Building HH, no Potentially Responsible Parties (PRPs) were sought to clean up the site. Monsanto Research Corporation, EG&G Mound Applied Technologies, and BWXT of Ohio, Inc. were the operating contractors at the site from 1948 to 30 September 1988, from 1 October 1988 until 30 September 1997, and from 1 October 1997 until 31 December 2002 respectively. CH2M Hill Mound, Inc. became the site contractor for the Miamisburg Closure Project (MCP) effective January 1, 2003.

1.2 Organization of the Removal Action

Table 2 (Appendix B) lists the parties supporting the removal action and their responsibilities.

1.3 Objectives

Documentation Objective. The objective of this Building HH Structure OSC Report is to describe the removal action fieldwork, report the air monitoring results, and document successful completion of the project. Demolition debris quantities and disposition locations are presented in Table 3. The cost breakdown of the RA is presented in Table 4.

During demolition activities, Radiological Control performed air monitoring to confirm a safe work environment and document that no radiological contamination was released from the demolition site. Air monitoring results from the building demolition are provided in Appendix E. The highest recorded air monitoring result was 0.072 Derived air contamination (DAC). All results were below the 0.3 DAC Mound posting criteria. No worker or environmental limits were exceeded, thus the demolition activities did not pose any additional risk to human health or the environment. The verification of the removal of the building superstructure and associated structures is provided in the photographs included in Appendix D.

Removal Action Objectives: The objectives of the removal action included:

- Project Planning
- Public Participation
- Establish Work Zones
- Building Decontamination (see Section 3.1)
- Install Sheet Piles (sheet piles were not installed; see Section 3.1)
- Demolish Building (see Section 3.1)
- Verification. *(the Action Memo indicated that the soil remediation and verification would be performed per the "Test Fire Valley Soils Action Memorandum;" however, that document was subsequently named "UGL Action Memorandum.")* Verification of the removal is provided in the photographs included in Appendix D.
- Site Restoration *(will be performed following completion of the UGL Removal Action activities)*
- Documentation of Completion

1.4 Chronological Narrative of the Removal Action

The following is a chronological narrative of events surrounding the Building HH structure removal action.

Timeframe	Activity
August 2002	Final Action Memorandum released
January 2003	Building turned over to CH2M Hill

Timeframe	Activity
October 2003	Safe shutdown activities
December 2003	Stack Demolition
January 2004	Asbestos abatement
May 2004	Superstructure demolition
December 2004	Structure OSC Report generated

2.0 EFFECTIVENESS OF THE REMOVAL ACTION

The Building HH superstructure and associated structures have been demolished, and the debris removed and properly disposed of per the Work Package (HH 01935-3-a). Photographs taken before, during, and after demolition are included in Appendix D.

See Section 3.1.1 for Building HH RA tasks that will be closed via the Addendum to this report.

2.1 Actions Taken by Site Contractor

CH2M HILL Mound, Inc. personnel planned and performed removal action oversight, building decontamination, building demolition, and onsite transportation and staging of debris. The project met the removal action objectives as outlined in the Action Memorandum (Final, dated August 2002) (with the exceptions listed in Section 3.1.1). CH2M Hill Mound, Inc. personnel prepared the Structure OSC Report, which shows that the Removal Action objectives related to the building superstructure were achieved. The completion of the PRS 151 removal and the remaining tasks (Section 3.1.1) will be documented in the Building HH Structure OSC Report Addendum.

Photographs of Building HH and its stack before, during, and after demolition are provided in Appendix D. To prevent the generation of airborne radioactive contamination during demolition activities, engineering controls were employed. These controls included (but were not limited to) fixing contamination using liquid fixatives and/or foam, and using water misting to prevent fugitive dust emissions.

In accordance with the RA, the following actions were taken: public notification of the RA, demolition of the structure, and proper disposal of the debris. This Structure OSC Report provides the documentation of completion for the removal of Building HH. Soil below Building HH is not included in this RA, but is addressed in the UGL Removal Action.

The resulting demolition debris was disposed of as low-level radiological waste. Prior to demolition, acid etching was done as part of the isotopic analysis of certain contaminated areas of the structure. The resulting samples were analyzed by gamma and/or alpha spectroscopy as appropriate. The samples were then disposed of through the appropriate waste stream. Water misting was performed with the goal of eliminating fugitive dust.

Building Dismantlement and Demolition

Photographs of Building HH before, during, and after demolition are provided in Appendix D. To prevent the generation of airborne radioactive contamination during demolition activities, engineering controls were employed. These controls included (but were not limited to) fixing contamination using paint fixatives, acid etching fixed contamination locations to remove the contamination, and using water misting to prevent fugitive dust emissions.

~~Prior to demolition, Radiological Controls performed an evaluation of the radiological history of the building, and radiological surveys to identify debris within the building that met surface release criteria. Only material that met surface release criteria was released to Stoney Hollow Landfill (see Table 3). All radioactively contaminated debris was size reduced and packaged to meet the Envirocare or NTS waste acceptance criteria.~~

Air Monitoring for Worker Safety

During demolition activities, the Mound Radiological Control organization performed air monitoring to confirm a safe work environment, in accordance with 10 CFR 835. Air monitoring results measured during building demolition are provided in Appendix E. The monitors were repositioned up and downwind from the demolition activities in response to changes in wind direction.

The DAC is a calculated value for occupationally exposed radiological workers based on continuous, non-shielded exposure. The highest recorded result was 0.072 DAC. All results were well below the 0.3 DAC, which is a Mound Administrative Control level based on 10 CFR 835. During demolition activities, radiological personnel identified contaminated floor areas to ensure demolition craft employ appropriate controls to minimize dust-producing activities during size reduction of the contaminated sections of flooring.

The air monitoring results indicate that there was no airborne radiological exposure above site guidelines.

2.2 Actions Taken by Local, State, and Federal Agencies

The Department of Energy (DOE)/MCP, the United States Environmental Protection Agency (USEPA), and Ohio EPA (OEPA) had oversight responsibility for the removal action. The DOE/MCP was the lead agency for the RA and provided the funding and oversight for the RA. The USEPA and OEPA had oversight responsibility for the RA and review of the Action Memorandum and OSC Report to ensure that the objectives are/were met.

2.3 Actions Taken by Subcontractors

CH2M HILL and Safety and Ecology Corporation personnel planned and performed removal action oversight, building and stack dismantlement and demolition, air monitoring for worker safety, and onsite transportation and staging of debris.

Subcontractors involved in the project included the following:

- American Services Group, Inc. Cleves, Ohio for asbestos abatement
- International Chimney, Buffalo, New York for stack demolition.
- Rieck Mechanical Electrical Services, Dayton, Ohio for isolation of utilities.
- Safety and Ecology Corporation, Oak Ridge, Tennessee for building demolition

3.0 DIFFICULTIES ENCOUNTERED

3.1 Items that Affect the Removal Action

The following deviation from the proposed actions described in the Action Memorandum EE/CA, Building HH Removal Action, August 2002, Final, was made during the performance of the Removal Action:

- **Sheet piles were not installed, and a portion of the Building HH north wall has not yet been demolished**

The Action Memo and Work Plan indicated that approximately 150 feet of sheet pile would be installed along the building's upper perimeter to retain the upper level roadway during demolition. In lieu of installing sheet pile, an approximately 8-foot high portion of the north wall of Building HH was braced with steel supports and left in place to retain the hillside and upper level roadway. This wall will be removed during slab removal as part of the UGL RA.

3.1.1 Outstanding Building HH RA Tasks Yet To Be Completed

- PRS 151 (Table1) will be removed with the slab via the UGL Work Plan,
- The HH-T tunnel has been decontaminated; verification surveys are underway,
- Underground drains (in crawl space) will be removed with the slab via the UGL Work Plan, and
- Fixed contamination areas on remaining north wall of Building HH will be removed when the wall is removed via the UGL Work Plan.

The completion of the above items will be documented in the Building HH Structure OSC Report Addendum, which will include a separate Core Team recommendation for closure of the above items and the Building HH RA.

3.2 Issues of Intergovernmental Coordination

All DOE/USEPA/OEPA interactions were good. The agencies were updated informally on a regular basis, and formally at monthly Core Team meetings. The Mound 2000 Process worked well.

4.0 RECOMMENDATIONS

4.1 Means to Prevent Spread of Contamination

The Building HH Removal Action (with the exception of the items identified in Section 3.1.1) was performed per the Core Team-approved work plan, and all wastes properly disposed of. Upon completion of the items listed in Section 3.1.1, the spread of contamination from Building HH will be prevented. Completion of the Building HH RA will be documented in the Building HH Structure OSC Report Addendum.

Building HH footprint soil will be evaluated and remediated per the UGL RA, and documented in the UGL OSC Report. Once the Building HH OSC Report Addendum and the UGL OSC Report are complete, the area will be transferred from federal to private ownership. All State and Federal disposal rules will apply.

APPENDIX A

FIGURES



- PRS Point
- ▭ PRS Area
- ~ PRS Line



SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
ISSUE																						
SHEET	1	2	3	4	5	6																
ISSUE																						
PART CLASSIFICATION																						
UNCLASSIFIED															SIZE		DRAWING NUMBER		JOB NUMBER			
vicinity.dgn																						
DWG TYPE	STE	PRG	ER-GIS	CAUSE	SCALE	SHEET 1 OF 1																
STATUS MD-REL -03/25/03															ORGN		MSTATION / J					

Figure 2:
HH Building and Vicinity

10/07/04			SSP				
DATE	REVISION	BY	CHKD	ENG	LMCC	APVD	#

APPENDIX B

TABLES

Table 1: PRSs Dispositioned with Building HH Structure Removal

PRS	Description	Comments
148	HH Building Solidification Unit	Previously removed.
149	HH Building Pilot Incinerator	Previously removed.
150	Room HH-15 Beta Wastewater Sump (Tank 236)	Removal complete
151*	Room HH-6 Alpha Wastewater Sump (Tank 237)	Closure of PRS 151 will be documented via the Addendum to the Building HH Structure OSC Report.
152	HH Building Beta Wastewater Sump (Tank 24)	Removal complete
248	HH Building Stack	Removal complete

• To optimize field efforts, the removal of PRS 151 was included in the UGL Work Plan as part of the Building HH slab removal. Accordingly, closure of PRS 151 is not included in this OSC Report; following removal of PRS 151, an addendum to this OSC Report will be prepared with a separate Core Team recommendation to close that PRS.

Table 2: Organization of the Removal Action

Agency or Party Involved	Contact	Description of Participation
US EPA (SR-6J) 77 W. Jackson Chicago, IL 60604 312-886-7058	Timothy Fischer	Federal agency responsible for MCP oversight.
Ohio EPA 410 E. Fifth Street Dayton, OH 45402-2911 937-285-6468	Brian Nickel	State agency responsible for MCP oversight.
DOE/ MCP P.O. Box 66 1 Mound Road Miamisburg, OH 45343-0066 937-847-8350, ext. 304	Frank Schmaltz	DOE/ MCP Project Manager responsible for project oversight and success.
CH2M Hill Mound, Inc. BOSS Project P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-608-8007	Chris Watson	Provided the DOE/ MCP Project Manager with technical assistance, administrative support, sampling, decontamination, photo and site documentation, site safety, and report preparation.
CH2M Hill Mound, Inc. General Superintendent and Equipment Manager P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-865-4278	Max Edington	Provided the equipment necessary for the demolition.

Table 3: Building HH Waste Disposition

Building HH Material	Quantity	Disposal Method	Destination
Construction debris (meeting surface release criteria)	920 cubic yards	Landfill	Stoney Hollow of Ohio
Radioactive waste	2,788 cubic yards	Landfill	Envirocare of Utah and/or Nevada Test Site of Nevada

Table 4: Building HH Estimated Costs

	HH Building
Work Planning	\$7,000
Facility Prep	\$41,000
Rad Con Support	\$5,000
Demolition	\$2,927,000
Total	\$2,980,000

APPENDIX C

GENERAL MEDIA INFORMATION

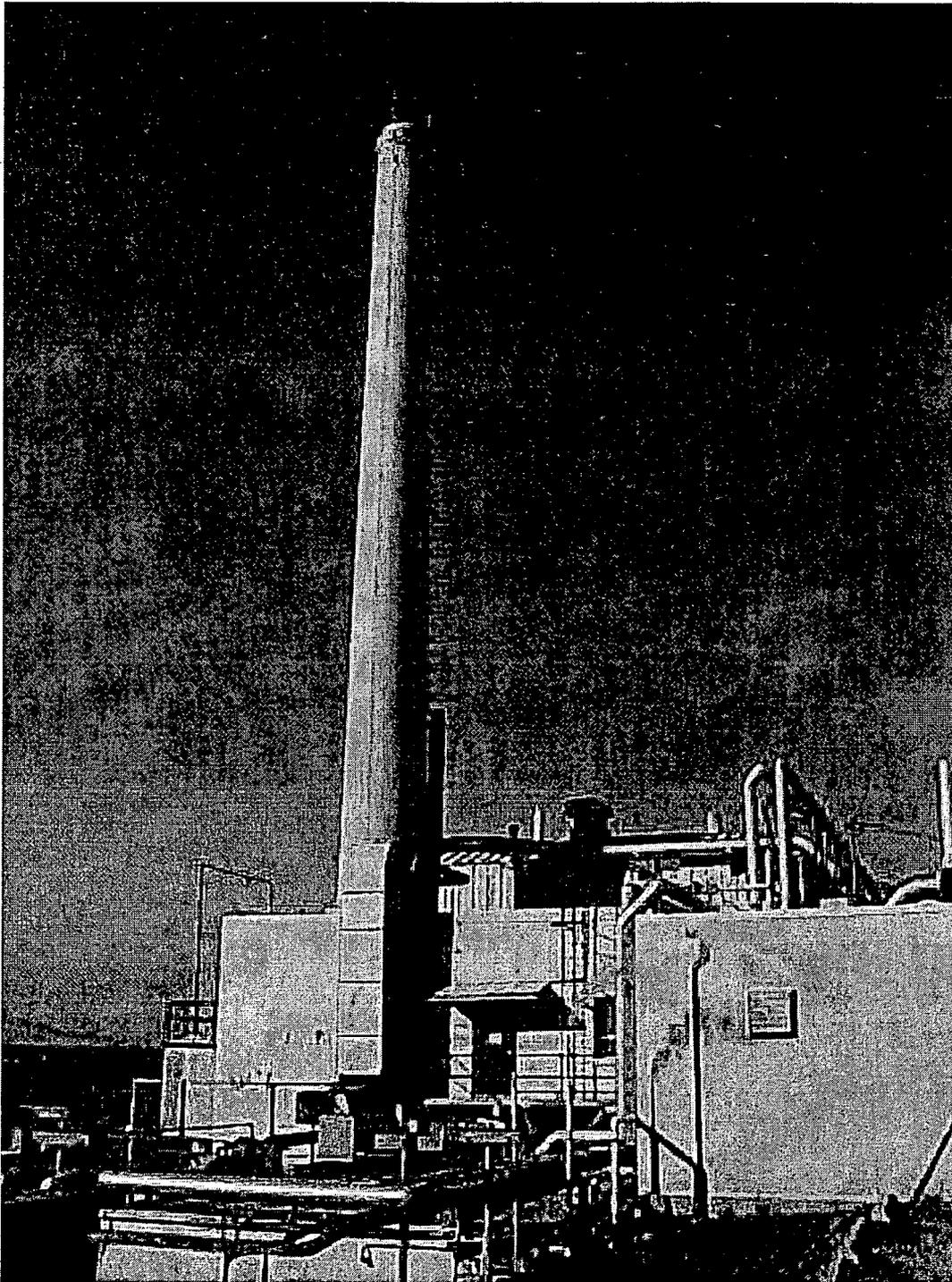
No Media Information Exists

This appendix intentionally left blank.

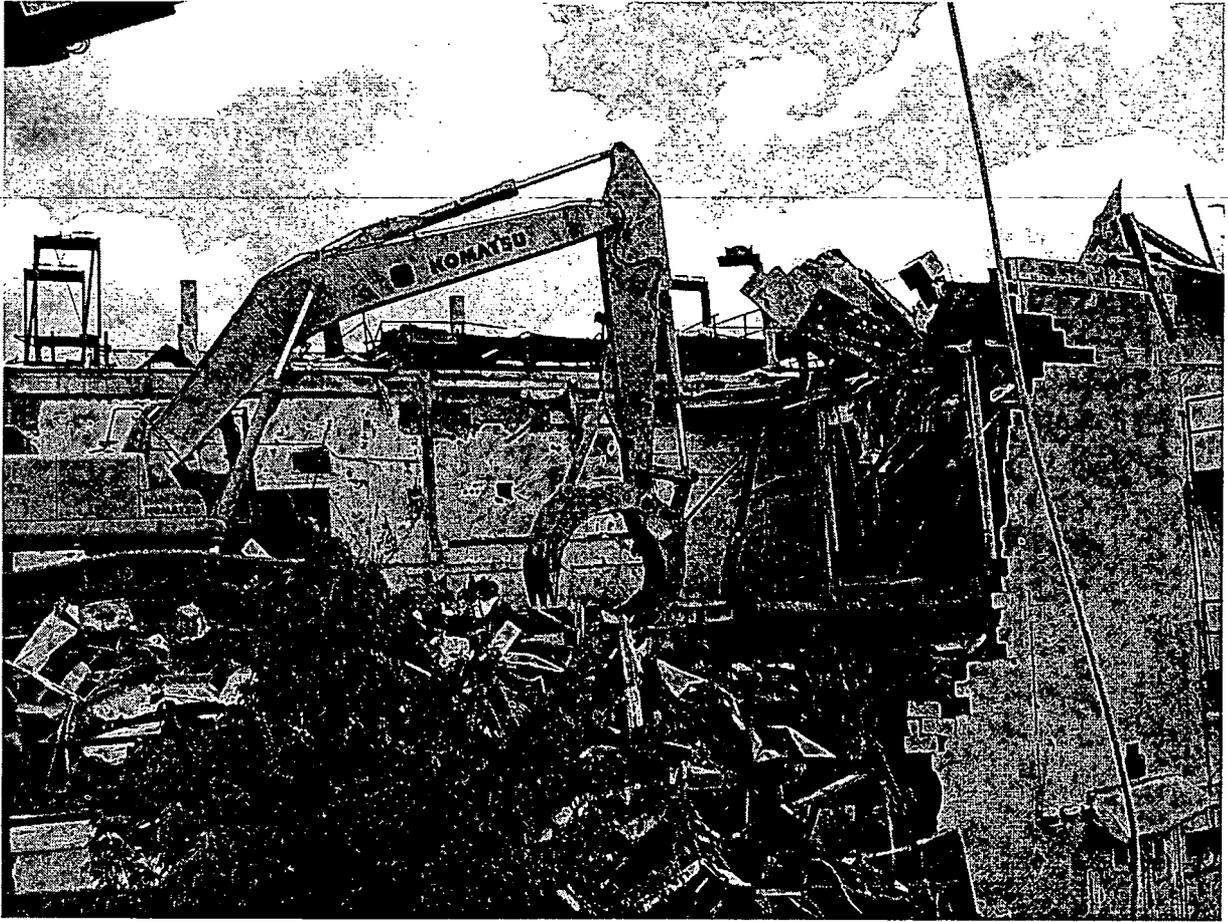
APPENDIX D

PHOTOGRAPHIC DOCUMENTATION

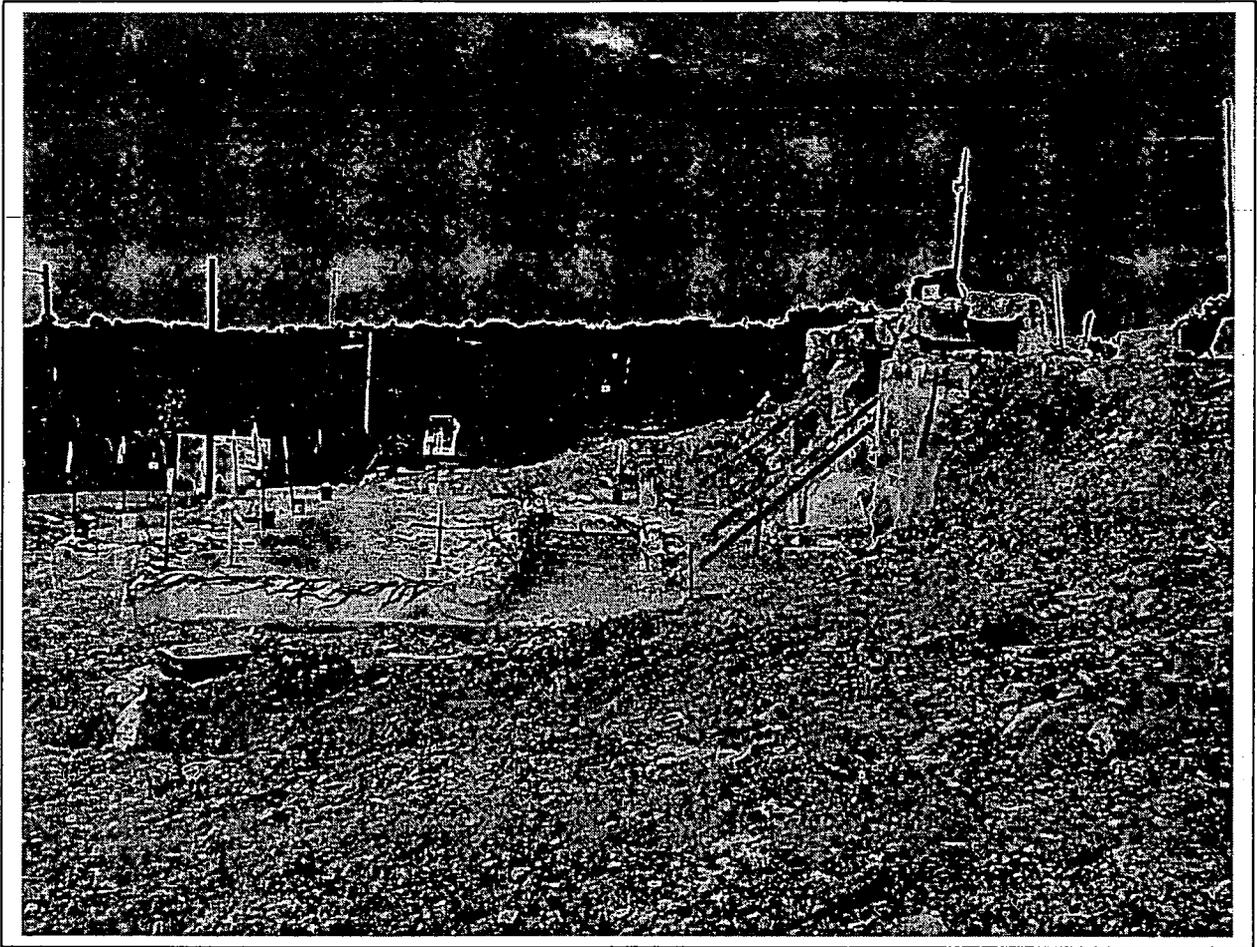
Photograph 1: Building HH Before Demolition



Photograph 2: Building HH During Demolition



Photograph 3: Building HH After Demolition



(Completion of structure demolition; slab and remaining portion of north wall to be removed via UGL RA.)

APPENDIX E

RADIOLOGICAL AIR MONITORING RESULTS

RADIOLOGICAL AIR MONITORING RESULTS

RwpNo	SampleId	StartTime	RSDSNo	Room	Area	Purpose	TotalDac
0	25236	2/23/2004	0253	122	first floor	Routine (Daily)	0.006
0	25238	2/23/2004	0253	8	Bsmt	Routine (Daily)	0.001
0	25237	2/23/2004	0253	11	Bsmt	Routine (Daily)	0.001
0	25233	2/24/2004	0254	122	1st floor	Routine (Daily)	0.008
0	25234	2/24/2004	0254	11	bsmt	Routine (Daily)	0.007
0	25235	2/24/2004	0254	8	bsmt	Routine (Daily)	0.008
0	25239	2/25/2004	0257	122	first floor	Routine (Daily)	0.001
0	25240	2/25/2004	0257	8	bsmt	Routine (Daily)	0.000
0	25241	2/26/2004	0258	122	First floor	Routine (Daily)	0.006
0	25242	2/26/2004	0258	8	bsmt	Routine (Daily)	0.000
0	25321	3/1/2004	0275	8	bsmt	Routine (Daily)	0.017
0	25320	3/1/2004	0275	122	first floor	Routine (Daily)	0.021
0	25345	3/2/2004	0289	11	ga	Routine (Daily)	0.000
0	25346	3/2/2004	0289	122	ga	Routine (Daily)	0.000
0	25347	3/3/2004	0277	11	ga	Routine (Daily)	0.000
0	25348	3/3/2004	0277	122	ga	Routine (Daily)	0.000
0	25349	3/3/2004	0285	11	ga	Routine (Daily)	0.002
0	25350	3/3/2004	0285	122	ga	Routine (Daily)	0.000
0	25403	3/8/2004	0293	11	ga	Routine (Daily)	0.024
0	25404	3/8/2004	0293	122	ga	Routine (Daily)	0.030
0	25421	3/9/2004	0297	11	ga	Routine (Daily)	0.017
0	25422	3/9/2004	0297	122	ga	Routine (Daily)	0.027
0	25423	3/10/2004	0305	11	ga	Routine (Daily)	0.019
0	25424	3/10/2004	0305	111	ga	Routine (Daily)	0.018
0	25425	3/11/2004	0310	11	ga	Routine (Daily)	0.016
0	25426	3/11/2004	0310	111	ga	Routine (Daily)	0.022
0	25513	3/15/2004	0315	111	ga	Routine (Daily)	0.012
0	25514	3/15/2004	0315	11	ga	Routine (Daily)	0.019
0	25537	3/17/2004	0345	111	ga	Routine (Daily)	0.008
0	25538	3/17/2004	0345	11	ga	Routine (Daily)	0.005
0	26237	4/27/2004	0490	os	ne	Boundary Verification	0.004
0	26239	4/27/2004	0490	os	sw	Boundary Verification	0.008
0	26238	4/27/2004	0490	os	se	Boundary Verification	0.000
1540	24571	1/16/2004	0088	8	BASEMENT	Posting Verification	0.042
1540	25232	2/19/2004	0220	8	SW corn.	Job Coverage	0.002
1582	25792	4/1/2004	0401	8	g/a	Posting Verification	0.001
1582	25898	4/5/2004	0419	8	g/a	Posting Verification	0.004
1582	25899	4/6/2004	0420	8	g/a	Posting Verification	0.002
1581	26028	4/13/2004	0439	8	g/a	Material Conf. C & V	0.072
1540	26134	4/14/2004	0449	crawl	g/a	See Comments	0.000
1584	26240	4/28/2004	0491	os	ne	Boundary Verification	0.005
1584	26241	4/28/2004	0491	os	se	Boundary Verification	0.004

RwpNo	SampleId	StartTime	RSDSNo	Room	Area	Purpose	TotalDac
1584	26242	4/28/2004	0491	os	nw	Boundary Verification	0.006
1584	26247	4/29/2004	0496	os	ne	Boundary Verification	0.006
1584	26249	4/29/2004	0496	os	nw	Boundary Verification	0.006
1584	26248	4/29/2004	0496	os	se	Boundary Verification	0.004
1584	26353	5/3/2004	0500	os	ne	Boundary Verification	0.008
1584	26355	5/3/2004	0500	os	nw	Boundary Verification	0.007
1584	26354	5/3/2004	0500	os	se	Boundary Verification	0.007
1584	26356	5/3/2004	0500	os	sw	Boundary Verification	0.009
1584	26473	5/4/2004	0504	os	ne	Boundary Verification	0.000
1584	26368	5/4/2004	0504	os	ne	Boundary Verification	0.005
1584	26474	5/4/2004	0504	os	se	Boundary Verification	0.000
1584	26369	5/4/2004	0504	os	se	Boundary Verification	0.004
1584	26475	5/4/2004	0504	os	nw	Boundary Verification	0.000
1584	26476	5/4/2004	0504	os	sw	Boundary Verification	0.000
1584	26370	5/4/2004	0504	os	nw	Boundary Verification	0.005
1584	26371	5/4/2004	0504	os	sw	Boundary Verification	0.005
1584	26481	5/5/2004	0508	os	ne	Boundary Verification	0.000
1584	26376	5/5/2004	0508	os	ne	Boundary Verification	0.010
1584	26483	5/5/2004	0508	os	nw	Boundary Verification	0.000
1584	26378	5/5/2004	0508	os	nw	Boundary Verification	0.004
1584	26482	5/5/2004	0508	os	se	Boundary Verification	0.000
1584	26377	5/5/2004	0508	os	se	Boundary Verification	0.006
1584	26379	5/5/2004	0508	os	sw	Boundary Verification	0.010
1584	26484	5/5/2004	0508	os	sw	Boundary Verification	0.000
1584	26492	5/6/2004	0515	os	sw	Boundary Verification	0.000
1584	26387	5/6/2004	0515	os	sw	Boundary Verification	0.007
1584	26490	5/6/2004	0515	os	se	Boundary Verification	0.000
1584	26385	5/6/2004	0515	os	se	Boundary Verification	0.001
1584	26489	5/6/2004	0515	os	ne	Boundary Verification	0.000
1584	26384	5/6/2004	0515	os	ne	Boundary Verification	0.007
1584	26491	5/6/2004	0515	os	nw	Boundary Verification	0.000
1584	26386	5/6/2004	0515	os	nw	Boundary Verification	0.005
1584	26555	5/10/2004	0519	os	ne	Boundary Verification	0.000
1584	26556	5/10/2004	0519	os	se	Boundary Verification	0.000
1584	26557	5/10/2004	0519	os	nw	Boundary Verification	0.000
1584	26558	5/10/2004	0519	os	sw	Boundary Verification	0.000
1584	26507	5/10/2004	0519	os	ne	Boundary Verification	0.017
1584	26508	5/10/2004	0519	os	se	Boundary Verification	0.016
1584	26509	5/10/2004	0519	os	nw	Boundary Verification	0.011
1584	26510	5/10/2004	0519	os	sw	Boundary Verification	0.016
1584	26637	5/11/2004	0525	os	ne	Boundary Verification	0.000
1584	26638	5/11/2004	0525	os	se	Boundary Verification	0.000
1584	26639	5/11/2004	0525	os	nw	Boundary Verification	0.000
1584	26640	5/11/2004	0525	os	sw	Boundary Verification	0.000
1584	26527	5/11/2004	0525	os	se	Boundary Verification	0.004
1584	26528	5/11/2004	0525	os	nw	Boundary Verification	0.005
1584	26529	5/11/2004	0525	os	sw	Boundary Verification	0.007

RwpNo	SampleId	StartTime	RSDSNo	Room	Area	Purpose	TotalDac
1584	26526	5/11/2004	0525	os	ne	Boundary Verification	0.008
1584	26645	5/12/2004	0528	os	ne	Boundary Verification	0.000
1584	26646	5/12/2004	0528	os	se	Boundary Verification	0.000
1584	26534	5/12/2004	0528	os	ne	Boundary Verification	0.005
1584	26535	5/12/2004	0528	os	se	Boundary Verification	0.004
1584	26536	5/12/2004	0528	os	nw	Boundary Verification	0.004
1584	26647	5/12/2004	0528	os	nw	Boundary Verification	0.000
1584	26652	5/13/2004	0532	os	ne	Boundary Verification	0.000
1584	26653	5/13/2004	0532	os	se	Boundary Verification	0.000
1584	26654	5/13/2004	0532	os	nw	Boundary Verification	0.000
1584	26655	5/13/2004	0532	os	sw	Boundary Verification	0.000
1584	26541	5/13/2004	0532	os	ne	Boundary Verification	0.008
1584	26542	5/13/2004	0532	os	se	Boundary Verification	0.004
1584	26543	5/13/2004	0532	os	nw	Boundary Verification	0.004
1584	26544	5/13/2004	0532	os	sw	Boundary Verification	0.005
1584	26677	5/17/2004	0539	os	sw	Boundary Verification	0.000
1584	26675	5/17/2004	0539	os	se	Boundary Verification	0.000
1584	26674	5/17/2004	0539	os	ne	Boundary Verification	0.000
1584	26676	5/17/2004	0539	os	nw	Boundary Verification	0.000
1584	26832	5/18/2004	0545	os	se	Boundary Verification	0.000
1584	26692	5/18/2004	0545	os	se	Boundary Verification	0.005
1584	26834	5/18/2004	0545	os	sw	Boundary Verification	0.000
1584	26694	5/18/2004	0545	os	sw	Boundary Verification	0.005
1584	26833	5/18/2004	0545	os	nw	Boundary Verification	0.000
1584	26693	5/18/2004	0545	os	nw	Boundary Verification	0.000
1584	26831	5/18/2004	0545	os	ne	Boundary Verification	0.000
1584	26691	5/18/2004	0545	os	ne	Boundary Verification	0.005
1584	26825	5/19/2004	0551	os	sw	Boundary Verification	0.000
1584	26700	5/19/2004	0551	os	sw	Boundary Verification	0.003
1584	26698	5/19/2004	0551	os	se	Boundary Verification	0.003
1584	26823	5/19/2004	0551	os	se	Boundary Verification	0.000
1584	26699	5/19/2004	0551	os	nw	Boundary Verification	0.004
1584	26824	5/19/2004	0551	os	nw	Boundary Verification	0.000
1584	26822	5/19/2004	0551	os	ne	Boundary Verification	0.000
1584	26697	5/19/2004	0551	os	ne	Boundary Verification	0.003
1584	26792	5/20/2004	0556	os	nw	Boundary Verification	0.000
1584	26661	5/20/2004	0556	os	nw	Boundary Verification	0.004
1584	26790	5/20/2004	0556	os	ne	Boundary Verification	0.000
1584	26659	5/20/2004	0556	os	ne	Boundary Verification	0.003
1584	26793	5/20/2004	0556	os	sw	Boundary Verification	0.000
1584	26662	5/20/2004	0556	os	sw	Boundary Verification	0.005
1584	26791	5/20/2004	0556	os	se	Boundary Verification	0.000
1584	26660	5/20/2004	0556	os	se	Boundary Verification	0.001
1584	26900	5/24/2004	0563	os	sw	Boundary Verification	0.000
1584	26800	5/24/2004	0563	os	sw	Boundary Verification	0.000
1584	26898	5/24/2004	0563	os	se	Boundary Verification	0.000
1584	26798	5/24/2004	0563	os	se	Boundary Verification	0.000

RwpNo.	SampleId	StartTime	RSDSNo	Room	Area	Purpose	TotalDac
1584	26899	5/24/2004	0563	os	nw	Boundary Verification	0.000
1584	26799	5/24/2004	0563	os	nw	Boundary Verification	0.000
1584	26897	5/24/2004	0563	os	ne	Boundary Verification	0.000
1584	26797	5/24/2004	0563	os	ne	Boundary Verification	0.000
1584	26907	5/25/2004	0567	os	sw	Boundary Verification	0.000
1584	26807	5/25/2004	0567	os	sw	Boundary Verification	0.000
1584	26905	5/25/2004	0567	os	se	Boundary Verification	0.000
1584	26805	5/25/2004	0567	os	se	Boundary Verification	0.004
1584	26906	5/25/2004	0567	os	nw	Boundary Verification	0.000
1584	26806	5/25/2004	0567	os	nw	Boundary Verification	0.000
1584	26904	5/25/2004	0567	os	ne	Boundary Verification	0.000
1584	26804	5/25/2004	0567	os	ne	Boundary Verification	0.005
1584	26913	5/26/2004	0571	os	sw	Boundary Verification	0.000
1584	26840	5/26/2004	0571	os	sw	Boundary Verification	0.000
1584	26911	5/26/2004	0571	os	se	Boundary Verification	0.000
1584	26838	5/26/2004	0571	os	se	Boundary Verification	0.000
1584	26912	5/26/2004	0571	os	nw	Boundary Verification	0.000
1584	26839	5/26/2004	0571	os	nw	Boundary Verification	0.000
1584	26910	5/26/2004	0571	os	ne	Boundary Verification	0.000
1584	26837	5/26/2004	0571	os	ne	Boundary Verification	0.000
1584	26846	5/27/2004	0574	os	sw	Boundary Verification	0.004
1584	26919	5/27/2004	0574	os	sw	Boundary Verification	0.000
1584	26844	5/27/2004	0574	os	se	Boundary Verification	0.000
1584	26917	5/27/2004	0574	os	se	Boundary Verification	0.000
1584	26845	5/27/2004	0574	os	nw	Boundary Verification	0.000
1584	26918	5/27/2004	0574	os	nw	Boundary Verification	0.000
1584	26843	5/27/2004	0574	os	ne	Boundary Verification	0.000
1584	26916	5/27/2004	0574	os	ne	Boundary Verification	0.000
1584	26925	6/1/2004	0583	OS	SE	Boundary Verification	0.003
1584	26926	6/1/2004	0583	OS	NW	Boundary Verification	0.000
1584	26924	6/1/2004	0583	OS	NE	Boundary Verification	0.007
1584	26927	6/1/2004	0583	OS	SW	Boundary Verification	0.003
1584	26934	6/2/2004	0586	OS	SW	Boundary Verification	0.000
1584	26932	6/2/2004	0586	OS	SE	Boundary Verification	0.003
1584	26933	6/2/2004	0586	OS	NW	Boundary Verification	0.000
1584	26931	6/2/2004	0586	OS	NE	Boundary Verification	0.004
1584	26962	6/3/2004	0600	OS	SE	Boundary Verification	0.000
1584	26963	6/3/2004	0600	OS	NW	Boundary Verification	0.000
1584	26964	6/3/2004	0600	OS	SW	Boundary Verification	0.000
1584	26961	6/3/2004	0600	OS	NE	Boundary Verification	0.003
1584	26974	6/7/2004	0606	os	se	Boundary Verification	0.004
1584	26975	6/7/2004	0606	os	nw	Boundary Verification	0.001
1584	26976	6/7/2004	0606	os	sw	Boundary Verification	0.004
1584	26973	6/7/2004	0606	os	ne	Boundary Verification	0.004
1584	27029	6/8/2004	0609	OS	NW	Boundary Verification	0.001
1584	27027	6/8/2004	0609	OS	NE	Boundary Verification	0.003
1584	27030	6/8/2004	0609	OS	SW	Boundary Verification	0.000

RwpNo	SampleId	StartTime	RSDSNo	Room	Area	Purpose	TotalDac
1584	27028	6/8/2004	0609	OS	SE	Boundary Verification	0.001
1584	27048	6/9/2004	0619	OS	NW	Boundary Verification	0.000
1584	27036	6/9/2004	0619	OS	NW	Boundary Verification	0.000
1584	27046	6/9/2004	0619	OS	NE	Boundary Verification	0.000
1584	27034	6/9/2004	0619	OS	NE	Boundary Verification	0.001
1584	27047	6/9/2004	0619	OS	SE	Boundary Verification	0.000
1584	27035	6/9/2004	0619	OS	SE	Boundary Verification	0.000
1584	27049	6/9/2004	0619	OS	SW	Boundary Verification	0.000
1584	27037	6/9/2004	0619	OS	SW	Boundary Verification	0.000
1584	27041	6/10/2004	0622	OS	SW	Boundary Verification	0.003
1584	27055	6/10/2004	0622	OS	SW	Boundary Verification	0.000
1584	27053	6/10/2004	0622	OS	SE	Boundary Verification	0.000
1584	27039	6/10/2004	0622	OS	SE	Boundary Verification	0.000
1584	27038	6/10/2004	0622	OS	NE	Boundary Verification	0.001
1584	27052	6/10/2004	0622	OS	NE	Boundary Verification	0.000
1584	27054	6/10/2004	0622	OS	NW	Boundary Verification	0.000
1584	27040	6/10/2004	0622	OS	NW	Boundary Verification	0.000

Max	0.072
Average	0.004
Standard Deviation	0.008
Confidence Interval	0.001
n	200