#3006 - 0610310006

# Building 19

# Mound Site, Miamisburg Ohio

# Final Closeout Report

# June 2003

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## 1.0 PURPOSE

This is the final report documenting completion of the demolition of Building 19 located at the DOE Miamisburg Closure Project (MCP) Site, as shown in the figures provided in Appendix A. The building demolition, including its slab and footers, was accomplished per the Work Package for Building 19 Demolition #SMPP/TFV-30046-00, a copy of which was included in Appendix O of the Building Data Package (BDP) for Building 19. The scope of work relating to this building is considered complete.

## 2.0 BACKGROUND

### 2.1 Building 19

Building 19 was a one-story, 4,480-square-foot metal Quonset hut. It was a slab-on-grade structure with a 1,500-square-foot mezzanine. Building 19 was used for a number of functions and housed a number of processes during its nearly 57 year history supporting activities at three different locations: first at the Dayton Unit III location (Manhattan Project) (1946-1949), and two locations at the Mound site (1950-1962 and 1962-2003).

Building 19 was originally located at Dayton Unit III (a precursor site to the Mound Plant) at the intersection of First and Euclid Streets in downtown Dayton, Ohio. In its original location at Dayton Unit III (1946 to 1949), the majority of the building was designated as laboratories supporting the objectives of the Manhattan Project. While specific processes are unknown, it is believed that polonium-210 was the focus of much of the work. When the Dayton facility was closed, the building was dismantled and sent to Mound where it was reassembled at its second location.

At its second location near Buildings 2 and 3, the Quonset Hut was used to store drums of radioactive wastes from several site missions including SW Building evaporator material, HH Building bismuth-chloride sludge, Purex waste, and thorium waste. In the early 1960s, the structure was dismantled and reassembled at its final location.

At its final location, on the western edge of the site, north of Building 72, Building 19 served as a warehouse and a salvage storage and surplus sales facility. During the 1990s it was principally used for storing Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) soil sample drums dating back to 1988. A portion of the building contained a packaging area for samples taken from current CERCLA activities.

### 2.2 Potential Release Sites (PRSs)

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE 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, seven are at or near Building 19. PRSs in the vicinity of Building 19 are identified in Table 1.

**Table 1: PRSs in Proximity to Building 19**

| PRS | CERCLA or Bldg. Related | Binning Status | Comments |
|---|---|---|---|
| 41* | CERCLA | Removal Action (RA) | Area 3, Thorium Drum Storage and Redrumming Area. |
| 60 | Building | Unbinned, PRSs To Be Dispositioned With Building 72 | Hazardous Waste Storage Area (Building 72). |
| 61 | Building | | Building 72 Outdoor Hazardous Waste Storage Area. |
| 62 | Building | | Building 72 Empty Drum Storage Area. |
| 63** | CERCLA | RA | Building 19 Soils. |
| 64 | CERCLA | No Further Assessment (NFA) | Building 19 Historic Gasoline Tank (Tank 238). |
| 417 | CERCLA | Further Assessment (FA) | Soil Contamination-High Soil Gas near Well 0312. |

* *Soil contamination prompting the PRS 41 RA is located outside of the 15-foot perimeter around the former Building 19. Demolition activities did not disturb areas outside of the 15-foot perimeter.*

** *PRS 63 is a former pipe storage area measuring approximately 2 feet by 2 feet. Because it is believed to have radiological contamination based on historical use, FA was indicated. The PRS was binned as an RA because removal of the contaminated soil was deemed a more cost-effective solution than FA sampling. Because there was no FA, no soil sampling at the PRS location has been performed. The ER group will handle the RA separate from the Building 19 demolition. Soil in the PRS 63 area was not disturbed during Building 19 demolition activities.*

## 3.0 ACTIONS TAKEN

The Building 19 BDP was submitted for simultaneous Core Team and public review on 5 March 2003, and the 30-day public review period concluded on 4 April 2003. The Final Status Survey Report was submitted to the Core Team on 15 May 2003, and completed the 14-day review period on 29 May 2003.

This Closeout Report documents the completion of the demolition and removal of Building 19. All preparation and demolition activities were performed in accordance with the detailed Work Plan to perform demolition and debris removal.

A Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) study of Building 19 was performed prior to demolition. The study report (provided in the Building Data Package) provides details of the survey design and results, and indicates that

Building 19 met applicable surface release criteria. Post-demolition surveys showed no elevated readings (copies are provided in Appendix B).

The demolition of Building 19 commenced on 2 June 2003 and was completed on 12 June 2003. Site restoration was completed in 19 June 2003. Photographs taken are provided in Appendix A.

**Table 2 - Materials Disposition**

| Building 19 Material | Quantity | Method | Location |
|---|---|---|---|
| Slabs and Foundation (Debris) | 120 cubic yards | Rock Crusher | Mound |
| Construction Debris (Metal) | 1,183 cubic yards | Recycle | Franklin Metal |

## 4.0 PROBLEMS ENCOUNTERED

Building 19 was successfully demolished per the Work Package. However, a historic slab was found beneath the Building 19 slab during its removal. The historic slab was believed to be a remnant of the structures built to support the original construction of Mound. The approximately 8' x 20' x 6" slab was removed, radiologically surveyed, and sent to the onsite concrete crusher.

## 5.0 RESOURCES COMMITTED

### 5.1 Personnel Organization

Table 3 lists the personnel organization for the demolition.

**Table 3 - Personnel Organization for the Demolition**

| Agency or Party Involved | Contact | Description of Participation |
|---|---|---|
| US EPA (SR-6J)<br>77 W. Jackson<br>Chicago, IL 60604<br>312-886-7058 | David Seely | Federal agency responsible for MCP oversight. |
| Ohio EPA<br>410 E. Fifth Street<br>Dayton, OH 45402-2911<br>937-285-6468 | Brian Nickel | State agency responsible for MCP oversight. |

**Table 3 - Personnel Organization for the Demolition**

| Agency or Party Involved | Contact | Description of Participation |
|---|---|---|
| DOE/ MCP<br>P.O. Box 66<br>1 Mound Road<br>Miamisburg, OH<br>45343-0066<br>937-865-3620 | Frank Schmaltz | DOE/ MCP Project Manager responsible for project oversight and success. |
| CH2M Hill Mound, Inc.<br>SMPP-TFV Project<br>P.O. Box 3030<br>1 Mound Road<br>Miamisburg, OH<br>45343-3030<br>937-865-4169 | Kurt Kehler | 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.<br>General Superintendent and Equipment Manager<br>P.O. Box 3030<br>1 Mound Road<br>Miamisburg, OH<br>45343-3030<br>937-865-4278 | Max Edington | Provided the equipment necessary for the demolition. |

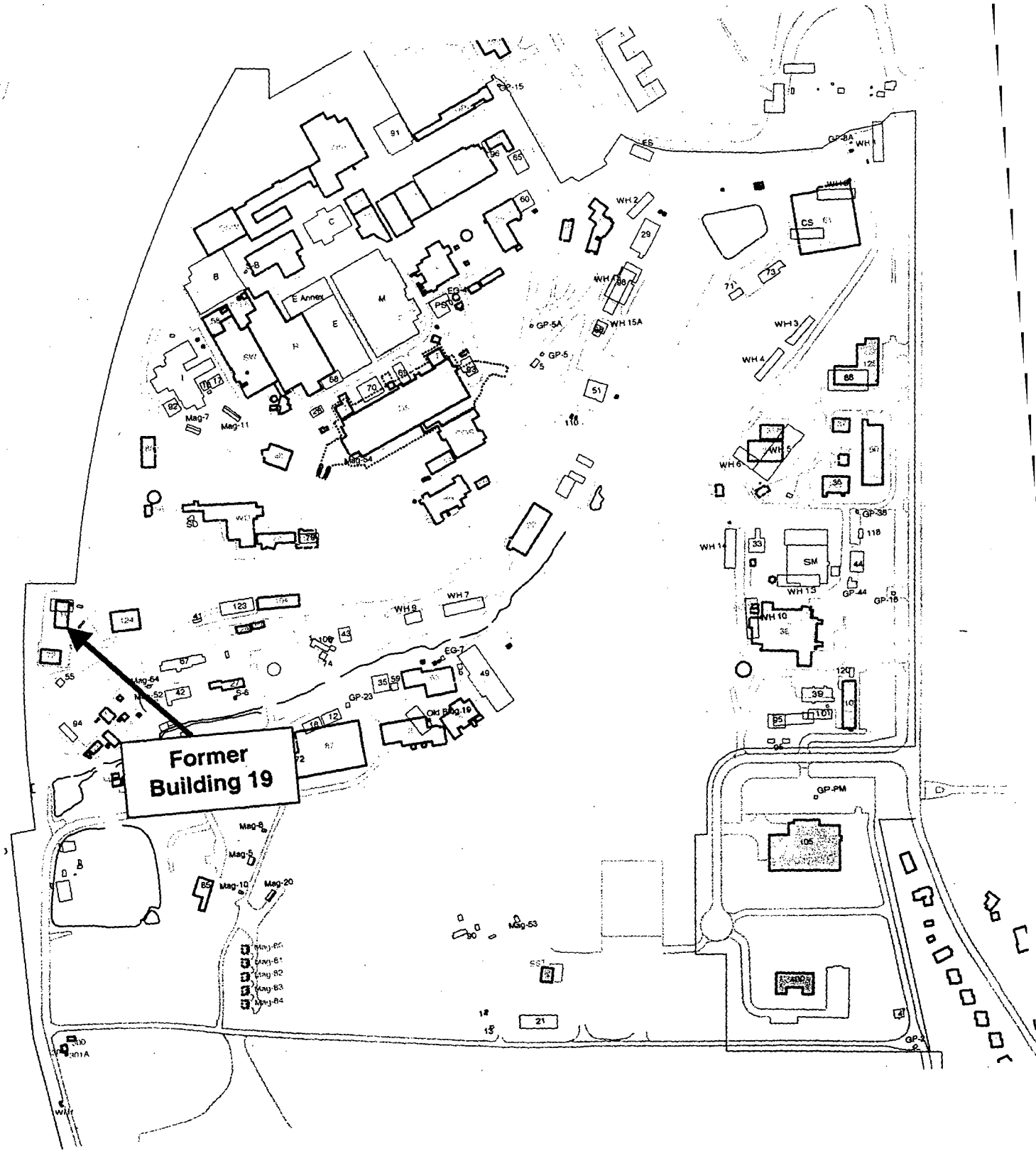
## 5.2 Demolition Cost

Under the new site contract, CH2M Hill Mound, Inc. has elected to cluster financial data for multiple buildings together. As a result, costs for individual building demolitions are not available. For Building 19, the cluster also includes Building 34. When the cluster is completed, the total cost for the cluster will be reported in the Closeout Report for Building 34.

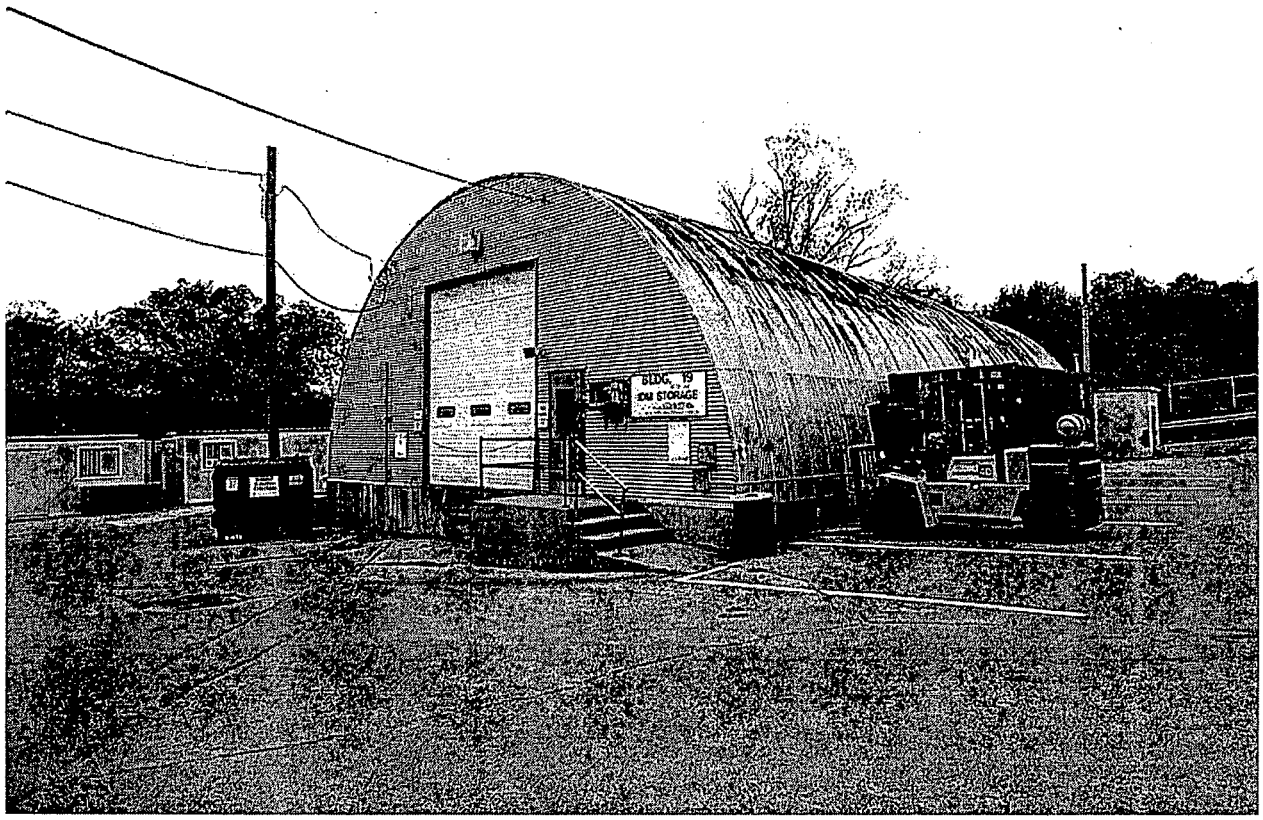
# APPENDIX A

## Figures

# Figure 1 - Location of Building 19

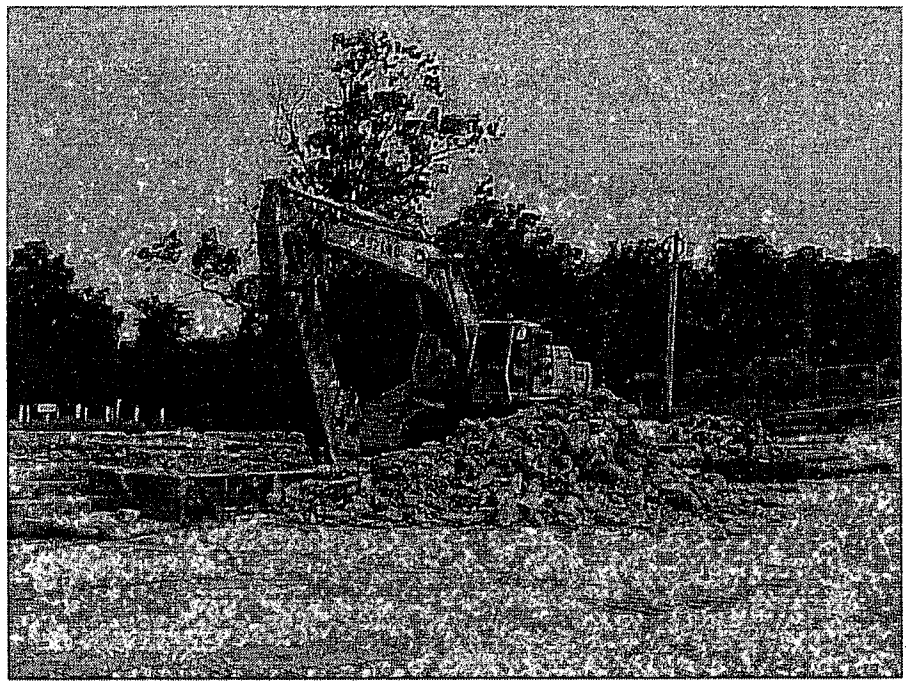


# Figure 2 - Building Photos



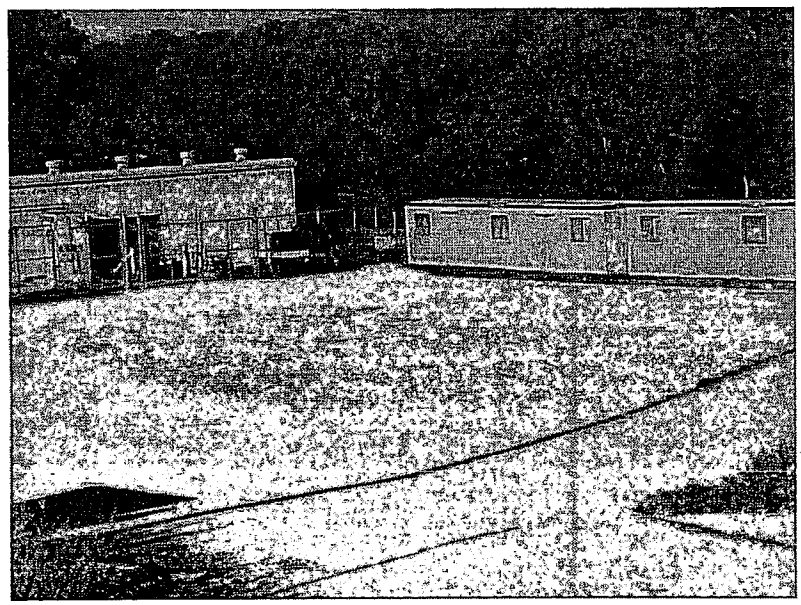

Bldg. 19

Bldg. 19 During Demolition



Bldg. 19 Slab Removal

Bldg. 19 Historic Slab



Bldg. 19 After Final Grading

# APPENDIX B

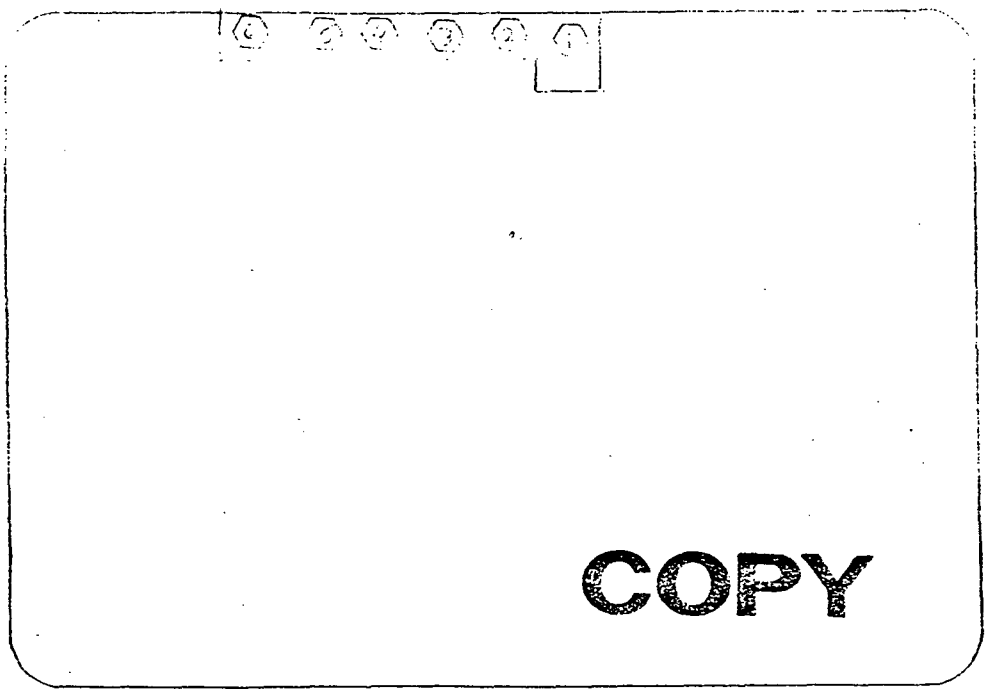
## Post-Final Status Survey Report
## Radiological Surveys

# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG /AREA/ROOM) 19 SOIL UNDER THE FCA | SURVEY NO 03-TF-0097 |
| PURPOSE: SOIL SAMPLES FROM UNDER THE FCA | RWP NO N/A |
| | DATE 4-24-2003 |
| | TIME 1530 |

## MAP / DRAWING




- NOTE: BICRON FIDLER USED FOR INDICATION ONLY. RESULTS WERE NON-DETECTABLE.
- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS: <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:

# = mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

⬡ = SOIL SAMPLE LOCATION

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

**INSTRUMENTS USED**

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| 2360 | 5336/5848 | 3-12-2004 |
| FIDLER | 3716/3713 | 9-17-2003 |
| | N/A | |
| | | |

[redacted]

HP#6178 Date: 5-7-2003

HP# NA Date: NA

HP# 3214 Date: 05-07-03

ML-9620 (2-98)

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15395
File ID: MG102116.s0
Priority: Yes

**Description\Location**
Bldg19 Soil Under FCA Sample#1
Long Count

**Collector:** 6178
**Date Received:** 4/28/03
**Date Collected:** 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0 | 0.13 | 45,000 |
| Cs-137 | * | 0.01 | 0.14 | 45,000 |
| Pb-210 | * | 0.88 | 1.69 | 45,000 |
| Ra-226 | * | 0.7 | 2.08 | 800 |
| Ac-227 (D) | | 0.76 | 0.6 | 40 |
| Th-230 | * | 12.89 | 17.34 | 800 |
| Th-232 (D) | | 11.84 | 0.39 | 130 |
| Pu-238 | * | 0 | 39.87 | 500 |
| Am-241 | * | 0 | 0.2 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.07 nCi/g $\Sigma_{Respirator}$ 0.21

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

DGH 03-TF-0097

**Date:** 4/29/03 **Counted By:** 5288 **Analyzed By:** 7559 **Initials** [redacted]

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15396
File ID: MG301108.s0
Priority: No

**Description\Location**
Bldg19 Soil Under FCA Sample#2
Long Count

**Collector:** 6178
**Date Received:** 4/28/03
**Date Collected:** 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0.01 | 0.03 | 45,000 |
| Cs-137 | * | 0.02 | 0.03 | 45,000 |
| Pb-210 | | 0.96 | 0.7 | 45,000 |
| Ra-226 | | 0.74 | 0.6 | 800 |
| Ac-227 (D) | * | 0 | 0.33 | 40 |
| Th-230 | * | 0 | 6.79 | 800 |
| Th-232 (D) | | 0.58 | 0.1 | 130 |
| Pu-238 | * | 0 | 14.58 | 500 |
| Am-241 | * | 0.04 | 0.07 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.02 nCi/g $\Sigma_{Respirator}$ 0.05

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

DQA 03-TF-0097

**Date:** 4/29/03 **Counted By:** 7559 **Analyzed By:** 7559 **Initials** [redacted]

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15397
File ID: MG500394.s0
Priority: No

**Description\Location**
Bldg19 Soil Under FCA Sample#3
Long Count

**Collector:** 6178
**Date Received:** 4/28/03
**Date Collected:** 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | | 0.02 | 0.02 | 45,000 |
| Cs-137 | * | 0.01 | 0.02 | 45,000 |
| Pb-210 | | 0.99 | 0.58 | 45,000 |
| Ra-226 | | 1.41 | 0.49 | 800 |
| Ac-227 (D) | * | 0 | 0.29 | 40 |
| Th-230 | * | 0 | 5.63 | 800 |
| Th-232 (D) | | 0.35 | 0.07 | 130 |
| Pu-238 | * | 0 | 16.08 | 500 |
| Am-241 | * | 0 | 0.06 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.02 nCi/g $\Sigma_{Respirator}$ 0.05

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

DGH 03-TF-0097

**Date:** 4/29/03 **Counted By:** 7559 **Analyzed By:** 7559 **Initials** [redacted]

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15398
File ID: MG400535.s0
Priority: No

**Description\Location**
Bldg19 Soil Under FCA Sample#4
Long Count

**Collector:** 6178
**Date Received:** 4/28/03
**Date Collected:** 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0.01 | 0.02 | 45.000 |
| Cs-137 | | 0.04 | 0.02 | 45.000 |
| Pb-210 | * | 0.23 | 0.58 | 45.000 |
| Ra-226 | | 1.49 | 0.47 | 800 |
| Ac-227 (D) | * | 0.11 | 0.25 | 40 |
| Th-230 | * | 3.59 | 4.71 | 800 |
| Th-232 (D) | | 0.4 | 0.07 | 130 |
| Pu-238 | * | 0 | 32.94 | 500 |
| Am-241 | * | 0 | 0.06 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.04 nCi/g $\Sigma_{Respirator}$ 0.08

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

Dept 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials [redacted]

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15399
File ID: MG102117.s0
Priority: No

**Description\Location**
Bldg19 Soil Under FCA Sample#5
Long-Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0 | 0.08 | 45.000 |
| Cs-137 | | 0.05 | 0.04 | 45.000 |
| Pb-210 | | 0.73 | 0.62 | 45.000 |
| Ra-226 | | 0.99 | 0.7 | 800 |
| Ac-227 (D) | * | 0 | 0.25 | 40 |
| Th-230 | * | 0 | 5.99 | 800 |
| Th-232 (D) | | 0.47 | 0.15 | 130 |
| Pu-238 | * | 0.95 | 12.82 | 500 |
| Am-241 | * | 0 | 0.07 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.02 nCi/g $\Sigma_{Respirator}$ 0.04

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

Instrument type: High Purity Germanium

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

• Indicates activity < MDA. MDA used in limits calculation

**Comments:**

DgH 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials [redacted]

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# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15400
File ID: MG301109.s0
Priority: No

**Description\Location**
Bldg19 Soil Under FCA Sample#6
Long Count

Collector: 6178
Date Received: 4/28/03
Date Collected: 4/24/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | * | 0.02 | 0.04 | 45.000 |
| Cs-137 | * | 0.02 | 0.04 | 45.000 |
| Pb-210 | | 0.97 | 0.96 | 45.000 |
| Ra-226 | | 1.25 | 0.82 | 800 |
| Ac-227 (D) | * | 0.09 | 0.44 | 40 |
| Th-230 | * | 0 | 9.77 | 800 |
| Th-232 (D) | | 1.15 | 0.12 | 130 |
| Pu-238 | * | 0 | 20.86 | 500 |
| Am-241 | * | 0.06 | 0.1 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.03 nCi/g $\Sigma_{Respirator}$ 0.08

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

* Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

DJH 03-TF-0097

Date: 4/29/03 Counted By: 7559 Analyzed By: 7559 Initials [redacted]

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# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG /AREA/ROOM) 19 - SOIL | SURVEY NO 03 TF-0128 |
| PURPOSE: POST SAMPLES AFTER SOIL REMOVAL SOIL UNDER SLAB | RWP NO N/A |
| | DATE: 6-3-03 |
| | TIME: 1530 |

## MAP/DRAWING

COPY

SEE ATTACHED

* NOTE: THIS IS A FOLLOW-UP TO RSDS 03-TF-0097

LEGEND: # = mrem/hr (γ) whole body
# E = mrem/hr (β+η+γ) extremity on contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or /β = direct cont. measurement in dpm/100cr

### INSTRUMENTS USED

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| 2360 | 5833/5847 | 3-13-04 |
| | | |
| | N/A | |
| | | |
| | | |

[redacted]

| HP# | Date: |
|---|---|
| 6178 | 6-11-0 |
| | |
| HP# | Date: |
| | |
| HP# 7492 | Date: 6-11-0 |

ML-9620 (2-98)

03-TF-0128



# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Comments |
| | | | | |

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Commen |
| | | | | |

COMMENTS: N/A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of resu are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620 (4-98)

# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15600
File ID: MG102228.s0
Priority: Yes

**Description\Location**
Sample 1 Bldg. 19
Long Count

**Collector:** 6178
**Date Received:** 6/3/03
**Date Collected:** 6/3/03

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|
| Co-60 | 0.01 | 0.01 | 45.000 |
| Cs-137 | 0.02 | 0.01 | 45.000 |
| Pb-210 | 0.42 | 0.1 | 45.000 |
| Ra-226 | 0.86 | 0.14 | 800 |
| Ac-227 (D) | 0.07 | 0.04 | 40 |
| Th-230 | 1.28 | 0.93 | 800 |
| Th-232 (D) | 0.33 | 0.03 | 130 |
| Pu-238 * | 0 | 2.35 | 500 |
| Am-241 | 0.01 | 0.01 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.01 nCi/g $\Sigma_{Respirator}$ 0.01

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit. total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

03-TF-0128 DGH 3 of 5

Date: 6/4/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

# SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML15599
File ID: MG301144.s0
Priority: Yes

**Description\Location**
Sample 4 Bldg. 19
Long Count

Collector: 6178
Date Received: 6/3/03
Date Collected: 6/3/03

| Radionuclide | | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|---|
| Co-60 | | 0.01 | 0.01 | 45,000 |
| Cs-137 | * | 0 | 0.01 | 45,000 |
| Pb-210 | * | 0.23 | 0.26 | 45,000 |
| Ra-226 | | 0.83 | 0.2 | 800 |
| Ac-227 (D) | * | 0 | 0.12 | 40 |
| Th-230 | * | 0.01 | 2.32 | 800 |
| Th-232 (D) | | 0.28 | 0.03 | 130 |
| Pu-238 | * | 3.25 | 5.86 | 500 |
| Am-241 | | 0.02 | 0.02 | 500 |

**Other Nuclides**

| Radionuclide | Activity (pCi/g) | MDA | MD-10438 Limit (pCi/g) |
|---|---|---|---|

$\Sigma_{DOT}$ 0.01 nCi/g $\Sigma_{Respirator}$ 0.02

$\Sigma_{Respirator}$ <1 indicates soil levels below limit.
Values > or = 1 indicate soil levels exceed limit. Limits based on MD-10438 table 4

$\Sigma_{DOT}$ 2nCi/g limit, total activity.

(D) Denotes identification by daughter emissions.
Sample is Assumed to be in secular equilibrium.

• Indicates activity < MDA. MDA used in limits calculation

Instrument type: High Purity Germanium

**Comments:**

03-TF-0128 Dgt 4 of 5

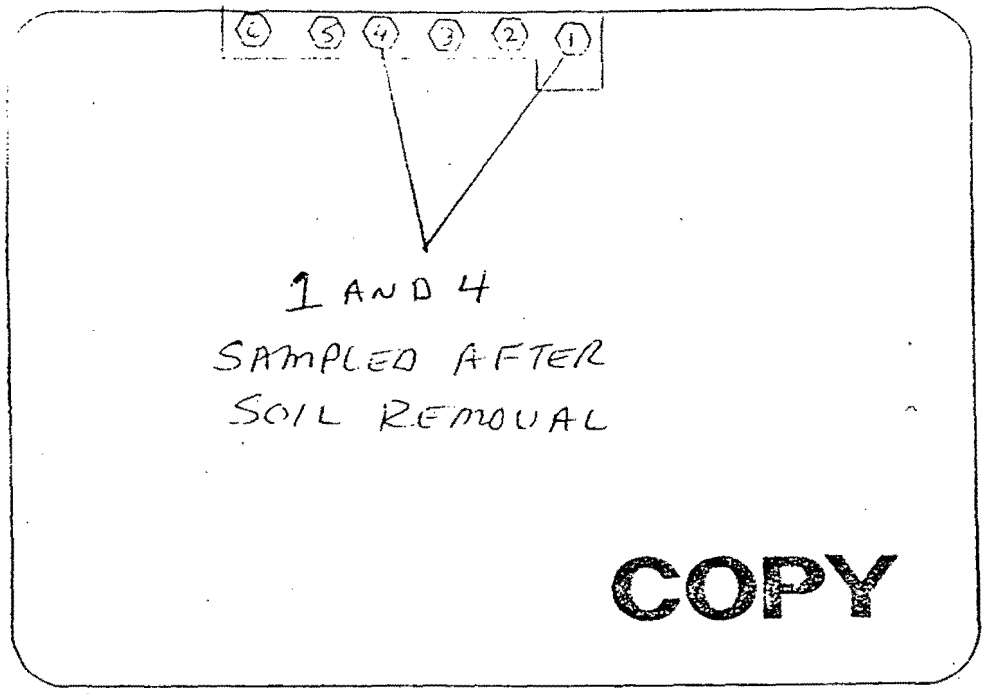
Date: 6/4/03 Counted By: 5288 Analyzed By: 7559 Initials [redacted]

# RADIOLOGICAL SURVEY DATA SHEET

03-TF-0128 5 of 5 Page 1 of 7

| | |
|---|---|
| LOCATION (BLDG/AREA/ROOM) 19 SOIL UNDER THE FCA | SURVEY NO 03-TF-0097 |
| PURPOSE<br>SOIL SAMPLES FROM UNDER THE FCA | RWP NO N/A |
| | DATE: 4-24-2003 |
| | TIME 1530 |

## MAP / DRAWING




- NOTE: BICRON FIDLER USED FOR INDICATION ONLY. RESULTS WERE NON-DETECTABLE.
- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS:
  <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:
# = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
⬡ = SOIL SAMPLE LOCATION
△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm

**INSTRUMENTS USED**

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| 2360 | 5336/5848 | 3-12-2004 |
| FIDLER | 3716/3713 | 9-17-2003 |
| | N/A | |
| | | |

[redacted]

| | |
|---|---|
| HP#6178 | Date:5-7-2 |
| HP# NA | Date: NA |
| HP# 5214 | Date: 05-0 |

ML-0620 (2-98)

B 13 of 24

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# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| [illegible] Building 19 | [illegible] |
| Survey concrete slab for release to Waste Management | [illegible] N/A |
| | DATE 06-05-03 |
| | TIME 1300 |

## MAP / DRAWING

SMEARS 1-20 ON MISC CONCRETE

COPY

INTEGRATED COUNT IF AUDIBLE DETECTED. NO AUDIBLE DETECTED.

ALL DIRECT READINGS INDICATE <100DPM/100CM² ALPHA AND <5000DPM/100CM² BETA

BICRON FIDLER USED FOR INDICATION ONLY. RESULTS WERE NON-DETECTABLE

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · — = radiological boundary

△# = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

### INSTRUMENTS USED

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| 2360/43-93 | 5695/5844 | 4-17-04 |
| FIDLER | 3639/3960 | 4-28-04 |
| | N/A | |
| | | |

[redacted]

| | |
|---|---|
| HP# 5214 | Date: 06/09/ |
| HP# | Date: |
| HP# 7492 | Date: 6-9- |

Survey No
03 TF-0122

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Comments |
| 1 | | | | CONCRETE |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | CONCRETE |

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Commen |

COMMENTS: NONE

NOTES:
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout c results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If needed, mark N/A.

ML-9620A (4-98)

# Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR009
Batch Ended: 6/5/2003 15:10
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0122 A/B (20) AG

| Detector ID | Sample ID | Alpha Activity DPM | Alpha Activity σ | Alpha Activity flags | Beta Activity DPM | Beta Activity σ | Beta Activity flags |
|---|---|---|---|---|---|---|---|
| A1 | 1 | 1.7 | 1.9 | | 1.9 | 2.1 | |
| A2 | 2 | 0.0 | 1.9 | | 0.0 | 1.7 | |
| A3 | 3 | 0.0 | 1.8 | | 0.0 | 1.2 | |
| A4 | 4 | 0.0 | 1.9 | | 0.0 | 1.2 | |
| B1 | 5 | 0.0 | 2.1 | | 6.8 | 3.9 | |
| B2 | 6 | 0.0 | 2.1 | | 0.5 | 1.8 | |
| B3 | 7 | 0.0 | 2.0 | | 1.3 | 2.5 | |
| B4 | 8 | 0.0 | 2.0 | | 0.2 | 1.8 | |
| C1 | 9 | 1.8 | 2.0 | | 1.5 | 2.1 | |
| C2 | 10 | 1.8 | 2.0 | | 2.7 | 2.4 | |
| C3 | 11 | 0.0 | 1.9 | | 0.0 | 1.2 | |
| C4 | 12 | 0.0 | 1.8 | | 0.5 | 1.6 | |
| D1 | 13 | 1.7 | 2.0 | | 0.0 | 1.3 | |
| D2 | 14 | 0.0 | 2.1 | | 2.3 | 2.1 | |
| D3 | 15 | 1.7 | 2.0 | | 1.0 | 1.7 | |
| D4 | 16 | 0.0 | 2.0 | | 0.0 | 1.2 | |
| A1 | 17 | 0.0 | 1.9 | | 0.0 | 1.2 | |
| A2 | 18 | 0.0 | 1.9 | | 0.9 | 2.1 | |
| A3 | 19 | 0.0 | 1.8 | | 0.0 | 1.2 | |
| A4 | 20 | 0.0 | 1.9 | | 0.0 | 1.2 | |

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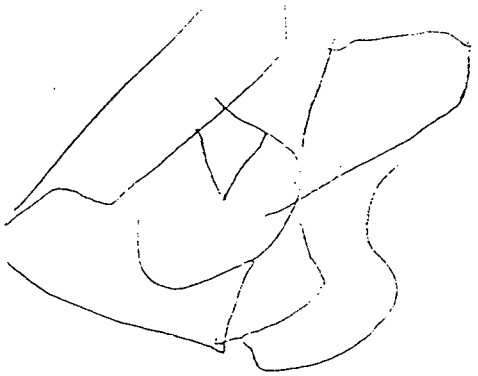
# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG./AREA/ROOM) Building 19 | SURVEY NO: [illegible] |
| PURPOSE: Survey concrete from grade barrier line going to Waste Management | RWP NO: N/A |
| | DATE: 06-11-03 |
| | TIME: 1400 |

## MAP/DRAWING

20 [illegible]



COPY

Bicron Fidler used as indication only. Results were [illegible]

Integrated count taken IF audible detected. NO audible detected.

ALL direct readings <100dpm/100cm2 Alpha and <5000dpm/100cm2 Beta

**LEGEND:**
# = mrem/hr (γ) whole body
# E = mrem/hr (β+n+γ) extremity on contact
K= factor of 1000
- - - - - - - = radiological boundary

△# = mrem/hr neutron

[#] = air sample number

(#) = swipe number

(# /α) or /β = direct contamination measurement in dpm/100cm2

[redacted]

| NP# | Date: |
|---|---|
| 5214 | 06-11-03 |
| | |
| [illegible]HED | |
| 5281 | 6/11/03 |

**INSTRUMENTS USED**

| Instrument | Serial Number | Cal. Due Date |
|---|---|---|
| FIDLER | 3829/3430 | 04-29-04 |
| 2360/43-93 | 5695/5844 | 04-17-04 |
| | | |
| | | |
| | | |

ML-9620

RSDS# 03-TT-0129

# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Comments |
| 1 | | | | CONCRETE |
| 2 | | | | ↑ |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | ↓ |
| 20 | | | | CONCRETE |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |
| 31 | | | | |
| 32 | | | | |
| 33 | | | | |
| 34 | | | | |
| 35 | | | | |

See attached results

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm2) | | | | |
| Sample# | β/γ | Alpha | Tritium | Commen |
| 36 | | | | |
| 37 | | | | |
| 38 | | | | |
| 39 | | | | |
| 40 | | | | |
| 41 | | | | |
| 42 | | | | |
| 43 | | | | |
| 44 | | | | |
| 45 | | | | |
| 46 | | | | |
| 47 | | | | |
| 48 | | | | |
| 49 | | | | |
| 50 | | | | |
| 51 | | | | |
| 22 | | | | |
| 53 | | | | |
| 54 | | | | |
| 55 | | | | |
| 56 | | | | |
| 57 | | | | |
| 58 | | | | |
| 59 | | | | |
| 60 | | | | |
| 61 | | | | |
| 62 | | | | |
| 63 | | | | |
| 64 | | | | |
| 65 | | | | |
| 66 | | | | |
| 67 | | | | |
| 68 | | | | |
| 99 | | | | |
| 70 | | | | |

See attached results

COMMENTS: NONE

**NOTES:**

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO count Room analysis for β/γ ,alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached , write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620

# Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR004
Batch Ended: 6/11/03 13:45

Crosstalk correction performed.

Recalibration Date: 4/2/05
Serial Number: 26966-2

Batch ID: RILEY 03-TF-0129 (20) CYR

| Detector ID | Sample ID | Alpha Activity | | | Beta Activity | | |
|---|---|---|---|---|---|---|---|
| | | DPM | σ | flags | DPM | σ | flags |
| A1 | 1 | 0.0 | 2.1 | | 0.7 | 1.8 | |
| A2 | 2 | 0.0 | 2.2 | | 0.8 | 1.8 | |
| A3 | 3 | 0.0 | 2.0 | | 0.8 | 1.7 | |
| A4 | 4 | 0.0 | 2.0 | | 1.3 | 2.1 | |
| B1 | 5 | 0.0 | 2.0 | | 1.8 | 2.6 | |
| B2 | 6 | 0.0 | 2.1 | | 3.4 | 2.6 | |
| B3 | 7 | 0.9 | 2.0 | | 0.0 | 1.2 | |
| B4 | 8 | 0.0 | 1.9 | | 0.0 | 1.2 | |
| C1 | 9 | 0.0 | 2.0 | | 1.3 | 2.0 | |
| C2 | 10 | 0.0 | 2.0 | | 0.0 | 1.3 | |
| C3 | 11 | 0.0 | 1.9 | | 0.5 | 1.6 | |
| C4 | 12 | 0.0 | 1.9 | | 0.6 | 1.6 | |
| D1 | 13 | 1.9 | 2.3 | | 0.0 | 1.3 | |
| D2 | 14 | 0.0 | 2.1 | | 0.0 | 1.3 | |
| D3 | 15 | 0.0 | 2.0 | | 0.5 | 1.7 | |
| D4 | 16 | 0.0 | 2.0 | | 0.0 | 1.2 | |
| A1 | 17 | 0.0 | 2.1 | | 0.7 | 1.8 | |
| A2 | 18 | 0.0 | 2.2 | | 0.8 | 1.8 | |
| A3 | 19 | 0.7 | 2.0 | | 0.0 | 1.2 | |
| A4 | 20 | 0.0 | 1.9 | | 0.0 | 1.2 | |

Carol Y. Robinson

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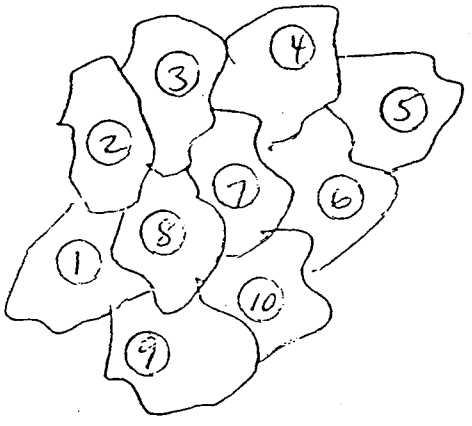
# RADIOLOGICAL SURVEY DATA SHEET



| | |
|---|---|
| LOCATION: (BLDG./AREA/ROOM) 19 CONCRETE | SURVEY NO 03-TF-0140 |
| PURPOSE: RELEASE CONCRETE TO WASTEMANAGEMENT | RWP NO. N/A |
| | DATE: 6-19-2003 |
| | TIME 1500 |

## MAP / DRAWING

COPY




- NOTE: BICRON FIDLER USED FOR INDICATION ONLY. RESULTS WERE NON-DETECTABLE.
- INTEGRATED READING TAKEN IF AUDIBLE ALPHA DETECTED ALL RESULTS:
  <100 dpm/100cm2 ALPHA AND <5K dpm/100cm2 BETA NO AUDIBLE DETECTED

LEGEND:

# = mrem/hr (γ) whole body

#E = mrem/hr (β+η+γ) extremity on contact

K = factor of 1000

— · — · — = radiological boundary

△# = mrem/hr neutron

(#) = swipe number

[#] = air sample number

(#/α) or /β = direct contamination measurement in dpm/100 cm²

**INSTRUMENTS USED**

| Instrument | Serial Number | Cal. Due Date | | | |
|---|---|---|---|---|---|
| | | | [redacted] | HP# 6178 | Date: 6-23-2003 |
| 2360 | 5833/5847 | 3-13-2004 | | HP# NA | Date: NA |
| FIDLER | 3716/3713 | 9-17-2003 | | | |
| | N/A | | | HP# 5214 | Date: 06-23-03 |
| | | | | | |

Survey No. 03-TF-0140



# RADIOLOGICAL SURVEY DATA SHEET (cont.)

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Comments |
| 1 | SEE ATTACHED | | N/A | CONCRETE |
| 2 | ↓ | ↓ | ↓ | ↓ |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | ↓ | ↓ | ↓ | ↓ |
| | | N/A | | |

| Removable Contamination | | | | |
|---|---|---|---|---|
| Swipes (dpm/100cm²) | | | | |
| Sample # | β/γ | Alpha | Tritium | Comments |
| | | N/A | | |

COMMENTS: N/A

NOTES:

1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type (e.g., soil, water), special identifiers or otherwise in Comments. If not needed, mark N/A.

ML-9620A (4-98)

B23of24

# Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Red
Data file name: SMEAR007
Batch Ended: 6/19/03 15:37

~~Crosstalk correction performed.~~

Batch ID: HARVEY 03-TF-0140 (10) CYR

Recalibration Date: 4/2/05
Serial Number: 26966-2

| Detector ID | Sample ID | Alpha Activity DPM | Alpha Activity σ | Alpha Activity flags | Beta Activity DPM | Beta Activity σ | Beta Activity flags |
|---|---|---|---|---|---|---|---|
| A1 | 1 | 0.0 | 2.1 | | 3.3 | 2.6 | |
| A2 | 2 | 0.0 | 2.2 | | 0.8 | 1.8 | |
| A3 | 3 | 0.0 | 2.0 | | 0.8 | 1.7 | |
| A4 | 4 | 0.0 | 1.9 | | 0.0 | 1.2 | |
| B1 | 5 | 1.7 | 1.9 | | 0.3 | 2.3 | |
| B2 | 6 | 0.0 | 2.1 | | 0.8 | 1.9 | |
| B3 | 7 | 0.0 | 2.0 | | 0.0 | 1.2 | |
| B4 | 8 | 0.0 | 1.9 | | 0.0 | 1.6 | |
| C1 | 9 | 0.0 | 2.0 | | 1.3 | 2.0 | |
| C2 | 10 | 0.0 | 2.0 | | 0.0 | 1.3 | |

DGH

DGH Carol Y. Robinson

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COPY

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~~Page 1 of 1~~
DGH 6-23-03