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MOUND

Environmental Restoration Program

OhioEPA

MIAMISBURG CLOSURE PROJECT
Closeout Report
Building 98

Final
October 2002

Closeout Report

Building 98

Prepared for:

United States Department of Energy
Miamisburg Closure Project
P.O. Box 3020
Miamisburg, Ohio 45343-3020

Prepared by:

BWXT of Ohio, Inc.

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1.0 PURPOSE

This is the final report documenting completion of the demolition of Building 98 located at the DOE Miamisburg Closure Project Site, as shown in Figures 1 and 2 (Appendix A). The building superstructure was demolished per the Work Package for Building 98 Demolition (July 11, 2002), which is included in Appendix B. The scope of work relating to this building is considered complete.

2.0 BACKGROUND

Building 98 was constructed in 1986 as the Central Fire Station, and continued to serve that purpose through early June 2002. The building was located in the upper portion of the Test Fire Valley between the Main Hill and the Special Metallurgical/Plutonium Processing (SM/PP) Hill. It was a two-story, 8,517 square-foot building. Exterior walls were constructed of reinforced concrete, and of split-faced block. The walls between the apparatus bays and the rest of the building were reinforced load-bearing walls, with the wall extending six feet below the floor of the apparatus bay, to create the interior wall of the lower level to the rear. The interior of this wall was drywall over cast wall covered with a 1.5-inch sound attenuation barrier. There had been no additions to the building. The 21-room building included high bay apparatus rooms, living quarters, mechanical rooms, service rooms, offices, corridor, vestibule, and support areas.

The building was serviced with central steam for heating and chilled water for cooling. Ventilation was provided by a single-pass HVAC system, which also enabled humidity control. Potable water and sanitary service was provided by the Miamisburg Closure Project facility. Electric service was provided by the Miamisburg Closure Project facility distribution system.

3.0 ACTIONS TAKEN

The Building 98 Building Data Package was submitted for simultaneous Core Team and Public Review on July 24, 2002. The 30-day Public Review period concluded on August 23, 2002. This Closeout Report documents the completion of the removal of the building. The sump, pad, foundation, and footers were left in place and will be removed as part of the PRS 66 Removal Action.

All preparation and demolition activities were performed in accordance with the detailed Work Plan (Appendix B) to perform safe shutdown of utilities, maintain site access control, and perform demolition and debris removal. All Potential Release Sites (PRSs) in the vicinity have either been designated No Further Assessment, or will be addressed as part of the PRS 66 Removal Action.

Building 98 was radiologically surveyed before and after demolition. All radiological sampling results were below applicable surface release criteria (Appendix C).

Building demolition commenced on August 21, 2002 and was completed on September 4, 2002. The demolition was accomplished as a non-CERCLA project, per the Building Data Package. Photographs taken before, during, and after demolition are provided in Figure 3.

Demolition material was dispositioned as noted in Table 1.

Table 1 - Materials Disposition

Material	Quantity	Method	Location
Construction Debris	1,620 cubic yards	Landfill	Stoney Hill

The concrete pad, foundation, and footers will be removed by the ER group as part of the PRS 66 Removal Action, and therefore are not included in the materials disposition data provided herein.

4.0 PROBLEMS ENCOUNTERED

Building 98 was successfully demolished per the Work Package, with no variances reported.

5.0 RESOURCES COMMITTED

Table 2 lists the personnel organization for the demolition. Table 3 provides a summary of the total cost.

Table 2 - Personnel Organization for the Demolition

Agency or Party Involved	Contact	Description of Participation
US EPA HSRM-6J 77 W. Jackson Chicago, IL 60604 312-886-5787	Tim Fischer	Federal agency responsible for Miamisburg Closure Project oversight.
Ohio EPA 410 E. Fifth Street Dayton, OH 45402-2911 937-285-6468	Brian Nickel	State agency responsible for Miamisburg Closure Project oversight.
DOE/Miamisburg Closure Project P.O. Box 66 1 Mound Road Miamisburg, OH 45343-0066 937-865-3620	Frank Schmaltz	DOE/ Miamisburg Closure Project, Project Manager responsible for project oversight and success.

Table 2 - Personnel Organization for the Demolition

Agency or Party Involved	Contact	Description of Participation
BWXT of Ohio, Inc. SMPP-TFV Project P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-865-4071	Budd Thompson	Provided the DOE/ Miamisburg Closure Project, Project Manager with technical assistance, administrative support, sampling, decontamination, photo and site documentation, site safety, and report preparation.
BWXT of Ohio, Inc. General Superintendent and Equipment Manager P.O. Box 3030 1 Mound Road Miamisburg, OH 45343-3030 937-865-4071	Budd Thompson	Provided the personnel and equipment necessary for the demolition.

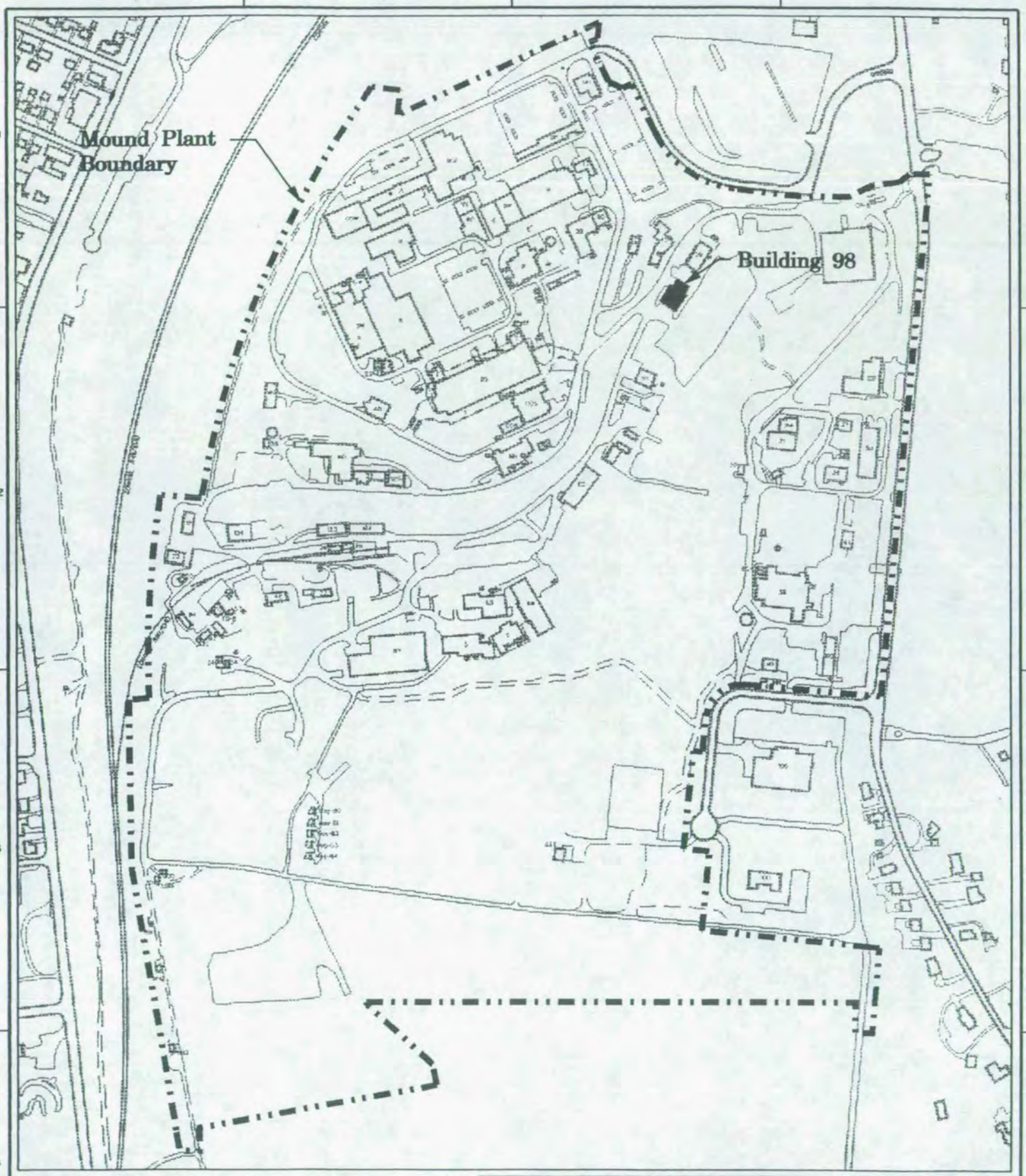
Table 3 - Total Cost

Summary Activity	Cost
Work Planning	$ 18,000
Safe Shutdown	136,500
Characterization	20,000
Decontamination and Demolition	50,000
Hauling and Disposal	22,500
Total Cost	**$ 247,000**

Figures

Appendix A

Figures



Legend

Structures
Paved roadway
Unpaved roadway
Mound Plant boundary
Railroad

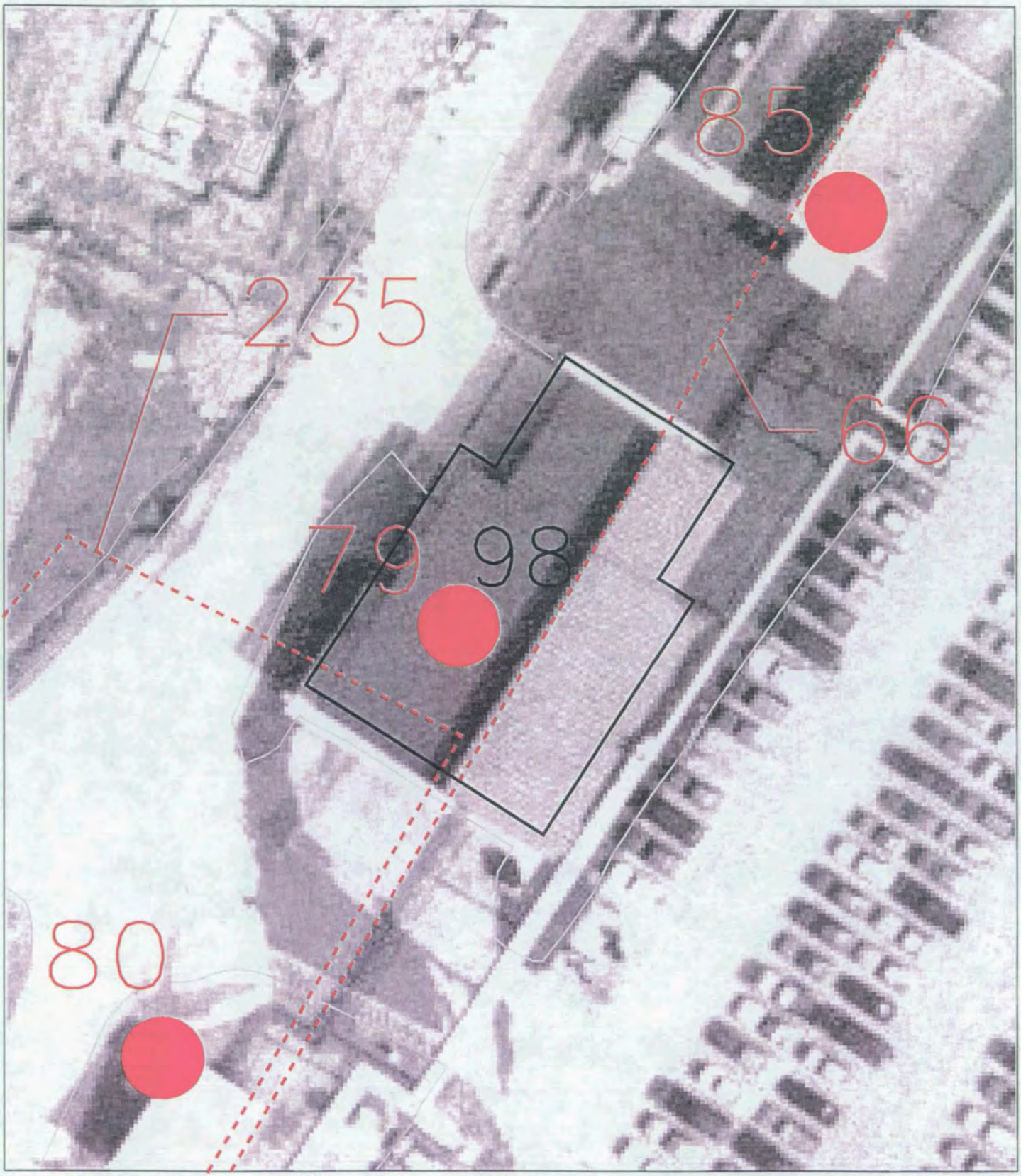
0 100 200 400 600 800 1000
Scale In Feet

MOUND
Environmental Restoration Geographic Information System

Figure 1
Location of Building 98

UNCLASSIFIED
gen_site_plan.dgn
STE ER-GIS
MD-REL-00/00/00
MSTATION / J

ISS	DATE	REVISION	BY	CHKR	ENG	APVR	APVR	#
	04/13/02	*	SSF					



PRS Point
PRS Area
PRS Line

ISS	DATE	REVISION	BY	CHKR	ENG	LPNEC	APVD	M
	04/12/02		SSF					

MOUND
Environmental Restoration Geographic Information System

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

Figure 2
Building 98
and Vicinity

DRAWING CLASSIFICATION: UNCLASSIFIED
SIZE
DRAWING NUMBER: vicinity.dgn
JOB NUMBER
DWG TYPE: STE | PRNG: ER-GIS | CAGEC | SCALE | SHEET 1 OF
STATUS: MD-REL-**/**/** | ORIGIN: MSTATION / J

Figure 3:
Building 98

Before, During, and After Demolition

Work Package

Appendix B

Work Package

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

The Project Engineer is responsible for completing Sections 1 through 10. On subcontractor projects, the subcontractor shall complete sections 6, 9, and 10.

1. WORK PACKAGE TITLE: Building 98 Demolition

2. WORK PACKAGE NUMBER. *SMPP/TFV- 30037-00* | **REQUESTOR: L. Koehmstedt**

1. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 98, see Figure 1.0. Using heavy-duty equipment to demolish the facility down to the ground slab, remove and dispose of the debris, isolate and remove utility pipe rack and stanchions and provide temporary erosion protection with seeding and mulch. The soil beneath the area is scheduled for remediation in the near future; therefore ground slab will be left in place and permanent restoration will be performed as part of the PRS 66 soil project. Asbestos abatement and safe shutdown activities will have already been completed prior to demolition.

4. WORK PACKAGE PHASES:

1. **Establish Work Zone.**
2. **Isolate and remove utility pipe rack and stanchions.**
3. **Demolish above grade structure.**
4. **Organize area for future soil remediation.**

Insert the proper sequence of Work Package phases for the job. A phase is a separately definable portion of the project.

5. WORK LOCATION:

Building #: 98

Room #: N/A

Other: N/A

6. SPECIAL MATERIALS AND EQUIPMENT:

1. **Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.**
2. **Rubber tired and tracked front-end loaders.**
3. **Transport equipment for debris as required.**

Figure 1.0 Building 98

7. DETAILED WORK STEPS: See the attached Job Specific Work Plan (JSWP)

Insert the activities to be performed during the job. Describe the specific methods of accomplishing these activities. Activities listed must be grouped under the Work Package phases listed in item 4.

8. *Note: Comments, to identify activities/hazards that are common to multiple phases of the project. Identification of these items will facilitate the option of addressing the items once in the pre-job briefing, as opposed to redundantly listing them in the JSHAs for different phases.*

COMMENTS:

Enter any review comment or issues in this section and/or information generated as a result of completing detailed work steps.

9. REVIEW SIGNATURES:

Written by: _____ Date: 7/1/02 Phone: 3659

Job Foreman: M.M. Thompson for Bill Walker Date: 07/01/02 Phone: 3866

Utilities Job Foreman: _____ for T. Sims Date: 7/3/02 Phone: 4172/4014

Utilities. Mgr: _____ Date: 7/2/02 Phone: 4814

Superintendent/Constr. Mgr: M.M. Thompson Date: 7/1/02 Phone: 3866

Project Eng. Mgr: John W. Nichols for Bob Renostetter Date: 7/1/02 Phone: 5506

Industrial Safety & Hygiene: _____ (J. Mills) Date: 7/1/02 Phone: 3737 (4090)

Rad. Controls: _____ Date: 7/1/02 Phone: 3178

ES&C: Ronald Reulich Date: 7/1/02 Phone: 4080

Waste Mgmt: Willis Dann Date: 7/1/02 Phone: x3822

Bldg. Mgr: Boyd Weidenbach Date: 7/9/02 Phone: x3241

Craft Review: Douglas Hitch Trade ECC Date: 7/2/02 Phone: _____

Craft Review: _____ Trade HDM Date: 7/1/02 Phone: 3935

Craft Review: _____ Trade [illegible] Date: 7/1/02 Phone: 3663

Craft Review: _____ Trade HDM Date: 7/1/02 Phone: 3935

10. USQ SCREEN / DETERMINATION REQUIRED? ☐ YES ☒ NO

Brief Explaination This work scope will have no effect on Nuclear buildings

USQ Trained Person: BS Weidenbach Date: 07/09/02 Phone: x3241

10. AUTHORIZATION SIGNATURE:

Project Manager: M.M. Thompson for C.D. Thompson Date: 07/11/02 Phone: _____

11. WORK PACKAGE CLOSURE:

Job Supervisor: _____ Date: / / Phone:

Project Manager: _____ Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

PRELIMINARY HAZARD ANALYSIS (PHA)
FOR WORK PACKAGE ACTIVITIES

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE INDUSTRIAL SAFETY AND HEALTH REPRESENTATIVE
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 D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Blockage of exits or means of egress	NO	N/A	[EGRESS]
Blockages/obstructions (Identify)	NO	N/A	
Burning, welding, hot-work (Fire Watch)	YES	Demolition	[BURN] Possible use of cutting torch during demolition. Administrative Controls, Permit required. Keep fire extinguisher near by during cutting.
Chemical compatibility of corrosives/flammables	NO	N/A	
Chemical process safety	NO	N/A	
Compressed gas cylinders	YES	Demolition	Project work controls (use of cutting torches).
Confined space entry	NO	N/A	[CONFINE]
Crane operations, overhead or mobile	NO	N/A	
Critical lifts (heavy or high value loads)	NO	N/A	[CLIFT]
Electrical hazards	NO	N/A	[LIVEL] Electrical Isolation of facility was accomplished during safe shutdown activities.
Elevated work/fall protection	YES	SS and demo of pipe rack	[ELEV] manlift, trained personnel and PPE
Emergency eyewash/shower available	NO	N/A	[EWASH]
Emergency alarms or evacuation plans required	YES	All	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building.
Explosive/flammable atmosphere	NO	N/A	
Explosives	NO	N/A	
Fire protection system/equipment outage	YES	Structural Demolition	[FIRE/EFIRE] Fire Alarm System isolation prior to start of structural demolition.
Fire Hazards Analysis Required of Demolition	YES	Structural Demolition	[FHA/ADJA]
Flammable liquids/gases	YES	Structural Demolition	[FLAM] Possible use of cutting torch during demolition. Administrative Controls, Permit required. Keep fire extinguisher near by during cutting.
Forklifts, aerial lifts or material handling equipment	NO	N/A	Note: Roof will not support body weight Any elevated work on the roof will require manlift.
Grounding of electrical equipment	YES	Structural Demolition	Temp. power to portable equipment. All hand - held electrical tools must be equipped with GFCI.
Hazards due to condition of facility or terrain (Identify)	NO	N/A	
Hoisting and rigging	NO	N/A	[HOIST]
Lighting/illumination/adequacy	NO	N/A	[MLITE]
Excavation and Soil disturbance	NO	N/A	No slab or foundation demolition for this package. U/G disconnects done by Safe-shutdown crews

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE SAFETY AND HEALTH REPRESENTATIVE

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 D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout of hazardous sources:	YES	Safe shutdown of pipe rack	[LOTO/ISO] Electrical/Mechanical Isolation of pipe rack will be accomplished during safe shutdown activities.
• Electrical	NO	N/A	See Above
• Mechanical (steam, hydraulic, pneumatic)	NO	N/A	See Above
• Interlocks	NO	N/A	[ILOCK]
• Chemical	NO	N/A	
• Radiological	NO	N/A	
Machine guards	NO	N/A	
Modification to Fire Wall/Door	NO	N/A	[FIREWAL]
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	NO	N/A	
Off-shift work	NO	N/A	
Outages of the plant public announcement (PA) system or the emergency notification system	YES	Demolition	[OUTAGE] The plant radio system transmits public announcements, which will be use to monitor for emergencies.
Overhead or underground utilities (Identify)	YES	Safe shutdown of pipe rack	[UITL] Electrical/Mechanical Isolation of pipe rack will be accomplished during safe shutdown activities.
Penetrations into walls, floors, etc.	NO	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	NO	N/A	
Powder-actuated tools	NO	N/A	
Plant utilities (Identify)	YES	Safe shutdown of pipe rack	[UITL] Electrical/Mechanical Isolation of pipe rack will be accomplished during safe shutdown activities.
Repetitive work	NO	N/A	[ERGO]
Structural Modification	YES	Demolition	[STRUCT] Building is being demolished.
Special Fire Protection Equipment Required	NO	N/A	[FIREQU]
Trenching/Shoring	NO	N/A	[DIG]
Temporary heating facilities	NO	N/A	
Temporary/portable buildings or structures	NO	N/A	[FACIL]
Temporary service hook-ups (Identify)	YES	Structural Demolition	Water service (for dust control). BFP required
Traffic control/flagman	YES	Demolition	[TRAFIC] Loading, and demolition near the roadway.
Work in attics, ceilings, chases, or crawlspaces	NO	N/A	
Work impacting adjacent normally occupied areas	NO	N/A	[ADJAC/BMAPP/SIGNS/NOTIF]
Work Requiring Scaffolding, construction and inspection	NO	N/A	[SCAFF]
Other (Specify)	N/A	N/A	

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE

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 Heatlh 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 D if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Abrasive blast (☐ MSDS available)*	NO	N/A	
Asbestos	NO	N/A	[ASBEST] Asbestos Abatement completed.
Beryllium	NO	N/A	
Blood-borne pathogens*	NO	N/A	
Cadmium	NO	N/A	
Carcinogens (☐ MSDS available)*	NO	N/A	[CARC]
Chemicals/solvents (☐ MSDS available)*	NO	N/A	[CHEM/MSDS]
Chlorofluorcarbon (CFC)	NO	N/A	[CFC] Removed during safe- shut down
Coal, tar or asphalt products	NO	N/A	
Coating/painting (☐ MSDS available)*	NO	N/A	
Corrosives/acids/caustics (☐ MSDS available)*	NO	N/A	
Dusty operations	YES	demolition	[POWDER] potential dust generation controlled via water misting.
Hazardous Waste Operations (HAZWOPER)*	NO	N/A	
High Pressure systems	NO	N/A	[HIPRES]
Insulation/man-made mineral fibers (☐ MSDS available)*	NO	N/A	
Lasers	NO	N/A	
Lead	YES	N/A	Paint may contain lead, do not torch cut painted surfaces.
Foam in Place Operations	NO	N/A	
Mercury	NO	N/A	
Noise in excess of 85 dBA	Yes	demolition	[NOISE] Hearing protection will be used.
Polychlorinated biphenyls (PCBs)	NO	N/A	
Removal of ceiling tiles*	NO	N/A	
Spraying/generation of mists*	YES	demolition	Demolition dust control via water mist.
Temperature extremes (heat or cold stress)	Yes	ALL	[CRYRO/COLD/HEAT] Provide heating or cooling for personnel.
Ventilation or Air Monitoring requirements	Yes	demolition	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed.
Welding, brazing, or thermal cutting operations	Yes	demolition	[BURN] Cutting of rebar and etc. will require a permit.
Other (specify)	N/A	N/A	

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

SECTION C, RADIOLOGICAL PROTECTION - TO BE COMPLETED BY RADIOLOGICAL CONTROLS REPRESENTATIVE

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 D if additional space is needed.)

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Area	NO	N/A	
	Contamination Area	NO	N/A	[STP]
	High Contamination Area	NO	N/A	[STP]
	Radioactive Materials Storage Area	NO	N/A	
	Airborne Radioactivity Area (STP or OBT)	NO	N/A	
	Radiation Area	NO	N/A	
	High Radiation Area	NO	N/A	
	Very High Radiation Area	NO	N/A	
	Other (Specify)	YES	demolition	Possible soil contamination within the area.
Activities:	Criticality Safety Concerns	NO	N/A	
	Digging/Soil Removal	NO	N/A	[DIG] No slab removal, slab removal to be performed as part of PRS 66 removal action.
	Surface destruction of radioactively contaminated materials or equipment?	NO	N/A	[SURFAC]
	Welding, burning, or grinding?	NO	N/A	[SURFAC]
	Hammering, chipping or scraping?	NO	N/A	[SURFAC]
	Abrasive blasting?	NO	N/A	[SURFAC]
	Dust-collecting equipment or systems?	NO	N/A	
	Decontamination and clean-up?	NO	N/A	
	Rad Waste Storage and Disposal Required	NO	N/A	[RWSTOR/WASTE/CHAR]
	Other (Specify)	N/A	N/A	
Sources:	X-Ray machine/generator	NO	N/A	[XRAY]
	Sealed radioactive sources	NO	N/A	
	Unsealed radioactive sources	NO	N/A	
Controls:	Radiological Work Permit	NO	N/A	[RWP/RWP=JS/RWP=N/R/RPGEN]
	ALARA Plan	NO	N/A	[ALARA]
	Air Flow Studies	NO	N/A	[AIRFLOW/CAM]
	Urinalysis program	NO	N/A	
	Preliminary or in-process characterization	NO	N/A	[SURVPS/SURVIP]
	Anti-contamination clothing	NO	N/A	
	Respiratory protection	NO	N/A	[RESP]
	Needs Analysis Evaluation	NO	N/A	
	Hazards Analysis	NO	N/A	
	Engineering Controls	YES	ALL	Dust control via misting.
	Administrative Controls	YES	N/A	Barricading of construction zone
	Supplemental dosimetry	NO	N/A	
	Shielding	NO	N/A	
	Personnel monitoring (frisking)	NO	N/A	

SECTION D - OTHER CONDITIONS, CONCERNS, OR SUPPLEMENTAL INFORMATION FROM SECTIONS A THROUGH C
Identify Assembly Points: ***Be aware of threatening weather and take shelter when life-threatening storms are imminent.*** Assembly area west of Building 98, Take shelter area is in Building 61, rooms 123, 124 - See Appendix E

Work Package Revision Form

Work Package Revision Form			
Work Package No.SMPP/TFV-30037-00	Revision No.		
Revision Description: (attach page revisions to form)			
	Name	Signature	Date
PREPARED BY:			
Revision Preparer:			
REVIEWED BY:			
Project Foreman:			
Project Superintendent/ Constr. Mgr.:			
Industrial Safety & Hygiene P o C:			
Radiological Point of Contact:			
Environmental Safeguards & Compliance P o C:			
Waste Management PoC:			
Building Manager:			
Other:			
Other:			
USQ Trained Person			
USQ SCREEN / DETERMINATION REQUIRED? ❑YES ❑NO Brief Explaination_____			
APPROVED BY:			
Project Manager:			

Work Package Revision History Form

WORK PACKAGE REVISION HISTORY FORM			
REV. NO.	REASON	SIGNATURE	DATE

Job Specific Work Plan
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Job Specific Work Plan

1. WORK SCOPE

1.1. Introduction

This Job Specific Work Package (JSWP) follows the outline of PP-1059A, Integrated Work Control Program at the Mound Site, Miamisburg, Ohio. Included are a Preliminary Hazard Analysis (PHA) and a Job Safety & Hazard Analysis (JSHA). A Pre-Job Briefing Form (ML-9657) and the Project Manager's Authorization to Commence Work signature will be completed to document that the workers were briefed on the activities covered in this JSWP before work begins.

1.2. Work package scope

The purpose of this effort is to demolish Building 98 primarily, including the removal the debris, the isolation and demolition of all utilities located on the pipe rack and stanchions leading from the "HI-LINE" from the powerhouse to behind the "F" electrical substation near building 29. Provide temporary seeding and mulching of the area to prevent erosion protection. This will be accomplished by confirming that all utilities have been isolated during safe shutdown activities, establishing a safe work zone, and the demolition of the building using heavy-duty equipment, and removing of debris as directed by Waste Management.

1.3. Site Information

Building 98 was constructed in 1986 as the Central Fire Station, and continued to serve that purpose through early June 2002. The building is located in the upper portion of the Test Fire Valley between the Main Hill and the Special Metallurgical/Plutonium Processing (SM/PP) Hill. It is a two-story, 8,517 square-foot building. Exterior walls are constructed of reinforced concrete, and of split-faced block. The walls between the apparatus bays and the rest of the building are reinforced load-bearing walls, with the wall extending six feet below the floor of the apparatus bay, to create the interior wall of the lower level to the rear. The interior of this wall is drywall over cast wall covered with a 1.5-inch sound attenuation barrier. There have been no additions to the building. The 21-room building includes high bay apparatus rooms, living quarters, mechanical rooms, service rooms, offices, corridor, vestibule, and support areas.

2. DRAWINGS AND REFERENCES

PP-1059A, Issue 8, "Integrated Work Control Program"
MD-50000, Issue 11, "Maintenance Work Order and Material Processing"

3. INITIAL CONDITIONS AND PREREQUISITES

3.1 Lessons Learned

A search of the Lessons Learned Database found the following relevant item:

- Glycol Spill Occurs During Draining of Closed Loop System
- Driver has near miss with electrocution when overhead wires catch on truck.

See Appendix F for the full report. The result of the Lessons Learned is that heavy equipment must be kept clear of all energized wires.

3.2 Industrial Safety and Health Requirements

3.2.1 A Job Specific Hazards Analysis (JSHA) is required. The general demolition area and site location, as shown in Appendix E, identifies the demolition area approximate boundaries, the take shelter area, and the assembly area. Debris will be cleared from the immediate construction zone as required to promote safe equipment activity.

3.2.2 Underground electrical utilities ductbank will be identified and field located by scanning the area prior to beginning any field activities to prevent damage. Lock-out-tag-out procedures will be followed and electrical energy detection will be performed prior to any electrical demolition activities that are associated remaining with the building and/or pipe rack / stanchion demolitions.

3.2.3 Monitoring for silica dust will be performed periodically as determined by previous monitoring results and site Safety and Health. Site Safety and Health will be notified before the demolition of concrete begins.

3.2.4 Whole body vibration will be administratively controlled and by reviewing topic at pre-job meeting.

3.2.5 A Hot Work Permit will be required if a torch is used for cutting. Coordinate with site Safety and Health.

3.2.6 Monitoring of noise levels will be performed as determined by previous monitoring results and site Safety and Health. Earplugs (or other hearing protection) will be worn, as appropriate.

4. RADIATION PROTECTION REQUIREMENTS

An assessment of Building 98 was performed reviewing operational history and radiological survey information. The radiological survey data supports the conclusion that Building 98 was not contaminated with radiological materials and is non-impacted per the guidance in MARSSIM. Confirmatory survey results, using large area gas proportional detectors were less than applicable limits. Additionally, the building has no known history of having handled or stored radioactive materials. Several prior assessments have concluded that the building was non-impacted from site radiological operations.

5. ENVIRONMENTAL PROTECTION REQUIREMENTS

5.1 CERCLA

Building demolition being conducted as a non CERCLA project, slab and foundation will be removed by the soils group as part of PRS 66.

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 BWXTO have tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, five (5) are at or near Building 98. PRSs in the vicinity of Building 98 are identified in Table 1.

Table 1: PRSs in Proximity to Building 98

PRS	CERCLA or Bldg. Related	Binning Status	Comments
66	CERCLA	Removal Action (RA)	**Area 7, Thorium and Polonium Wastes. Part of Bldg. 98 is located within PRS 66.**
79	CERCLA	No Further Assessment (NFA)	**Warehouse 15. (Warehouse previously removed.)**
80	CERCLA	RA	**Warehouse 15A.**
85	CERCLA	NFA	**Building 29, Solvent Storage Shed.**
235	CERCLA	NFA	**Area of Possible Elevated Thorium Activity.**

5.2 National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

Per Environmental Practice 2.2, if buildings to be demolished have a surface area less than 72 million square feet, direct readings below MDA, and wipe results below applicable action levels, additional dose calculations are not necessary. Building 98 meets those criteria and therefore additional dose calculation is not required.

5.3 Notification

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

5.4 Restriction of emission of fugitive dust (OAC 3745-17-08)

Reasonably available control measures must be employed to prevent fugitive dust from becoming airborne. Visual particulate emissions from any fugitive dust source shall not exceed 20% opacity as a three-minute average. Appropriate activities would include:

5.4.1 Water misting, or other suitable dust suppression, will be used to minimize fugitive dust resulting from demolition activities.

5.4.2 Periodic application of water, or other suitable dust suppression, to adjacent roadways and parking lots will be used to prevent dust from becoming airborne.

5.4.3 Trucks hauling debris to the onsite spoils area should be covered while in transit.

5.5 Clean Water Act & Storm Water Pollution Prevention

5.5.1 All inlets to the sanitary and storm systems will be plugged to prevent accidental discharges to the wastewater treatment plant or the environment.

5.5.2 The site's National Pollutant Discharge Elimination System (NPDES) Permit No. 1IO00005*HD requires the use of control measures to ensure the quality of storm water leaving the site. These control measures and practices are outlined in the site's Storm Water Pollution Prevention Plan OPA980099. Appropriate activities would include; redirect flow patterns around the project site to prevent stormwater run-on. Provide inlet protection to the storm sewer system by covering catch basins immediately adjacent to the project site and plugging roof drains at ground level until which time the underground pipes can be appropriately abandoned. Exercise good housekeeping techniques by segregating materials in a timely manner, including the prompt disposal of wastes, and sweeping debris from the streets to prevent stormwater pollution. Water that has collected in an open excavation or in sumps, must be monitored prior to discharging to the sanitary or storm sewer systems. Contact Environmental Monitoring at extension 4188 for monitoring and review of these non-routine discharges.

5.6 National Historic Preservation Act (NHPA)

Building 98 is not listed as a historic structure with the Ohio Historic Preservation Office (OHPO). No mitigative documentation package is required. However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. Work will be temporarily suspended until which time the items or artifacts have been recovered.

5.7 Safe Drinking Water Act

The during the safeshut down of building the potable water supply to Building 98 was turned off and capped to protect the integrity of the water supply to that portion of the plant site.

5.8 Emergency Spill Response

Building 98 has been disconnected from all utility services and the lines drained. There should be no regulated component that will be encountered. In the event of a major spill of any regulated substances, or the rupture of a non-isolated utility line (fire, domestic water, ethylene glycol) call 911 if using an onsite phone or 937-865-4040 if using a cell

B14 of 53

or other outside phone to report it, also see Emergency Preparedness section. All spills must be contained onsite and should be prevented from entering the storm drains if possible. If spills enter the storm drains, all effluent must be retained onsite at the overflow pond.

6. CHEMICAL AND WASTE MANAGEMENT

All waste will be managed in accordance with the Waste Management Plan for the Mound Exit Project, MD-10499. The Waste Coordinator REQUIREMENTS will ensure that this is accomplished and summarize in a Job Specific Waste Management Plan, see Appendix G.

Non-PCB containing fluorescent tubes and ballasts will be left in place, and will be demolished with the building. PCB containing ballasts had been in the building; they have been removed during Safe Shutdown activities. Note: The fluorescent tubes have been removed.

7. EMERGENCY PREPAREDNESS

7.1 Site Notification Procedures

7.1.1 Use **911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **865-4040**. This number will ring into the plant 911 system.

7.1.2 Any injury, no matter how minor, shall be reported immediately to the Medical Department for evaluation and treatment. The injured employee shall report any injury to the supervisor in charge or designee.

7.1.3 Employees will be notified of emergency or abnormal conditions by the plant paging system or project two-way radios. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary.

7.2 Evacuation Route/Assembly Areas

The assembly area is to the east of Building 98. See map per Appendix E.

7.3 Take Shelter Area

CAUTION

Be aware of threatening weather and take shelter when life-threatening storms are imminent.

Take shelter area is in Building 61, rooms 123, 124 -See Appendix E

8. PRE-DEMOLITION SEQUENCE OF WORK

8.1 Site Characterization

8.1.1 Physical Characterization

A structural engineering survey was performed and documented for Building 98 to meet the requirements of OSHA 29 CFR 1926.850(a). A walkdown of the structure was used to identify potential hazards as listed in 29 CFR 1926.850(e) through (i). It has been determined the building does not meet the criteria that cause the structure to be historically significant.

8.1.2 Radiological Characterization

An assessment of Building 98, pipe rack and stanchions was performed reviewing operational history and radiological survey information. Radiological surveys of the building(s) and equipment indicate no elevated radioactivity levels. Additionally, the building has no known history of having handled or stored radioactive materials. Several prior assessments have concluded that the building was non-impacted from site radiological operations.

8.1.3 Chemical and Metals Characterization

Various chemicals were used in Building 98's operations including cleaners, laundry soap, gasoline, and vehicle-care products. All chemicals were removed in June 2002.

8.1.4 Asbestos Characterization

An asbestos survey was completed and no asbestos was found; no further action is required.

8.2 Site Preparation

8.2.1 Site Access Control

The demolition area will be identified utilizing the existing fence around the building, or at the discretion of the project construction manager/foreman, marked off with barricade tape/fencing.

8.2.2 Clearing and Grubbing

The area around the building will be mowed and insecticide will be sprayed *if appropriate.* Coordinate with site Safety and Health and Environmental Compliance.

HAZARD	MITIGATION

Insect bites	Mow area around building. Wear long pants and long sleeve shirt. Tape arm and leg openings, if desired .
Exposure to insecticide	Follow requirements of MD-10286 D2. Use licensed personnel. Follow label directions and MSDS.

8.2.3 Temporary Utilities

The only temporary utility that may be required is water. Coordinate with site Safety and Health. Water will be used to control dust emissions.

8.2.4 Temporary Facilities

This project will use the SMPP/TFV project trailer in the new trailer complex to be located in the existing Mound "C" parking lot. Also, a portable toilet has been located at the job site.

8.2.5 Temporary Communications

Temporary communications are required (cell phone, radios) due to the difficulty of hearing plant announcements and emergency notifications. At the job site, plant announcements and emergency notifications can be heard on the Plant radio channel.

8.2.6 Staging Areas

The project site is of sufficient size to also be used as a staging area.

8.3 Preliminary Activities

8.3.1 Domestic water, fire water, electrical, fire alarm system and communications lines have been disconnected under separate safe shutdown MSR. 30036. Verify all mercury-containing switches have been removed. If found, dispose through Waste Management.

8.3.2 Confirm all Freon has been previously removed and recycled from HVAC units inside and outside of the building.

8.3.3 Fluorescent tubes, ballasts, and explosion proof lights will remain in place; asbestos abatement has been completed. If PCB-containing ballasts are encountered, remove and dispose through Waste Management. Note: Contact site Safety and Health with any concerns about fluorescent tubes, ballast, or explosion proof fixture seals.

HAZARD	MITIGATION
Fall hazard	Follow requirements of MD-10286 M-14

9. BUILDING DEMOLITION SEQUENCE OF WORK

9.1. Establish Work Zone

Establish work zone boundary using the existing fence and/or with barricade tape as directed by the Project Foreman. Proper signage will be placed at all access points to the site. This zone is not to be entered by anyone not directly involved with the demolition unless they have contacted the Project superintendent/Foreman first. Do not begin any demolition activities until the following items are completed.

All new workers assigned to this project have received a pre-job briefing prior to performing work and a walkdown of the project area. The following must be completed prior to starting work.

Review of the *Preliminary Hazard Analysis* for work package activities must be complete.

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

9.1.2. The *Job Specific Hazards Analysis (JSHA) must be reviewed.*

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, for example, work outside the scope of this work package.**

9.1.3 Perform Safe Shutdown activities in order to isolate all the connections to the stanchion rack piping and the electrical components systems, including the following systems: electric/communication/fire alarm systems, steam, condensate and glycol, plant air, street lighting and Molan systems.

9.1.4 Verify Safe Shutdown activities have isolated all the connections to Building 98, including the following systems: electric/communication/fire alarm systems, steam and glycol, sewage and potable water systems.

9.1.4. Verify that all pre-demolition notifications have been made and permits are in place.

9.1.5. Install sediment/storm water control fence around designated construction area as necessary.

9.1.6. Prepare water distribution system for the control of dust. Verify that traffic control is ready, as and if necessary.

9.2. Demolition

WARNING

Be aware of underground electrical duct bank on back side of the building98 .

9.2.1 Safe shut down pipe rack stanchions and utilities

The utilities operations group will isolate the mechanical and electrical utilities on the pipe rack system as described on the attached Appendix F, along with capture of excess glycol for reuse or disposal. Glycol lines should be checked for low "holding points" these points need to be drilled and drained prior to demolition.

9.2.2 Demolition pipe rack stanchions and utilities

The SM/PP-TFV crews will demolished the pipe rack/stanchions system to the top of the concrete pedestal foundations from Stanchion #PS-40 to Stanchion #PS-25 , from near the "Hi Line" to behind the "F" electrical substation near building 29, -These stanchions will be marked with orange paint to indicate which stanchions are to be removed. Leave the concrete pedestals foundations undisturbed in the ground; they will be removed with the PRS 66 activities. The materials will be sized and placed into appropriate hauling containers or trucks.

9.2.3 Structure Demolition

Demolish starting at the southwest corner of the structure's block walls and structural steel roof truss and metal roofing panels using heavy-duty equipment. Use the existing slab for load out surface for loading debris and placing into appropriate hauling containers or trucks.

HAZARD	MITIGATION
Contact overhead power lines with heavy-duty equipment.	If heavy-duty equipment will be operating within 10' of overhead powers, perform LOTO.
Struck by flying debris Struck by moving equipment	Establish construction boundary. Temporary closure of the roadway to be coordinated with site wide safety, emergency and other necessary entities. Wear hard hat safety glasses, safety shoes, and reflective vest inside construction area. Maintain the following distances from operating equipment: Shear – 75 feet Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet
Noise Hazard	Wear hearing protection while running heavy-duty equipment. Follow the requirements of MD-10286 D9.
Burns from torch cutting	Obtain and follow Hot Work permit per MD-10286 O2

HAZARD	MITIGATION
Heat/Cold Stress	Follow the requirements of MD-10286 D13/D16

Exact sequence of demolition will be left up to the skill of the craft.

Note: The progressions of the building demolition will ultimately be determined in the field.

9.2.4 Slab and Foundation

Slab and foundation to remain in place and be removed during the PRS 66 removal action.

HAZARD	MITIGATION
Burns/fire	Burn permit, fire protection, and PPE.
Strike underground utilities	Obtain Excavation permit and follow its requirements per MD-10286 O5

9.2.5 Organize area for future soil remediation

The last step will be to temporarily restore the area by grading and seeding. Remove any unnecessary remaining sediment/storm water control fences. Scan equipment for radiological contamination and decontaminate prior to leaving area. Remove dust control water distribution system, temporary power fencing and any traffic control. Restoration will be temporary in scope since the area is scheduled to be disturbed in the near future by the efforts of the PRS 66 removal action.

Appendix A
JSHA/HASP

Project/Activity: Building 98 Demolition
Name: Lee Koehmstedt

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

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

JOB SAFETY & HEALTH ANALYSIS

JSHA MASTER DOCUMENT CONTROL NO:
SMPP/TFV – 30037-0

DATE: 07/01/02	_X_ NEW __ REV	**BUILDING: 98**	**JOB: Demolish Building 98**
DEPARTMENT/COMPANY: SMPP/TFV			**SECTION:** N/A
OCCUPATIONS: Heavy Duty, Demo Tech, Construction Craft, Pipefitter/Welder, Electrical Control, Fab Mechanic, RCT, IH			

SIGNATURES

ORIGINATOR: Lee Koehnstedt	
REVIEW/REV: Jared Willis	
REVIEW/REV: Bill Wahler Jim Times	7/01/02
REVIEW/REV: Gary Weidenbach / Alan Upshaw	
APPROVED: C.D. Thompson	for C.D. Thompson

REQUIRED PERSONAL PROTECTIVE EQUIPMENT: Hard Hat, Safety Glasses with side shields, safety shoes, safety vest, hearing protection	**MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:** Insecticide

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. 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: 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	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. 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. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. 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. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	1) Be cognizant of your own safe work practices as well as those of your co-workers. 2) Review any related safety procedures of which you are unsure. 3) Utilize STOP WORK Authority as necessary.
Pre-job meeting with involved personnel to discuss the work plan and safety requirements.	NA	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.
Operation of heavy equipment near electric overhead lines	Electrocution	LOTO all electrical overhead lines.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Demolish building and pipe rack and stanchions 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. Install traffic control. Wear hearing protection while running heavy-duty equipment Follow the requirements of MD-10286 D9.
Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. Test for lead paint; do not torch cut lead paint.
Working in excessive heat/cold	Heat Stress/Cold Stress	Follow the requirements of MD-10286 D13/D16
Working outside.	Adverse weather conditions	Be aware of adverse weather conditions, and use assembly and take shelter areas as appropriate.
Working with Glycol	Potential chemical exposure	Glycol MSDS

SIGN-OFF SHEET

I have read and understand the attached Job Specific Work Plan and JSHA:

SIGNATURE	Date	Department

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Appendix B

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Appendix C
PRE-JOB BRIEFING

JOB SPECIFIC WORK PLAN
PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

1.	Any changes/revisions to safety envelope for work: a. New/added assignments and responsibilities of any individual b. Changes in facility conditions, tagouts, valve lineups c. New or changed precautions/hazards d. Valid RWP or other required work permits still in effect
2.	Adequate supply of PPE
3.	New training, any training coming up on expiration
4.	New changes to relevant Category "A" or Category "B" procedures.
5.	Equipment and tools calibrations in effect
6.	Relevant lessons learned, critique reports
7.	RWP revisions: a. Changes to radiological conditions of the workplace, particularly with respect to postings. b. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8.	Changes to radiological and/or health monitoring.
9.	Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

Job Supervisor/Foreman _____ Date _____

NOTE: Completed pre-job update sheet must be retained with the work package or maintained in your record file.

JOB SPECIFIC WORK PLAN

Daily Toolbox Safety Meeting

Project:	**Date:**
Safety Topic of Meeting:	
Work Description of Meeting:	

Review the following to determine if conditions have changed since the last Pre-Job Meeting
If this is the 1st meeting with a subcontractor, has Safe Work Authorization been done?
Check off each item that applies or mark N/A if it doesn't apply.

Hot Work Permit (torch cutting, spark producing grinding, open flame heaters, welding)		Signage and Barricades (construction area, hazard notification, rad postings, etc).	
Penetration Permit (penetrating walls, ceilings, or floors in a building)		Air Monitoring (as required by Environmental Compliance and/or Industrial Hygiene)	
Excavation Permit (digging in soil)		Dust Suppression (misting, etc.)	
Trench Plan (shoring, soil layback, etc. if over 4 feet below grade)		Water Runoff Prevention (silt fence, straw bales, collection pond, etc.)	
Confined Space Entry Permit (manhole, tank, or other confined space entry)		Radiation Work Permit (as required by Rad Controls)	
Fall Protection (person's feet over 6 feet above ground)		TLDs (as required by RWP and rad postings)	
Lockout/Tagout (all energy sources to equipment being worked on)		Waste Containers (rolloffs, sealands, dumpsters, LSA boxes, drums, etc.)	
PPE (respirators, Tyveks, safety shoes, safety glasses, hard hats, gloves, reflective vests, etc.)		Utility review especially for asbestos abatement contractor (label live utilities e.g. FAS, phone, electric)	
Personnel Training up-to-date for assigned work (Radworker II, Asbestos, Lead, etc.)		Hoisting and Rigging Review	

JOB SPECIFIC WORK PLAN
PRE-JOB UPDATE

Continuation Sheet for ____/____/____

HP#	SIGNATURE	HP#	SIGNATURE

JOB SPECIFIC WORK PLAN

PRE-JOB UPDATE

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR

A.	Time, Date and Location of PJB:
B.	Applicable Procedure Number:
C.	Job Description:
D.	Personnel Attending:

HP#	SIGNATURE	HP#	SIGNATURE

JOB SUPERVISOR – This is a reminder checklist for the update. The supervisor need only discuss and note changes from the previous day's briefing or update. (Use NC for No Change).

2.	Any changes/revisions to safety envelop for work: e. New/added assignments and responsibilities of any individual f. Changes in facility conditions, tagouts, valve lineups g. New or changed precautions/hazards h. Valid RWP or other required work permits still in effect
2.	Adequate supply of PPE
3.	New training, any training coming up on expiration
4.	New changes to relevant Category "A" or Category "B" procedures.
5.	Equipment and tools calibrations in effect
6.	Relevant lessons learned, critique reports
8.	RWP revisions: c. Changes to radiological conditions of the workplace, particularly with respect to postings. d. Change in scope, especially if it is a reduction in scope or Stop Work Levels.
8.	Changes to radiological and/or health monitoring.
9.	Open the floor to questions.

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to maximize continued safe conduct of the job, and all personnel have been through a previous Pre-Job Brief.

_____

Job Supervisor/Foreman Date

Appendix D

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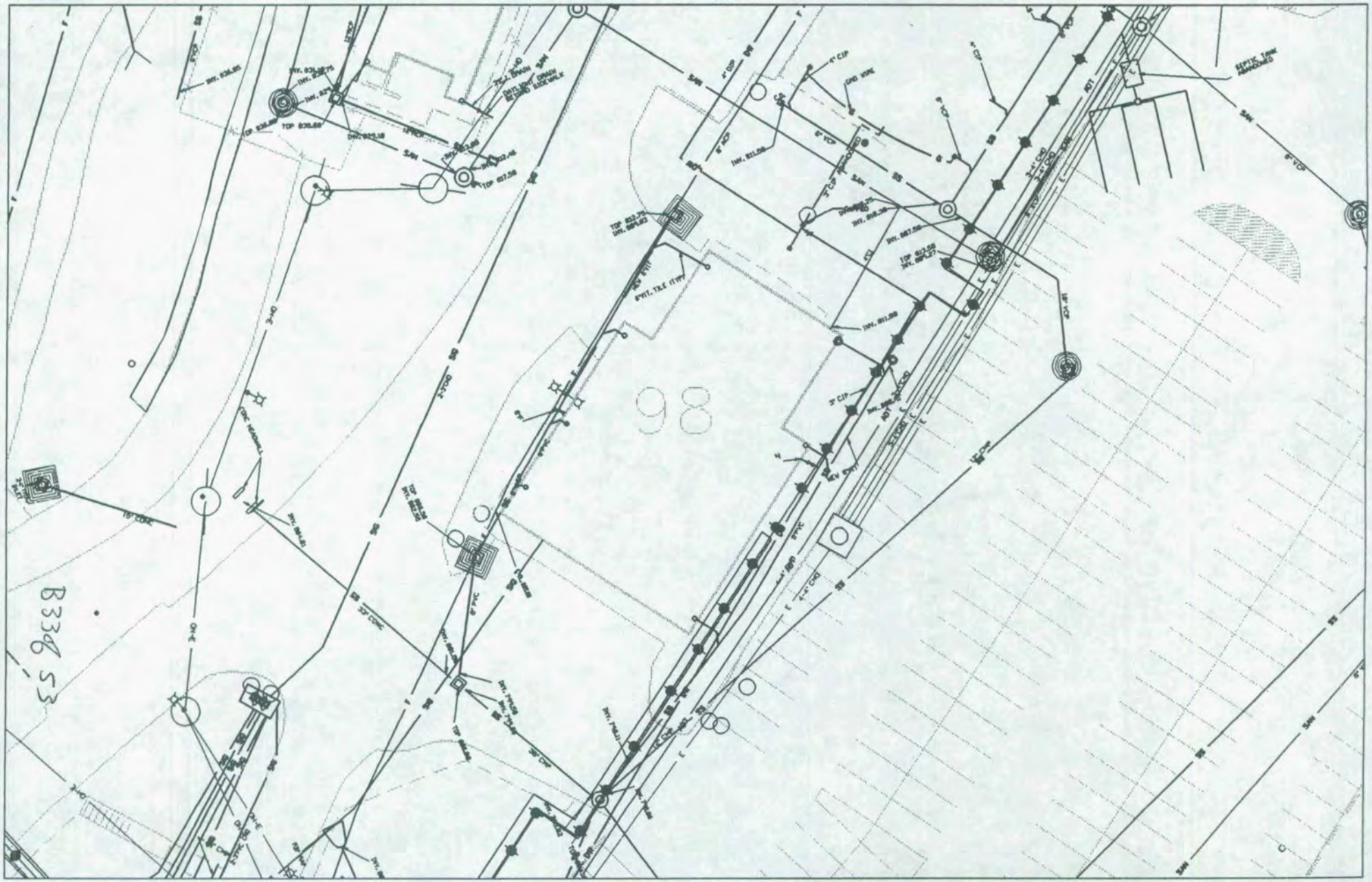
Appendix E
DRAWINGS/SKETCHES



0 10 20 40 60 80 100

Scale In Feet
1" = 40'

LEGEND

SIGNAL	SIG	COMPRESSED AIR	CA
SANITARY	SAN	RAD WASTE	RWS
DOMESTIC WATER	DW	TELEPHONE LINE	T
FIRE WATER	F	ELECTRICAL LINE	E
STORM SEWER	SS	COMMUNICATION LINE	ADT
BRINE SUPPLY	BS	DASHED LINE INDICATES - LINE IS ABANDONED	
BRINE RETURN	BR		

ISS	DATE	REVISION	BY	CHKR	DNG	LPNEC	APVD	B
	06/26/02		*					

MOUND

Environmental Restoration Geographic Information System

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

Figure
Building 98
Underground Utilities

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: bd98_all_undergrds.dgn | JOB NUMBER

DWG TYPE STE | PRNG ER-GIS | CADEC | SCALE | SHEET 1 OF

STATUS MD-REL -**/**/** | ORIGIN MSTATION / J

Appendix F
REFERENCES/ LESSONS LEARNED

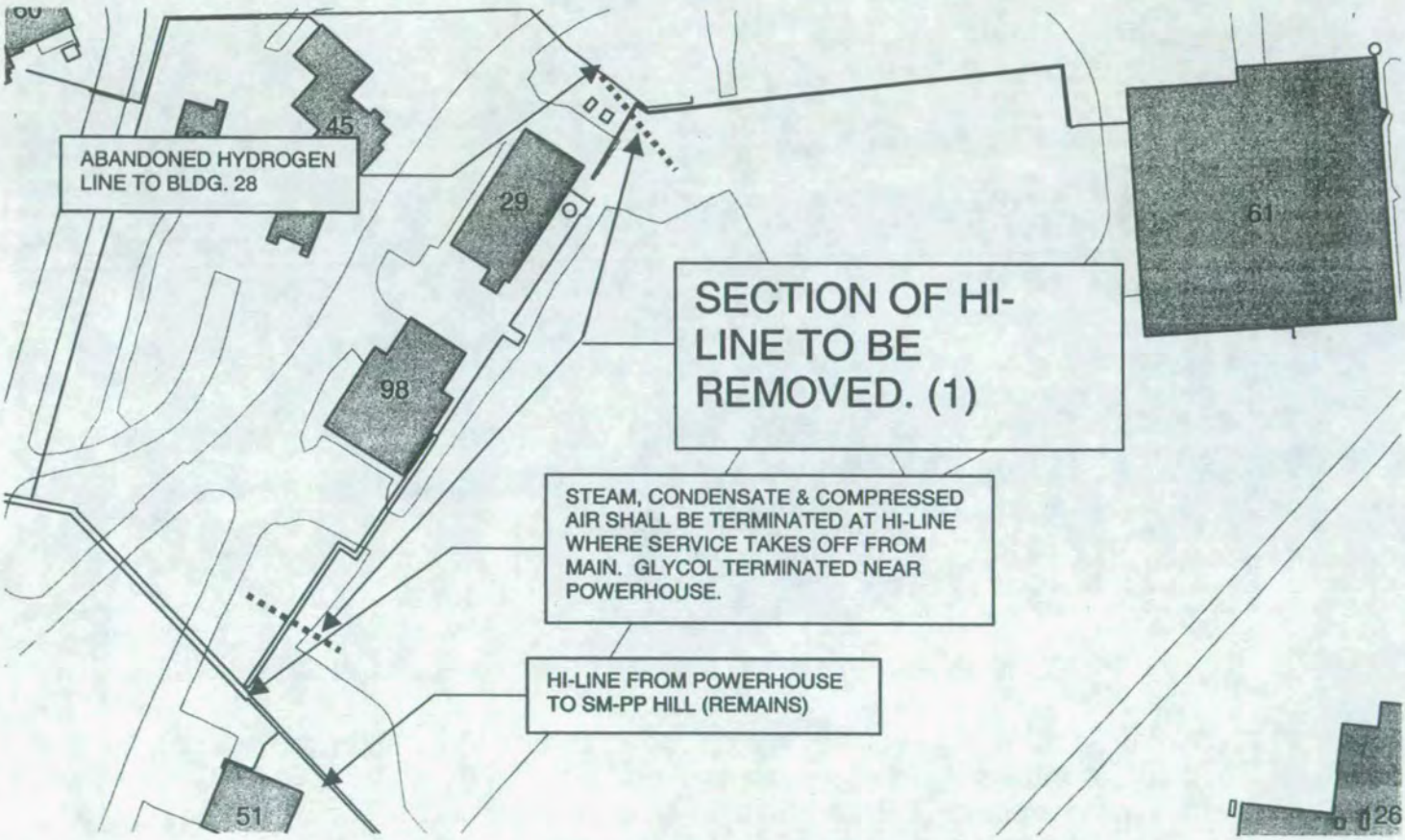
Appendix F

TO: LEE KOEHMSTEDT

FROM: BILL BRUNNER

DATE: MAY 17, 2002 , Revised By Lee Koehmstedt June 12, 2002 (1) Revised length to be removed

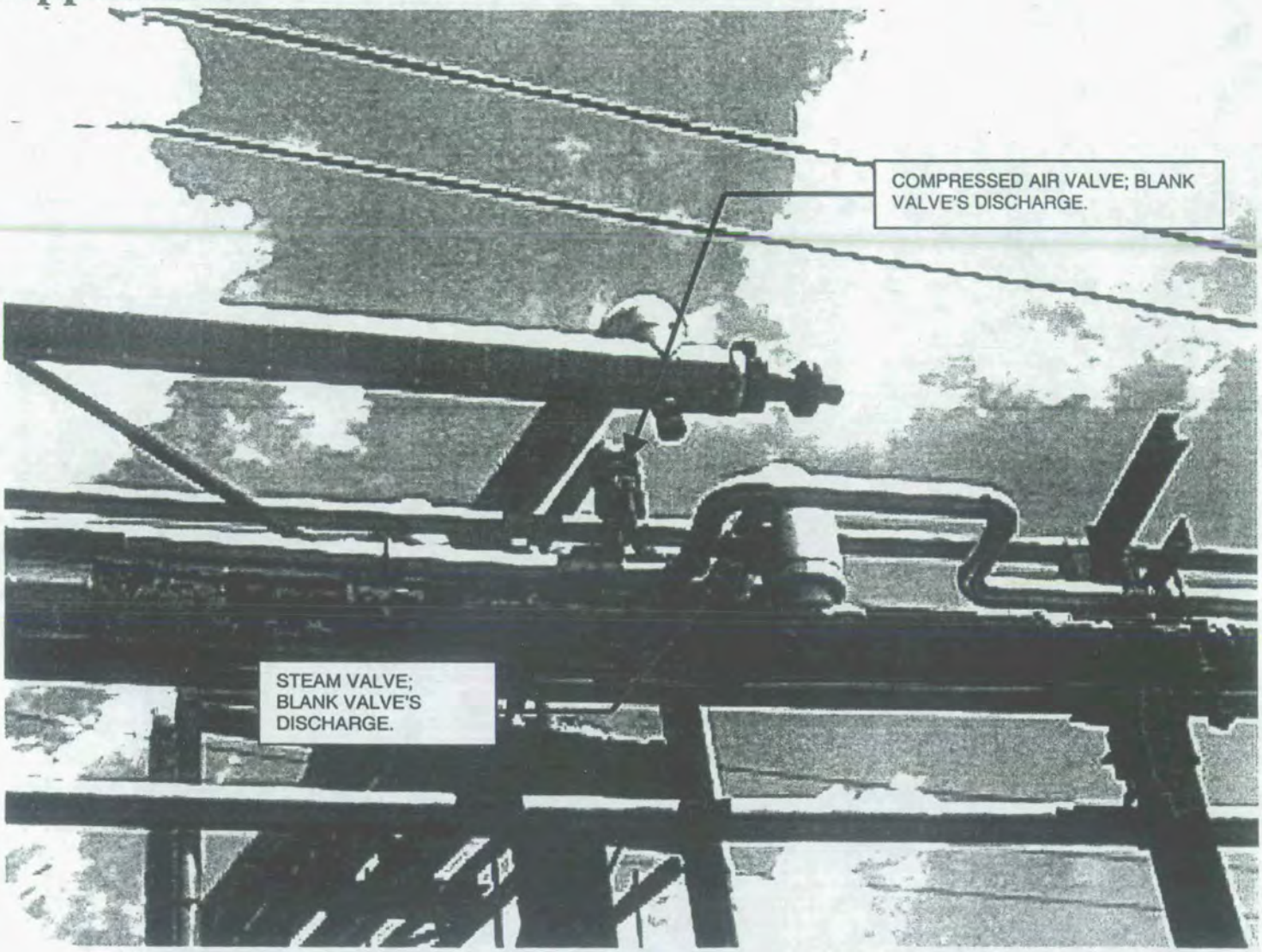
SUBJECT: *REMOVAL OF STANCHIONS FROM HI-LINE (WEST OF BLDG. 98) TO BLDG. 61: ISOLATION OF MECHANICAL UTILITIES ONLY*



SKETCH #1 – **UTILITY HI-LINE TO BUILDING 61**

NOTE: THIS DOCUMENT ASSUMES THAT THE SHUTOFF VALVES SPECIFIED HEREIN ARE OPERABLE AND CAN BE CLOSED SUFFICENTLY TIGHT TO INSTALL BLIND FLANGES. IF ANY VALVE DOES NOT MEET THIS CITERIA, OTHER MEASURES OR ARRANGEMENTS WILL HAVE TO BE MADE THAT REQUIRES MORE OF THE SYSTEM TO BE ISOLATED. THESE CONDITIONS ARE BEYOND THE SCOPE OF THIS WRITEUP.

Appendix F



PICTURE #1 – **STEAM AND COMPRESSED AIR VALVES**

Picture #1 shows the location of the steam and compressed air valves serving Bldgs. 29, 61 & 98. (Picture taken looking northeast from southwest side of the hi-line from Powerhouse to SM-PP hill.) Verfiy with Utility Operations (Frank Raker) that the steam line is "cold". Close the compressed air valve shown in Picture #1 and depressurize downstream side of pipeline. Even though the steam and compressed air may be shut down elsewhere, do install blind flanges on the respective valves.

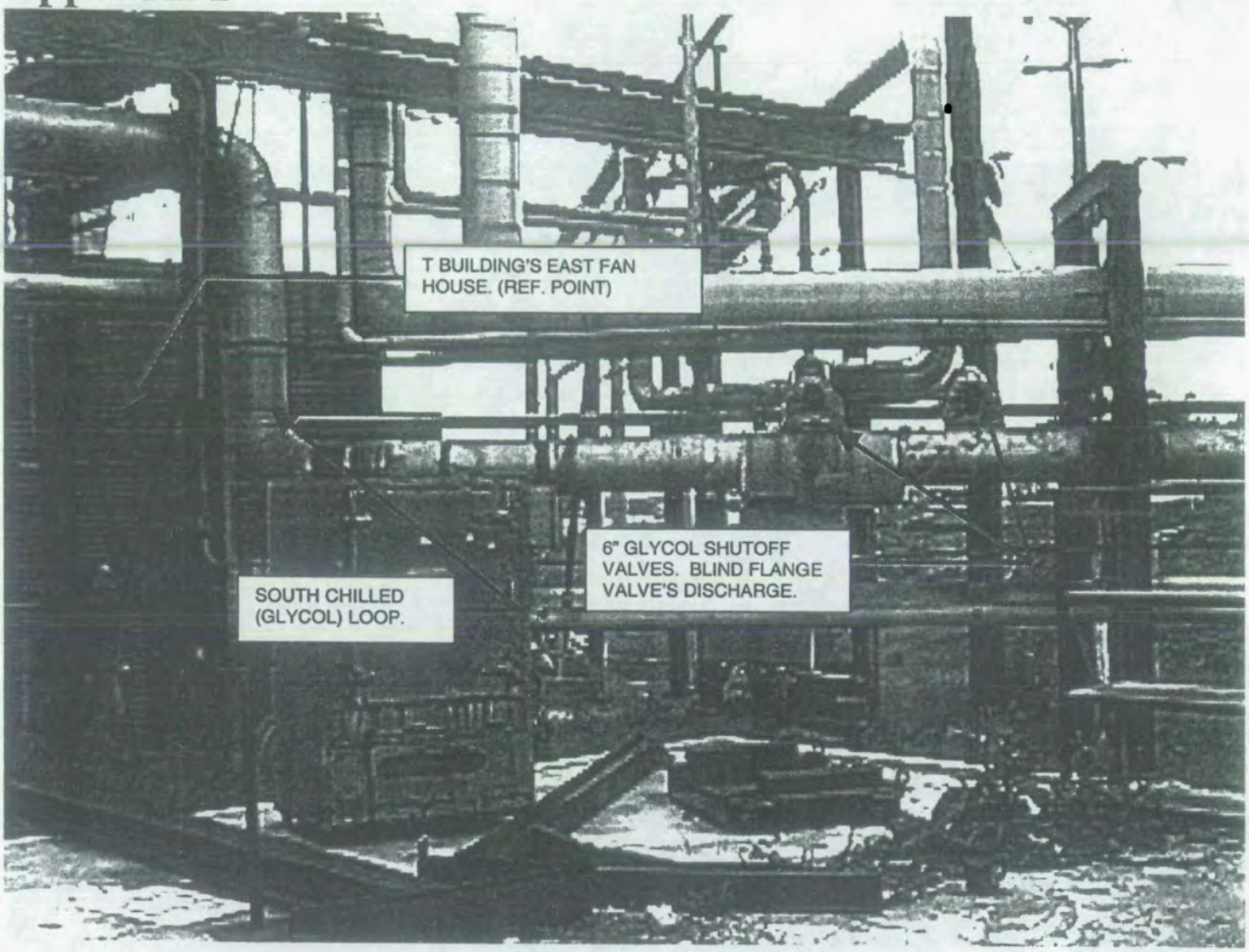
The steam valve is a standard flanged, rising stem valve; the compressed air valve is a flanged butterfly valve (lug type) . Check the insulation around the steam valve for asbestos. Verify all valve sizes prior to starting job.

Appendix F

PICTURE #2 – **CONDENSATE ISOLATION POINT**

This picture was taken northeast of the first stanchion going to Building 61. The shut off valve (not shown in picture) is located downstream of the flange shown in *Picture #2.* Check the insulation around the flange for asbestos prior to removal. The condensate may be shut off elsewhere, verfiy with Utility Operations (Frank Raker) that the condensate line is "cold".

Appendix F



PICTURE #3 – **LOCATION OF GLYCOL ISOLATION VALVES.**

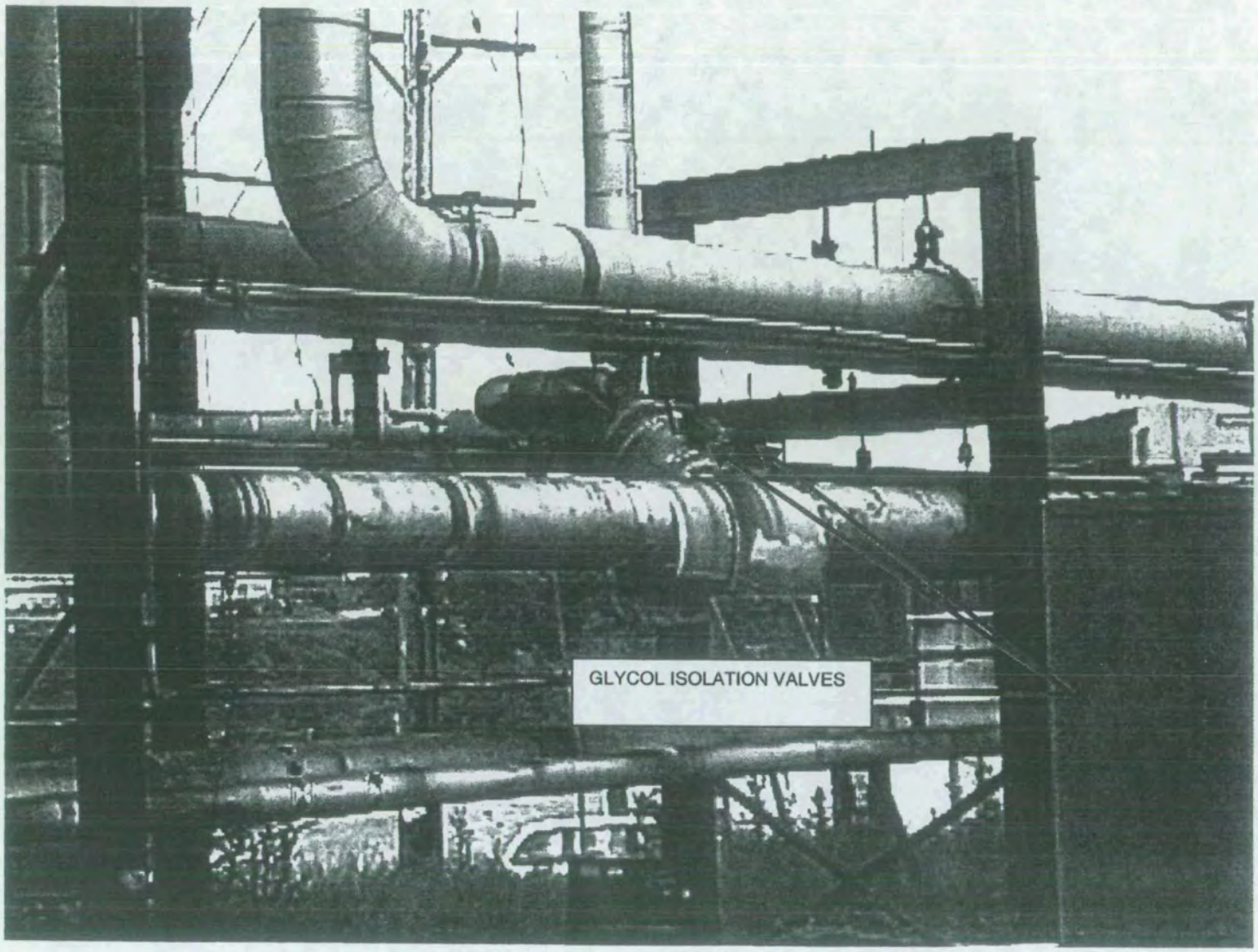
The glycol valves serving Building 98 are located south and west of the East Fan house of T Building. Verify the valve size before beginning work. The insulation around the valves and piping should not be asbestos. This judgement is based on the fact that when these lines were installed, asbestos was no longer used as an insulating material. *Picture #4* is another view of the isolation valves and *Picture #5* is the location showing where the lines can be drained.

The glycol must be drained from the piping prior to the demolition of the stanchions. A foot of 6 inch, schedule 40, steel pipe holds 1.5 gallons of glycol solution. (Glycol solution is approximately 30% glycol and 70% water.) According to VistaMap, the amount of 6 inch supply and retrun line that must be drained is approximately 1,050 feet. A foot of 4 inch, schedule 40, steel pipe holds 2/3 gallon of glycol solution. The amount of 4 inch supply and return line that must be drained is approximately 500 feet. The accumulated total is approximately 2325 gallons[1].

[1] SEE MOUND DRAWING 309800-01002-G2 FOR LINE SIZE VERIFICATION.

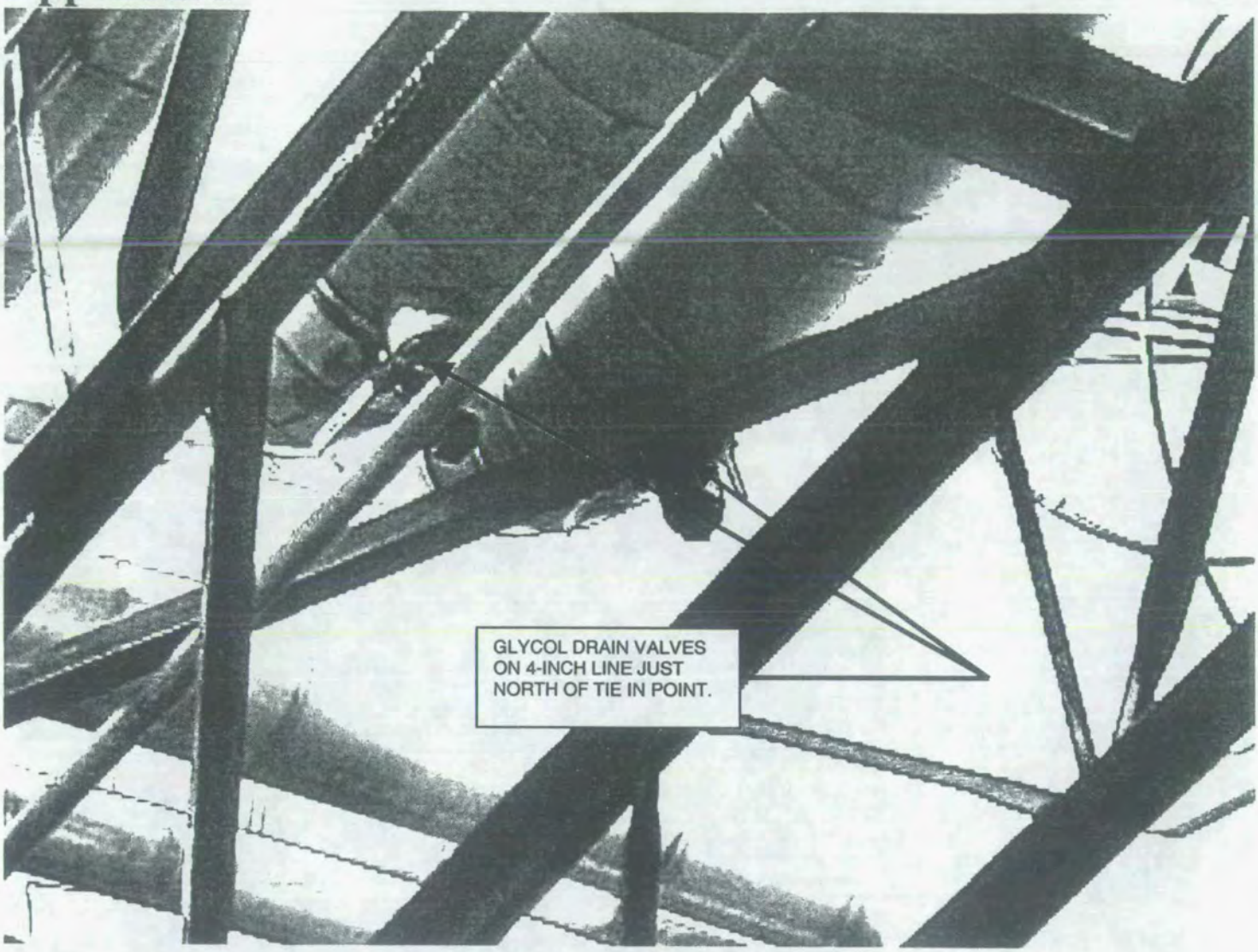
Appendix F

Please contact Allen Upshaw for the glycol solution storage details prior to beginning work.



PICTURE #4 – **ANOTHER VIEW OF GLYCOL ISOLATION VALVES.**
(LOOKING SOUTH TOWARD DS BLDG.)

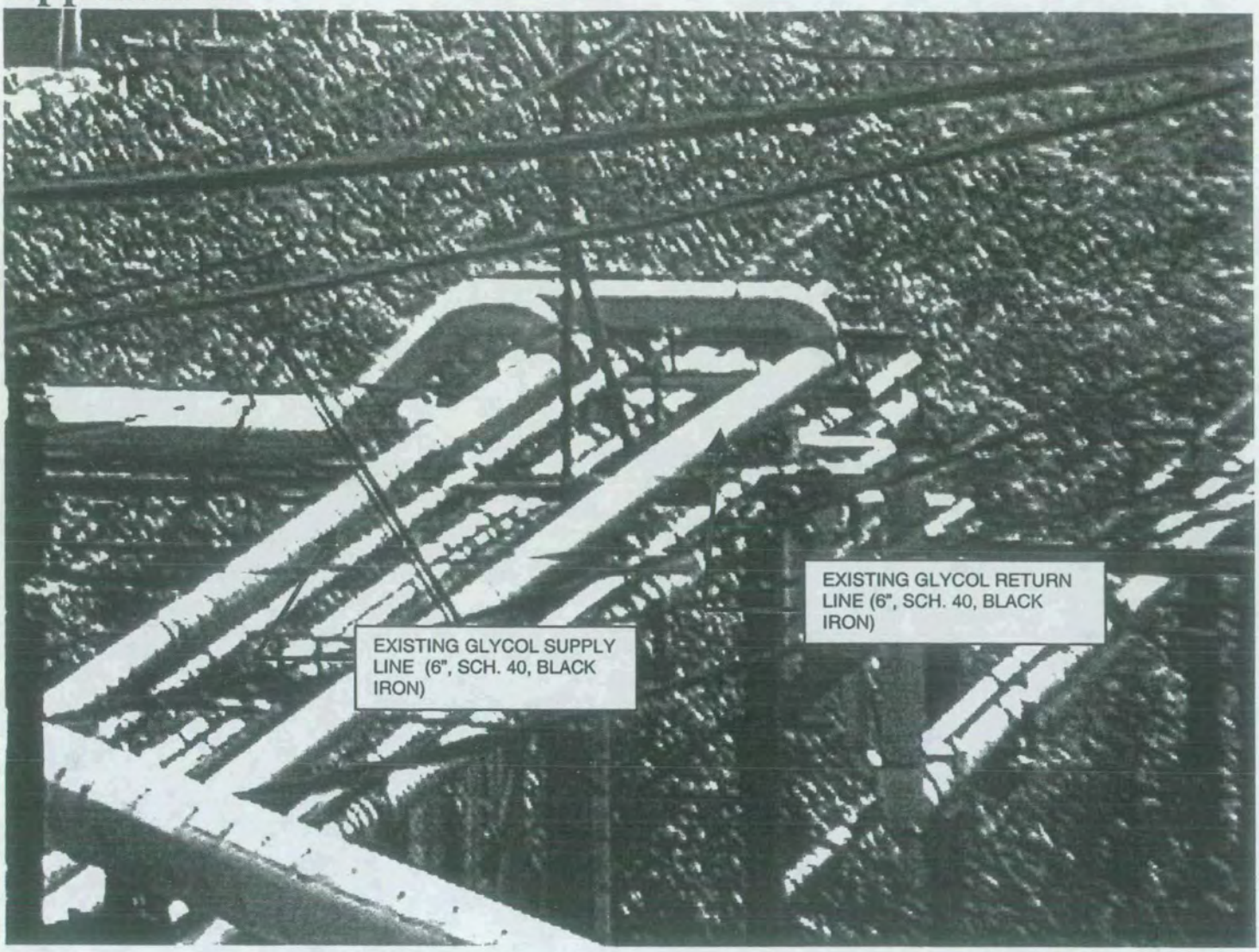
Appendix F



PICTURE #5 – **LOCATION OF GLYCOL DRAIN VALVES**

There may be other places to the drain the glycol; I believe the valves shown in this picture are on the lowest section in both the 6 inch and 4 inch pipe lines. Pay attention to the geometry of the piping because some of the glycol may be trapped in the main (see *Picture #6).*

Appendix F



PICTURE #6 – **OVERVIEW OF GLYCOL LINES AT INTERSECTION POINTS**
(NOTE THAT SOME GLYCOL WILL REMAIN IN LINE)

Appendix F

PICTURE #7 – **OVERVIEW OF CONCRETE PIER AND PIPE SUPPORT AT BUILDING 61.**

The unused steam and condensate piping in Building 61 will be removed "by others" (as part of the Boilter 61 Installation Job). The building's gas meter is directly behind the concrete pier and the thought is that the pier can protect it. (The instruction stated in *Picture #7* applies only to the pier shown in this picture and not to any other pier that supports the stanchions).

Glycol Spill Occurs During Draining of Closed Loop System

(L02-001)

Lessons Learned Statement: Draining of closed loop glycol piping system can result in spills if the system is not properly vented and spill control measures are put into place.

Discussion: On December 7, 2001 a glycol spill occurred in Technical (T) Building while draining the Main Hill Loop of the glycol circulating system to replace isolation valves in the system at T Building, and near Building 28 and 60. The system was drained at the Powerhouse, T building and near Building 28. The supply and return lines in T Building were vented as well as the supply line to Building 28. It was believed that these vents would prevent the forming of a vacuum within the system that might prevent the system from being completely drained. The system was being drained in T Building at the location of the two large 10 inch isolation valves and at the control valve to the S-11 air supply unit.

The T Building system was drained to the point where air was coming out of the pump used to extract the glycol from the system. Preparations were about to start for the removal of the isolation valves in T Building when suddenly there was an unexpected flow of glycol out of the two 1/2 inch valves that were being used to allow air into the T Building part of the system. The glycol was contained in the area of the spill due to the quick action of the personnel involved with the work and the staging of spill control materials prior to starting the job. Some glycol was captured in a sump that was later pumped back out.

The two valves that service Building 28 and 60 were both believed to be standard gate valves and were believed to in the open position. The personnel in T Building had let the Powerhouse personnel know that they were getting air out of the system and that it appeared to be drained. The personnel working at the south side of Power House 28 started removing the return line valve and when the line was opened up there was significant influx of air that almost pulled the gaskets into the line. The air rushed in due to a vacuum that had been created on the return side of the loop. Once this vacuum was broken, glycol still being held in the loop because of the vacuum was released to the lowest point in the system, T Building.

It was discovered that the valve in the return side of the glycol system to Building 28 and 60 was a flow control restriction valve and apparently in the close position by its design. This prevented the return loop from being vented. The glycol return line inside the shaft to T Building loops up where it enters T Building, creating a natural trap. It was the glycol trapped and held in the line by the vacuum that was released to T Building once the vacuum was broken.

Analysis: Personnel were not aware that the isolation return valve to Buildings 28 and 60 was flow restricting type designed to be in the closed position. If personnel had known, efforts would have been taken to vent that side of line during the draining process. When performing work of this type, any open drain points should always be connect to proper containers to catch any liquids that may come through even if the system is believed to be empty. When separate crews are working on the same system at different locations, good communication must be maintained to inform every one of what is being performed and when so everyone is aware of any potential hazards.

There was a misunderstanding between the Utilities Group performing the work at the Power House and the T Building Group. The T Building Group believed that the draining and venting of the system at Building 28 would vent the lines all the way to T Building. The Utilities Group thought they had told the T Building Group that they could not guarantee the lines would vent all the way to T Building.

When working on old systems like Mound's glycol closed loop system, valve positions and the condition of the valve can not be predicted. Therefore, when planning work on the system, it is best to plan as if the valves are not in the position that they are believed to be in and plan for the worst case.

Recommended Actions:

1. When draining liquids from piping systems, leave the drains connected to containers to catch any unexpected leaks or flows.

2. When performing work on a system at different locations that may effect work at the other location always maintain good communications to inform each other of what is being done at all times.

Back to Lessons Learned

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DRIVER HAS NEAR MISS WITH ELECTROCUTION WHEN OVERHEAD WIRES CATCH ON TRUCK

Background:

On 9-23-99 an equipment hauling subcontractor arrived at the Rocky Flats Environmental Technology Site (RFETS) to relocate four pieces of subcontractor heavy equipment. The two pieces of equipment involved in this incident were tracked excavators, both equipped with building demolition equipment, one with a metal shear attachment and the other with a concrete crushing attachment. Both pieces of equipment had been previously delivered to RFETS by the same transporter without incident. On this day, the driver was escorted to the 960 Staging Area of the Site by another employee to retrieve the excavators. The driver deviated from his previously approved delivery and exit route and encountered interference from an overhead telecommunications line at the intersection of the south inner Patrol Road and Sixth Street west of Building 771. At this time, approximately 12:00 noon, the truck driver exited the cab of his truck, climbed the boom of the excavator and with his bare hands flipped the telecommunications line over the high point of the boom that was approximately 18' above the ground. The driver exposed himself to a fall hazard and a shock hazard from the energized electrical lines located approximately 2' above the telecommunications line. The escort told the driver that this was not acceptable practice, the escort failed however to notify supervision or to stop the activity. They then proceeded to Portal 2 and exited the Protected Area. At approximately 2:20 PM this process was repeated with the second excavator at the same location. RFETS personnel had observed this breach in safety practices and reported the incidents to their supervision.

Analysis:

Due to the construction and demolition activities currently underway in support of the Rocky Flats Environmental Technology Site (RFETS) closure mission, heavy equipment of this type is in constant movement around the Site. Unapproved field changes can create unanticipated/uncontrolled hazards. In this case, unauthorized deviation from previously approved routes of travel caused this incident during an otherwise routine activity. Work should be planned and the plan should be followed (Plan The Work/Work The Plan). Deviations from the plan (field changes) need to be reviewed and approved prior to implementation.

Lessons Learned:

The potential for this incident to occur exists on other sites, especially on construction or demolition projects where heavy equipment such as cranes, drill rigs, excavators or other tall pieces of equipment are being moved around the project. The installation of temporary overhead wiring or utilities can also increase the potential for such an incident to occur. Depending on voltage, OSHA regulation 29CFR 1926, Subpart V-Power Transmission and Distribution, specifies minimum safe distances from energized lines for equipment and personnel. In spite of good work planning, unexpected hazards can arise. In these cases, work should be stopped and re-evaluated so that appropriate hazard controls can be implemented.

Recommendations:

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Briefings should be conducted to ensure that subcontractor personnel are aware of safety standards. Personnel should be informed that work should be stopped when unexpected hazards are encountered.

Contact:

Jim McLaughlin, Lessons Learned, 303-966-3471 or james.mclaughlin @rfets.gov

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Back to Lessons Learned

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Title:	
Work Package No. (JSWP or MSR)	

LESSONS LEARNED INPUT FORM

What Happened? (Describe in as little or as much detail as necessary the situation and what occurred. Do not mention any names, only job functions and activities)

What did you learn? (Describe how the job could have been done better, how a hazard could have been eliminated, etc.)

Submitted by: _____ **Date:** _____

OPTIONAL

Mail to: Lessons Learned Program Manager, W-219 or appropriate Project or Functional Manager

Appendix G
MISCELLANEOUS
(USQ, RWP, Permits, etc.)

No USQs or RWPs are required at this time. A burn permit will be required for torch cutting rebar.

Attachment for Appendix G
SMPP/TFV PROJECT
Waste Disposition Plan
Building 98 Demolition

The purpose of this Project Operations plan is to identify waste streams that will be generated during the demolition of building 98. Characterization of waste streams will be summarized and disposal options specified.

The plan will outline types of waste/waste quantities expected. Information will be provided on the schedule for waste generation, RCRA characterization, radiological characterization, packaging requirements/mode of disposal, and any specific waste acceptance criteria that must be met for disposal.

Waste types and estimates are based on a physical examination of the room conducted on June 7, 2002 and review of the processes that were performed in the building. These areas are not considered to be contamination areas. The majority of the waste that will be generated in the demolition process of the building will be disposed of as demolition debris/solid waste. The waste will include all associated removable piping located inside/outside bldg. 98.
Sealed pressure vessels will need to be at < 1.5 atmospheres. Wastes are listed in expected order of generation.

Waste Type	Demolition debris/solid waste: Concrete, Steel and Copper Piping, Metal Roofing, PVC, Elect. Wiring, FG Installation, Wood
Quantity expected	97,200 Solid Cu. Ft.
Asbestos	Asbestos will need to be segregated and disposed of under asbestos waste stream. IH documentation that determines if asbestos is present will need to be provided before disposal. (Contracted)
Schedule for waste generation	July, 2002 - August , 2002
RCRA characterization	Non-hazardous
Radiological characterization	Radiological surveys of the building /equipment indicates no elevated radioactivity levels. Building was non-impacted from site Radiological Operations.
Packaging requirements	30 Cu Yd. Roll-Off/ End Dumps
Mode of disposal	Offsite disposal via Waste Management Operations/Journey LTD
* NOTE: Sealed pressure vessels will need to be at < 1.5 atmosphere if present	

Any unusual or unexpected items not addressed in this plan should be set aside for examination and evaluation by the project engineer and waste coordinator.

Prepared by Willis Daniel
Date: 06/07/02

INTER OFFICE MEMO B W XT.

Date: June 24, 2002 cc. L. Koehmstedt

From: W. L. Johanan – OSW-430

Subject: Structural Survey of Building 98, RE: 29 CFR 1926.850 (a)

To: Bud Thompson – Project Manager

Please be advised that we have performed a structural review and walk down and found them to be satisfactory based on the demolition process and the work plan.

Please call me if you have any further questions.

W. L. Johanan P.E.
Site Structural Engineer

STATE OF OHIO
WILLIAM L. JOHANAN
E-44883
REGISTERED
PROFESSIONAL ENGINEER

Appendix H
POST-JOB CONFERENCE

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Title:	
Work Package No. (JSWP or MSR)	

POST JOB CONFERENCE

What went well?

What could be improved?

Other Comments:

Title:	
Work Package No. (JSWP or MSR)	

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

Rad Summary

Appendix C

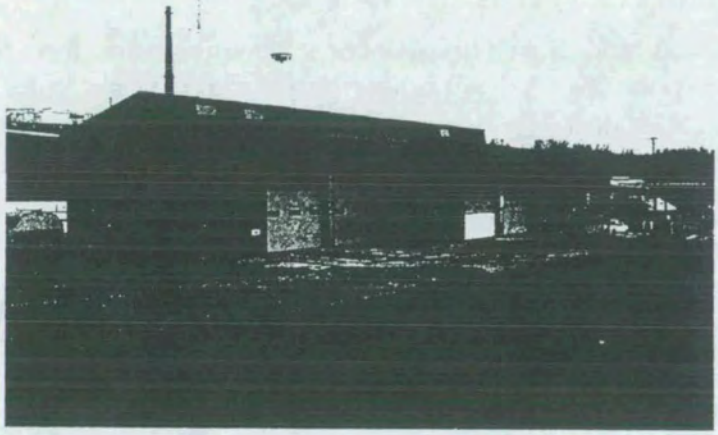
Radiological Summary

RSDSs Prior to Demolition

Final Status Report

For

Building 98



Prepared by:	Roderick C. Case /	Date:	July 16, 2002
Reviewed by:	Galen Tomlinson /	Date:	July 16, 2002
Approved by:	Steve Collas /	Date:	July 16, 2002

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1.0 Historical Review

Building 98, named the "Central Fire Station", was constructed in the 1986, with 21 rooms, including high bay apparatus rooms, living quarters, mechanical rooms, service rooms, offices, corridor and vestibule, and support areas. No process systems were ever a part of the facility and no radioactive material was used or stored there. Building 98, under the Mound cleanup plan is to be demolished, to allow access to the underlying soils, as part of a cleanup of what was once a large valley feature that was back filled, known now as potential release site (PRS) 66.

2.0 Survey Objectives

An assessment of Building 98 history and use indicate that there is no reasonable potential for residual contamination to be present on any building surfaces. A survey plan was designed to evaluate the various surface types inside and outside the structure to assist in this assessment.

The objectives for the survey were to measure the fixed and removable contamination on each type of building material present in the building and analyze any sediment found in building drains or sumps for the presence of any radionuclides. The specific survey objectives are outlined on Survey Plan Form SPF 98-01 and SPF 98-02.

2.1 Survey Design

The initial scoping survey was designed around the many surface type materials present in the building. Fourteen different surface types were identified throughout the structure. The different materials were broadly representative of the different work activities conducted. For example, offices and living quarters are carpeted while washrooms and eating areas are tiled. A complete list of the various materials and the associated room and use are shown in the following table:

Material Type	Room(s)	Work Activity
Carpet Floor	101,102,103,104,107,109,114	Offices/Quarters
Ceramic Tile Floor	111,112,113	Lavatory,Washrooms
Vinyl Tile Floor	4, 105,108	Kitchen, Recreation
Concrete Floor	1,2,3,115,116	Garage,Utility
Ceramic Tile Wall	111,112,113	Lavatory,Washrooms
Drywall	101,102,103,104,105,106,107, 108,109,114	Offices, Quarters
Roofing	N/A	
Painted Concrete Block	1, 5,115,116,	Garage,Utility
Painted Poured Concrete	1,3, 4	Utiliy,Storage
Unpainted Poured	2,	Utility
Unpainted Concrete Block	2	Utility
Outside Block Wall	N/A	N/A
Outside Painted Concrete	N/A	N/A
Sidewalk Concrete	N/A	N/A

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Five data points were selected for each type of surface material. Gross alpha and beta measurements were taken at each data point. A disk smear of 100cm^2 was obtained at each data point. Sediment samples were collected from areas where contamination could collect and concentrate such as floor drains and sumps. The locations and types of sediment samples are shown below:

Location	Type
Room 115,116	Sediment/Soil
Room 115,116	Sediment/Soil
Room 116	Water/Sludge
Room 108	Water/Sludge
Room 111	Water/Sludge
Room 113	Water/Sludge
Room 002	Water/Sludge

The instruments selected for this survey were the Ludlum 2350-1 data logger with a 43-20 hand-held gas flow proportional (GFP) detector and a 43-37 GFP large area floor probe for alpha measurements. A NE Electra with a dual scintillation probe was selected for beta measurements. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The survey data was collected and sorted by surface material type. A total of seventy (70) data points were located and surveyed. The gross alpha and beta measurements were averaged for each type of material. Three material types showed average alpha activity greater than twice the average for all surfaces. The locations exhibiting the highest activity were sampled for nuclide identification. Beta results showed a similar pattern to alpha results. All other surface types were less than 50% of the DCGL*$_w$ for surface activity. All removable surface activity measurements were less than 50% of the DCGL$_w$.

The following table shows the results of the average total (fixed and removable) alpha and beta activity for each surface material type. A graphical representation is shown in Attachment 1.

Total Activity Results

Material Type	Material Code	Average Alpha		Average Beta	
		dpm/100cm^2	$\pm\sigma$	dpm/100cm^2	$\pm\sigma$
Carpet	car	11.0	1.6	316.0	32.3
Ceramic Tile Floor	ctf	15.6	1.7	1005.2	40.9
Vinyl Tile	vtf	10.4	3.8	346.4	34.9
Concrete Floor	ccf	14.0	2.7	545.0	71.9
Ceramic Tile Wall	ctw	94.2	12.7	1232.0	92.5
Drywall	dw	3.0	2.1	74.8	48.9

*DCGL = Derived Concentration Guideline Level

Roof Metal	mr	50.2	11.9	129.4	149.1
Painted Block Wall	pbw	4.0	1.9	347.2	55.3
Painted Concrete	pcw	6.6	3.7	420.4	39.4
Unpainted Concrete	ucw	19.2	10.3	413.3	20.3
Cinderblock	cbw	16.0	5.2	340.6	64.2
Rough Block	rbw	10.8	5.8	381.6	85.8
Painted Concrete Outside	pco	13.0	6.2	392.0	51.2
Sidewalk Concrete	sw	42.0	11.1	686.6	184.4
$DCGL_w$	-	100	N/A	5000	N/A
Average	-	22.14	5.75	473.84	69.37

The removable surface activity results are shown below. The highest removable tritium activity was 11.55 dpm/100cm2 (Smear #25). The average removable tritium was 2.80 dpm/100cm2 ($\sigma = 3.1$).

Removable Activity Results

Material Type	Material Code	Average Alpha		Average Beta	
		100cm2	σ	100cm2	σ
Carpet	car	2.05	1.6	2.04	.26
Ceramic Tile Floor	ctf	2.02	.11	1.87	.71
Vinyl Tile	vtf	2.04	.08	1.33	.24
Concrete Floor	ccf	2.21	.32	1.67	.74
Ceramic Tile Wall	ctw	2.35	.72	1.52	.43
Drywall	dw	1.99	.10	1.47	.41
Roof Metal	mr	2.45	.43	2.76	.55
Painted Block Wall	pbw	2.04	.04	1.79	.57
Painted Concrete	pcw	2.00	.11	1.84	.66
Unpainted Concrete	ucw	2.07	.06	1.75	.49
Cinderblock	cbw	2.07	.07	2.14	.57
Rough Block	rbw	2.45	.63	1.74	.37
Painted Concrete Outside	pco	2.07	.06	1.80	.43
Sidewalk Concrete	sw	2.04	.07	1.98	.53
$DCGL_w$	-	20	N/A	1000	N/A
Average	-	2.13	.31	1.84	.50

Three surface types exhibited elevated alpha and beta fixed measurements compared to the other surfaces. These were ceramic wall material, metal roof material, and sidewalk concrete. Samples were taken in these areas to determine the nature of this activity. The area sampled was 181 cm^2. The areas in question were acid etched and the leachate analyzed for isotopic composition. Sample results from data point #23 (bathroom wall) shows the presence of the following nuclides:

Nuclide	Activity (dpm)	± σ	% of Total
Pu-238	<.05	N/A	N/A
Pu-239/240	<.05	N/A	N/A
Th-232	<.06	N/A	N/A
Th-230	<.06	N/A	N/A
Th-228	<.15	N/A	N/A
Th-227	.25	.08	22.9
U-238	.08	.04	7.3
U-235	<.05	N/A	N/A
U-233/234	<.05	N/A	N/A
Po-210	.76	.29	69.7
Total	1.09	N/A	100

The total alpha surface activity measured at location #23 was 113 dpm/100cm2. The total sampled activity, when normalized to 100cm^2 is 0.6 dpm/100cm^2, or 0.5% of the total activity measured and 0.6% of the release criteria (100 dpm/100cm^2). It is known that ceramic material exhibits a higher than average background due to glazing materials (thorium). The sample results indicate that a majority of the measured surface activity is from natural products contained in the ceramic material.

Sample results from data point #67 (sidewalk) show the presence of the following nuclides:

Nuclide	Activity (dpm)	± σ	% of Total
Pu-238	.25	.1	.5
Pu-239/240	<0.1	N/A	N/A
Th-232	1.07	.18	2.1
Th-230	4.04	.43	7.9
Th-228	1.39	.21	2.7
Th-227	.07	.04	.1
U-238	3.38	.66	6.6
U-235	.27	.16	.5
U-233/234	4.66	.82	9.1
Po-210	36.31	2.32	70.6
Total	51.44	N/A	100

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CS of 96

The total alpha surface activity measured at location #67 was 55 dpm/100cm2. The total sampled activity, when normalized to $100cm^2$ is 28.4 $dpm/100cm^2$, or 52% of the total activity measured and 28% of the release criteria (100 $dpm/100cm^2$). The nuclides present in the sample are typical of naturally occurring isotopes in the Uranium and Thorium decay chains found in the background. At these levels the residual activity is indistinguishable from the background activity of this material.

Sample results from data point #31 (sidewalk) show the presence of the following nuclides:

Nuclide	Activity (dpm)	± σ	% of Total
Pu-238	<1.13	N/A	N/A
Pu-239/240	<1.13	N/A	N/A
Th-232	<.86	N/A	N/A
Th-230	.63	.38	7.5
Th-228	<.57	N/A	N/A
Th-227	<.57	N/A	N/A
U-238	<1.06	N/A	N/A
U-235	<.93	N/A	N/A
U-233/234	<.62	N/A	N/A
Po-210	7.81	2.42	92.5
Total	8.44	N/A	100

The total alpha surface activity measured at location #31 was 54 dpm/100cm2. The total sampled activity, when normalized to $100cm^2$ is 4.7 $dpm/100cm^2$, or 8.6% of the total activity measured and 5% of the release criteria (100 $dpm/100cm^2$). The nuclides present in the sample are typical of naturally occurring isotopes in the Uranium and Thorium decay chains found in the background. At these levels the residual activity is indistinguishable from the background activity of this material.

The surface activity as reported above is the total activity measured at each location. It is known that various construction materials exhibit background activity that is characteristic for that type of material. NUREG 1507, Table 5.1 lists the average background count rate for various materials as shown below:

Surface Material	Alpha by GFP (cpm)	Uncertainty
Ceramic Tile	12.6	±.24
Concrete Block	2.6	±.81
Drywall	2.6	±.75
Floor Tile	4.0	±.71
Carbon Steel	2.4	±.68

Adapted from NUREG 1507, Table 5.1

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The alpha surface activity for ceramic wall tile (ctw), metal roofing (mr), and concrete sidewalk (sw) was corrected for background activity and averaged as shown below:

Material Type	Material Code	Highest Net Alpha	Average Net Alpha	
		dpm/100cm^2	dpm/100cm^2	$\pm\sigma$
Ceramic Tile Wall	ctw	41	22.2	12.9
Roof Metal	mr	44	36.4	12.1
Sidewalk Concrete	sw	40	27.3	10.9

The highest net alpha surface activity is 44 dpm/100cm2 at location # 32 (roof). A graph of alpha surface activity corrected for background is included in Attachment 1. The highest background corrected beta activity was found at Survey Point #23, Room 113 ceramic wall tile (1392 dpm/100cm2). See RSDS # 02-TF-0835. Survey data analysis worksheets are shown in Attachment 2.

2.3 Sediment Sample Data

Sediment samples were obtained from all accessible floor drains, traps, and sumps. If no sediment was present then a smear sample was obtained for isotopic analysis. Thirteen smears were taken in various drains throughout the building. The highest gross alpha activity was 9.28 dpm and the highest gross beta activity was 11.64 dpm. See RSDS # 02-TF-0838.

A mixture of water and sediment was collected from sink drains and sumps. Samples taken from the two outside drain troughs were composited as one sample and samples taken from the garage bay floor drains were composited as one sample. All samples were collected in accordance with the appropriate sample plan (SPF-01) and submitted to the on-site laboratory for gamma spectroscopy analysis. The following table shows the sample location and type:

Sample Number	Sample Location	Type
98-01-OS115/116-SF-010	Outside Drain Trough	Sediment
98-01-115/116-SF-011	Garage Bay Floor Drain	Sediment
98-01-116-WS-005	Room 116 Floor Sump	Water/Sediment
98-01-108-WS-006	Room 108 Sink	Water/Sediment
98-01-111-WS-007	Room 111 Sink	Water/Sediment
98-01-113-WS-008	Room 113 Sink	Water/Sediment
98-01-002-Ws-009	Room 002 Sump	Water/Sediment

The initial gamma spectroscopy results reported for the water/sediment samples showed elevated activity. An investigation showed that the results had been reported without interference (background) correction. The sample spectra were reanalyzed and no activity above the nuclide screening values was reported. See RSDS # 02-TF-1093. The sediment sample from the garage bay floor drains (98-01-115/116-SF-011) showed 55.98 pCi/g of Pu-238 with an MDA of 46.07 pCi/g. This sample was analyzed by alpha spectroscopy and the results are shown below:

Isotope	Sample Activity		Uncertainty +/-		LDL	
	dpm/g	pCi/g	dpm/g	pCi/g	dpm/g	pCi/g
Pu-238	0.163	0.074	0.025	0.011	0.008	0.004
Pu-239/240	0.009	0.004	0.005	0.002	0.008	0.004
Th-232	0.339	0.153	0.04	0.018	0.008	0.004
Th-230	0.667	0.301	0.063	0.028	0.008	0.004
Th-228	0.397	0.179	0.045	0.020	0.022	0.010
Th-227	0.042	0.019	0.012	0.005	0.022	0.010

The gamma spectroscopy results of this sample were determined to be a false positive. The low gamma energy and abundance of Pu-238 make quantification by gamma spectroscopy difficult for this isotope. Alpha spectroscopy is a more appropriate analysis for Pu-238 quantification. The results as shown above indicate that the amount of Pu-238 found in this sample (0.074 pCi/g) is significantly below the Screening Value of 55 pCi/g at Mound.

Survey Plan Form 98-02 was developed to resample the garage bay floor drains and down stream systems. Each garage floor bay drain is approximately 24 feet long and 1 foot wide. The drain is constructed in such a way as to allow water to pass through to an oil separator sump while retaining solid sediment material. Oil-free water is then passed to the building main drain sump and pumped to the building sanitary drain. Three samples were taken in each drain and composited. One sample and one control were obtained from the composited material in each drain. Sediment was obtained from the oil separator sump in Room 116 and the building drain sump. SPF 98-02 results are shown in the following table:

Location	Composite material weight (grams)	Sample weight (grams)	Sample Activity (pCi/g Pu-238)	Control Weight (grams)	Control Activity (pCi/g Pu-238)
Garage Bay Floor Drain Room 115	2328	773	12.03	785	<20.24
Garage Bay Floor Drain Room 116	2137	683	2.81	739	<14.56
Oil Sump	N/A	660	1.71	N/A	N/A
Drain Sump	N/A	395	8.79	N/A	N/A

The Pu-238 activity in each sample is significantly below the Mound Screening value (55 pCi/g). The control activity for each garage bay floor drain was less than the analysis MDA. Sample data analysis worksheets are shown in Attachment 3.

2.4 Quality Control

Quality control measurements were taken to ensure the quality of the data. Four data points were selected at random from the sample group (5%). The locations were reviewed to ensure the data points represented different surface material types. Replicate measurements were taken at these locations using the same instruments as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). Replicate measurements at locations #24 and #52 were not in agreement and were inconsistent with the original data set. A Replicate Investigation was conducted to determine the cause and nature of the discrepancy. The survey data was reviewed to ensure that the data was properly downloaded and that the correct data was reported. A post survey response check was satisfactory. No specific cause could be determined for the discrepancy and the data points were re-surveyed using the same instrument and detector. The results from the re-survey were in agreement and consistent with the original data set. The results of the replicate surveys are shown in the following table:

Location #	Alpha (dpm/100cm^2)				Beta (dpm/100cm^2)		
	Initial	2σ	Replicate 1	Replicate 2	Initial	2σ	Replicate
5	9	6.0	12	12	1109	66.6	1140
24	98	19.8	45	108	1998	89.4	1826
52	13	7.2	54	23	1086	65.9	1073
18	13	7.2	12	12	1323	72.8	1293
Variance (S^2)	1866.9	-	482.3	2158.3	181682.0	-	116499.3
Agreement Factor			3.9	.9			1.6
Agreement			No	Yes			Yes

A split sample was taken per SPF 98-02 in each of the garage bay floor drains. Reported results in the original or split sample were less than MDA for most isotopes except Pb-210. Both samples were in agreement with the original sample taken for Pb-210. See Attachment 4.

Original Sample #	Replicate Sample #	Isotope	Units	Original Result	Replicate Result	2 σ	Resolution	Ratio	Agreement
98-02-12	98-02-13	Pb-210	pCi/g	1.69	1.61	.658	5	1.05	YES
98-02-16	98-02-17	Pb-210	pCi/g	1.9	1.32	.582	6	1.44	YES

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Replicate analysis were not performed on smears since the analysis for tritium is a destructive process. Quality control procedures, blanks, and spikes are a part of the laboratory quality control program at Mound. Participation in the DOE/EML inter-laboratory quality assurance program provides verification of nuclide identification reliability and ensures a high quality of sample results. Since a relatively small number of samples were taken for this survey, additional replicate analysis is not required for this survey.

Chain of custody for samples was maintained for all sediment samples and is documented on the Field Sample Data Collection Sheet.

2.5 Conclusion

The data obtained from the scoping survey supports the decision that site operations or location has not radiologically impacted Building 98. The following table shows the maximum surface activity found in this building:

TYPE	RSDS	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)	COMMENTS
Highest Alpha Smearable Activity	02-TF-0835	Building Surfaces & Equipment	3.63	20	N/A
Highest Alpha Fixed Activity	02-TF-0835	Building Surfaces & Equipment	44	100	N/A
Highest Beta Smearable Activity	02-TF-0835	Building Surfaces & Equipment	3.60	1,000	N/A
Highest Beta Fixed Activity	02-TF-0835	Building Surfaces & Equipment	1392	5,000	N/A
Highest Tritium Smearable Activity	02-TF-0835	Building Surfaces & Equipment	~~10.05~~ 11.55	10,000	N/A

Note 1: Core Team determined values
Note 2: Corrected for background

The results of sediment samples taken in the building and acid etching of surfaces demonstrating elevated counts also indicate that no radiological impact has occurred and there is no reasonable potential for residual contamination of building surfaces. Sub-surface concrete areas (under side of concrete slab, footers, etc.) and soils will require evaluation when these areas are exposed in demolition. No further surveys are required for building surfaces.

2.6 Attachments and Enclosures

Attachment 1 – Average Surface Beta Graph
Average Surface Alpha Graph
Average Background Corrected Alpha

Attachment 2 – Survey Data Analysis Worksheets

Attachment 3 – Sample Data Analysis Worksheets

Attachment 4 – QC Sample Comparison (Replicate) Results

Enclosures – SPF 98-01
SPF 98-02

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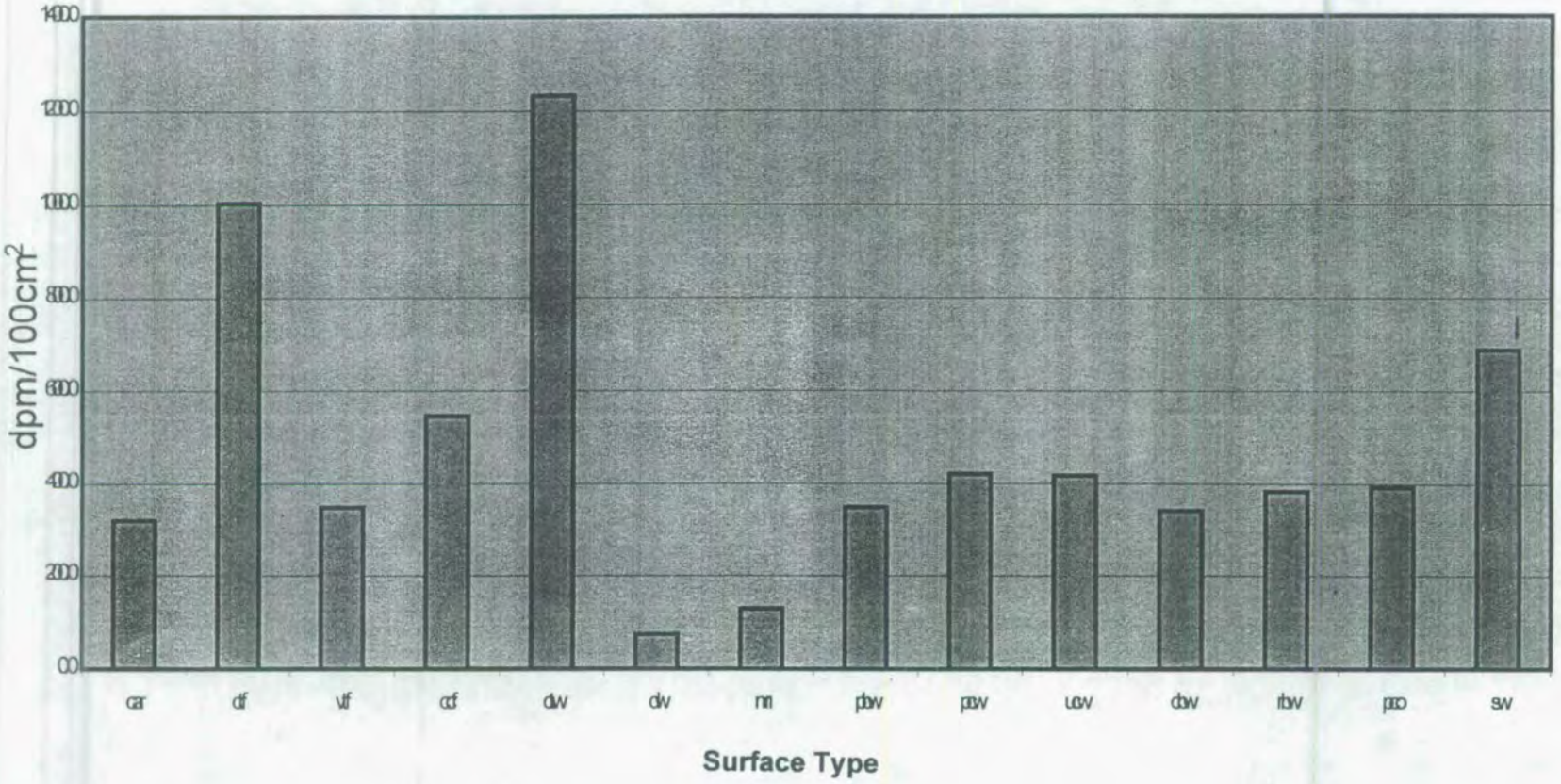
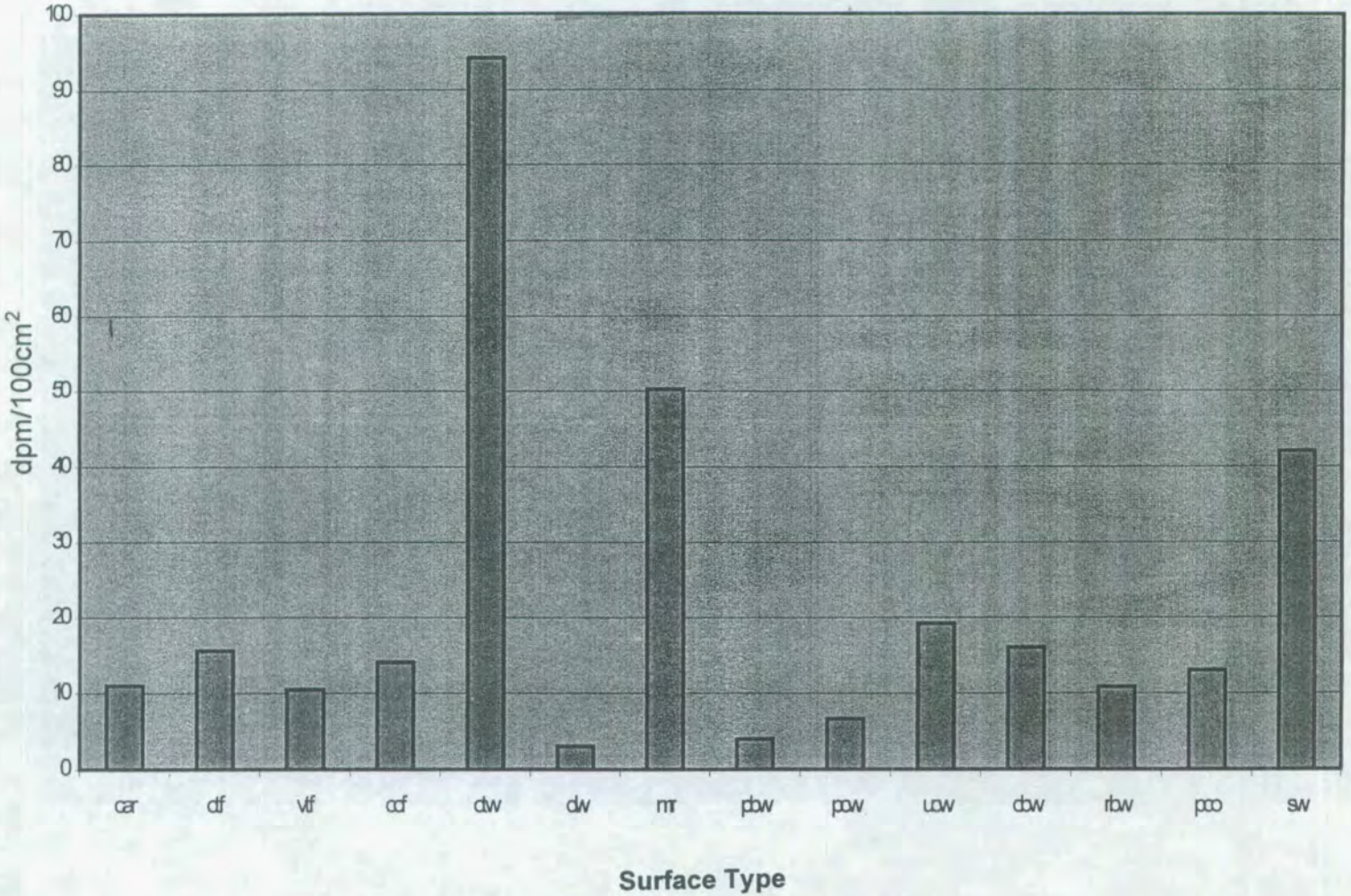
Attachment 1

Building 98 Average Surface Beta



Building 98 Average Surface Alpha



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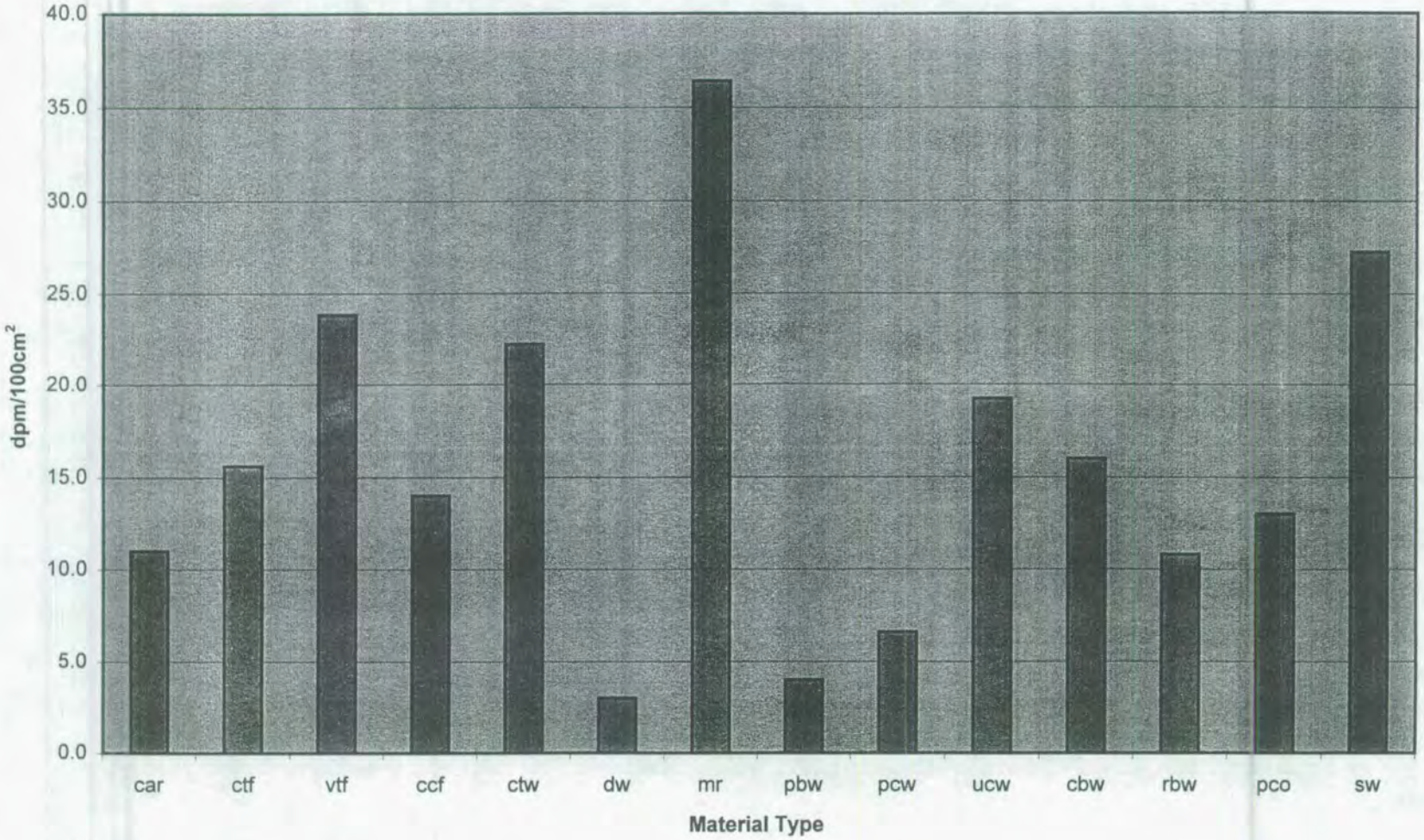
Average Background Corrected Alpha



Attachment 2

Survey Data

		Inst/Probe	Ser No.	CDD	BKG
Instrument Data	Alpha	L 2350/43-20	567/5675/5148	9/21/02	0
	Beta	NE Electra	5364/5377	5/1/03	805

	REMOVABLE			FIXED				
Smear #	DPM α	DPM β	H3	Loc #	dpm α	Corrected	dpm β	Corrected
1	2.06	1.81	6.65	1	10		1173	368
2	1.98	2.40	7.61	2	13		1085	280
3	2.15	2.15	2.06	3	11		1115	310
4	2.02	2.05	0.00	4	12		1123	318
5	2.03	1.77	5.02	5	9		1109	304
6	2.01	1.69	7.67	6	18		1797	992
7	2.11	1.81	0.00	7	14		1779	974
8	2.00	1.16	6.65	8	16		1833	1028
9	2.14	3.07	9.44	9	14		1772	967
10	1.86	1.64	3.92	10	16		1870	1065
11	2.08	1.25	9.62	11	9		1117	312
12	1.95	1.15	3.23	12	6		1208	403
13	1.95	1.75	0.00	13	16		1143	338
14	2.09	1.21	2.39	14	12		1132	327
15	2.13	1.28	6.03	15	9		1157	352
16	2.09	1.20	3.14	16	15		1421	616
17	2.05	1.28	4.92	17	15		1426	621
18	2.78	2.95	9.64	18	13		1323	518
19	2.13	1.24	0.17	19	10		1321	516
20	2.01	1.67	2.19	20	17		1259	454
21	2.03	1.77	5.91	21	84	11	1980	1175
22	2.00	1.19	3.92	22	95	23	1975	1170
23	3.63	1.29	1.10	23	113	41	2197	1392
24	2.00	1.17	2.03	24	98	26	1998	1193
25	2.10	2.16	11.55	25	81	9	2035	1230
26	1.84	1.16	1.29	26	5		826	21
27	2.08	1.25	0.00	27	3		859	54
28	1.96	1.60	5.10	28	2		954	149
29	1.96	2.14	2.07	29	0		899	94
30	2.09	1.21	0.26	30	5		861	56
31	3.04	2.56	0.00	31	54	40	1072	267
32	2.19	3.60	0.00	32	57	44	955	150
33	2.08	2.56	4.15	33	56	42	994	189
34	2.78	2.95	8.07	34	55	41	971	166
35	2.15	2.15	0.00	35	29		680	-125
36	2.00	1.18	2.93	36	2		1165	360
37	2.02	1.26	6.68	37	5		1206	401
38	2.04	2.39	0.16	38	6		1130	325
39	2.11	1.81	0.00	39	2		1192	387
40	2.03	2.33	0.00	40	5		1068	263
41	2.12	2.50	0.00	41	7		1269	464
42	1.84	1.16	4.80	42	6		1204	399

Attachment 2

	REMOVABLE			FIXED				
Smear #	DPM α	DPM β	H3	Loc #	dpm α	Corrected	dpm β	Corrected
43	2.08	1.25	0.00	43	8		1267	462
44	1.99	2.52	0.00	44	11		1200	395
45	1.95	1.75	3.98	45	1		1187	382
46	2.10	1.72	2.86	46	17		1230	425
47	2.13	1.28	0.00	47	14		1189	384
48	2.11	2.07	0.00	48	17		1241	436
49	2.05	1.28	0.69	49	37		1232	427
50	1.98	2.40	2.94	50	11		1216	411
51	2.16	2.48	9.38	51	25		1233	428
52	2.04	2.65	2.05	52	13		1086	281
53	2.04	2.17	0.00	53	13		1079	274
54	2.00	1.19	1.99	54	13		1157	352
55	2.12	2.22	0.16	55	16		1173	368
56	2.82	1.17	2.13	56	8		1167	362
57	2.10	2.16	0.00	57	16		1221	416
58	1.86	1.64	0.00	58	2		1214	409
59	2.10	1.76	0.16	59	14		1051	246
60	3.38	1.96	2.97	60	14		1280	475
61	1.98	2.48	6.97	61	10		1128	323
62	2.10	1.72	0.00	62	24		1245	440
63	2.13	1.29	0.16	63	10		1250	445
64	2.10	1.69	0.00	64	11		1188	383
65	2.06	1.81	0.16	65	10		1174	369
66	1.96	2.08	4.16	66	35	21	1527	722
67	2.14	1.75	0.94	67	55	40	1782	977
68	2.00	1.18	0.00	68	27	13	1284	479
69	2.06	2.50	3.08	69	44	29	1420	615
70	2.04	2.39	0.93	70	49	34	1445	640
MAX	3.63	3.60	11.55		113.00	43.51	2197.00	1392.00

Smears taken in lieu of sample

Smear #	α	β
1	0.00	0.00
2	9.28	11.64
3	0.00	0.00
4	0.00	3.88
5	0.00	1.54
6	0.00	0.29
7	1.59	1.20
8	1.45	0.03
9	0.00	5.50
10	0.00	2.84
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00

	Average	S/D	MAX
alpha	0.95	2.6	9.28
beta	2.07	3.4	11.64

Building 98 Survey Data Analysis

Attachment 2

Survey Data Parameters

	SMEARS α	SMEARS β		FIXED α	FIXED β
N	70	70	N	70	70
AvgDev	0.16	0.48	AvgDev	17.70	225.38
SD	0.31	0.58	SD	24.79	313.69
Median	2.06	1.755	Median	13	1202
Mode	2	1.81	Mode	10	1173
Var	0.10	0.33		614.76	98403.26

Fixed Activity Parameters by Material Type

			Alpha (Fixed)			Beta (Fixed)		
Location	Type	Code	Mean	Variance	SD	Mean	Variance	SD
1-5	Carpet	car	11	4	1.6	316.0	1046.0	32.3
6-10	Ceramic tile floor	ctf	15.6	2.8	1.7	1005.2	1675.7	40.9
11-15	Vinyl tile	vtf	10.4	14.3	3.8	346.4	1216.3	34.9
16-20	Concrete floor	ccf	14	7	2.6	545.0	5167.0	71.9
21-25	Ceramic tile wall	ctw	94.2	161.7	12.7	1232.0	8554.5	92.5
26-30	Drywall	dw	3	4.5	2.1	74.8	2388.7	48.9
31-35	Roof metal	mr	50.2	141.7	11.9	129.4	22242.3	149.1
36-40	painted block wall	pbw	4	3.5	1.9	347.2	3056.2	55.3
41-45	painted concrete	pcw	6.6	13.3	3.6	420.4	1552.3	39.4
46-50	unpainted concrete	ucw	19.2	105.2	10.3	416.6	412.3	20.3
51-55	cinder block	cbw	16	27	5.2	340.6	4126.8	64.2
56-60	rough block	rbw	10.8	33.2	5.8	381.6	7357.3	85.8
61-65	painted concrete outsi	pco	13	38	6.2	392.0	2621.0	51.2
66-70	sidewalk	sw	42	124	11.1	686.6	33995.3	184.4
		Avg	22.14	48.59	5.7	473.84	6815.12	69.4
		Var	610.83	3337.14	16.6	98587.36	92390207	2157.7
		SD	24.71	57.77	4.1	313.99	9611.98	46.5

Acid Etch Results by Location

Location	#23							
Isotope	dpm	Uncert	LDL	% of Tot	Total (dpm	100/181	% of Samp	% of DCGL
Pu-238	<LDL	<LDL	0.05		1.09	0.60221	0.532929	0.60221
Pu-239/24	<LDL	<LDL	0.05					
Th-232	<LDL	<LDL	0.06					
Th-230	<LDL	<LDL	0.06					
Th-228	<LDL	<LDL	0.15					
Th-227	0.25	0.08	0.15	22.9				
U-238	0.08	0.04	0.05	7.3				
U-235	<LDL	<LDL	0.05					
U-233/234	<LDL	<LDL	0.05					
Po-210	0.76	0.29	0.29	69.7				
Location	#67			% of Tot	Total (dpm	100/181	% of Samp	% of DCGL
Pu-238	0.25	0.1	0.1	0.5	51.44	28.41989	51.67253	28.41989
Pu-239/24	<LDL	<LDL	0.1					
Th-232	1.07	0.18	0.06	2.1				
Th-230	4.04	0.43	0.06	7.9				
Th-228	1.39	0.21	0.17	2.7				
Th-227	0.07	0.04	0.06	0.1				
U-238	3.38	0.66	0.4	6.6				
U-235	0.27	0.16	0.24	0.5				
U-233/234	4.66	0.82	0.24	9.1				
Po-210	36.31	2.32	0.21	70.6				
Location	#31			% of Tot	Total (dpm	100/181	% of Samp	% of DCGL
Pu-238	<LDL	<LDL	1.13		8.44	4.662983	8.635154	4.662983
Pu-239/24	<LDL	<LDL	1.13					
Th-232	<LDL	<LDL	0.86					
Th-230	0.63	0.38	0.57	7.5				
Th-228	<LDL	<LDL	0.57					
Th-227	<LDL	<LDL	0.57					
U-238	<LDL	<LDL	1.06					
U-235	<LDL	<LDL	0.93					
U-233/234	<LDL	<LDL	0.62					
Po-210	7.81	2.42	1.76	92.5				

Building 98 Survey Data Analysis

Attachment 2

Replicate Fixed Point QC

	alpha (dpm/100cm^2)				beta (dpm/100cm^2)		
Location #	initial	2σ	replicate 1	rep 2	initial	2σ	replicate
5	9	6.00	12	12.00	1109	66.60	1140
24	98	19.80	45	108.00	1998	89.40	1826
52	13	7.21	54	23.00	1086	65.91	1073
18	13	7.21	12	12.00	1323	72.75	1293
Variance (S^2) =	1866.9		482.3	2158.3	181682.0		116499.3
Ratio			3.9	0.9			1.6
Agreement			NO	YES			YES

Loose Activity Parameters by Material Type

	Alpha (Loose)				Beta (Loose)		
Code	Mean	Variance	SD	Code	Mean	Variance	SD
car	2.05	2.5	1.6	car	2.04	0.06688	0.3
ctf	2.02	0.01213	0.1	ctf	1.87	0.50823	0.7
vtf	2.04	0.0071	0.1	vtf	1.33	0.05802	0.2
ccf	2.21	0.10282	0.3	ccf	1.67	0.54907	0.7
ctw	2.35	0.51207	0.7	ctw	1.52	0.18908	0.4
dw	1.99	0.01058	0.1	dw	1.47	0.16947	0.4
mr	2.45	0.18787	0.4	mr	2.76	0.29843	0.5
pbw	2.04	0.00175	0.0	pbw	1.79	0.32623	0.6
pcw	2.00	0.01223	0.1	pcw	1.84	0.42913	0.7
ucw	2.07	0.00363	0.1	ucw	1.75	0.2419	0.5
cbw	2.07	0.00432	0.1		2.14	0.32137	0.6
rbw	2.45	0.39872	0.6	rbw	1.74	0.14002	0.4
pco	2.07	0.00338	0.1	pco	1.80	0.18527	0.4
sw	2.04	0.0046	0.1	sw	1.98	0.28535	0.5
Avg	2.13	0.27	0.3		1.84	0.27	0.5
Var	0.03	0.44	0.2		0.12	0.02	0.0
SD	0.16	0.66	0.4		0.35	0.15	0.2

Tritium (Loose)

Average	2.80
Highest	11.55
SD	3.1
Var	9.7

Building 98 Survey Data Analysis

Attachment 2

NUREG 1507 Table 5.1

Background Count Rates for Various Materials (NCPM)	GFP Alpha	GFP Beta	σ_{total} Alpha	σ_{total} Beta
Brick	6.00	567.20	8.3	86.0
Ceramic Block	15.00	792.00	19.7	93.7
Ceramic Tile	12.60	647.00	12.7	42.8
Concrete Block	2.60	344.00	5.8	64.3
Drywall	2.60	325.00	3.4	48.9
Floor Tile	4.00	308.00	5.5	35.1
Linoleum	2.60	346.00	4.6	35.0
Carbon Steel	2.4	322.6		

Alpha Background Subtract Correction

Loc #	Counts	CPM	NCPM	pm/100cm2		Avg	Stdev
21	73	14.6	2.00	11	ctw	22.2	12.9
22	83	16.6	4.00	23			
23	99	19.8	7.20	41			
24	86	17.2	4.60	26			
25	71	14.2	1.60	9			
31	47	9.4	7.00	40	mr	36.4	12.1
32	50	10	7.60	44			
33	49	9.8	7.40	42			
34	48	9.6	7.20	41			
35	25	5	2.60	15			
66	31	6.2	3.60	21	sw	27.3	10.9
67	48	9.6	7.00	40			
68	24	4.8	2.20	13			
69	38	7.6	5.00	29			
70	43	8.6	6.00	34			
MAX				44			

Graphing Data	Alpha	Beta	Bkg Corrected	Alpha
car	11.0	316.0	car	11.0
ctf	15.6	1005.2	ctf	15.6
vtf	23.8	426.6	vtf	23.8
ccf	14.0	545.0	ccf	14.0
ctw	94.2	1232.0	ctw	22.2
dw	3.0	74.8	dw	3.0
mr	50.2	129.4	mr	36.4
pbw	4.0	347.2	pbw	4.0
pcw	6.6	420.4	pcw	6.6
ucw	19.2	416.6	ucw	19.2
cbw	16.0	340.6	cbw	16.0
rbw	10.8	381.6	rbw	10.8
pco	13.0	392.0	pco	13.0
sw	42.0	686.6	sw	27.3

Building 98 Sample Data

Attachment 3

Sample Number	Sample Date	Location	Units	Sample Size	Co-60	Cs-137	Pb-210	Ra-226	Ac-227	Th-230	Th-232	U-235	Pu-238	U-238	Am-241
SPF 98-01 Uncorrected Results															
98-01-116-WS-005	6/5/02	Garage Sump	pCi	250cc	<12.03	<10.48	334.2	347.2	<64.96	<1459	<57.09	24.41	<2971	454.8	<14.54
98-01-108-WS-006	6/5/02	Kitchen Sink Drain	pCi	150cc	<11.18	<9.934	245.5	356.9	<43.72	<834.2	<27.18	22.84	<2171	224.3	<10.81
98-01-111-WS-007	6/5/02	Bath Sink Drain	pCi	150cc	<9.911	<9.93	<87.46	<162.5	<43.03	<876	<36.73	ND	<2012	<84.22	<9.35
98-01-113-WS-008	6/5/02	Bath Sink Drain	pCi	150cc	<5.61	<7.32	<75.28	228.9	<36.58	<705.9	<21.57	20.88	<1644	65.47	<6.98
98-01-002-WS-009	6/5/02	Building Sump	pCi	250cc	<7.27	<5.36	98.05	154.7	<27.73	<677.2	<21.2	18.65	<1463	76.64	<6.26
98-01-115/116/SF-010	6/5/02	Garage Drain	pCI/g	250cc	<.04	<.04	0.96	0.97	0.15	0.01	0.09	ND	<10.53	ND	0.01
98-01-115/116-SF-011	6/5/02	Garage Drain	pCi/g	250cc	0.01	0.02	2.34	0.82	0.17	5.2	0.24	ND	55.98	ND	0.04
SPF 98-01 Interference Corrected Results															
98-01-116-WS-005	6/5/02	Garage Sump	pCi	250cc	<.04	<.04	<.46	<.62	<.22	<5.02	<.2	ND	<10.21	ND	<.05
98-01-108-WS-006	6/5/02	Kitchen Sink Drain	pCi	150cc	<.08	<.07	<.77	0.91	<.32	<6.18	<.2	ND	<16.09	ND	<.08
98-01-111-WS-007	6/5/02	Bath Sink Drain	pCi	150cc	<.08	<.08	<.72	<1.33	<.35	<7.18	<.3	ND	<16.49	ND	<.08
98-01-113-WS-008	6/5/02	Bath Sink Drain	pCi	150cc	<.04	<.06	<.59	0.77	<.29	<5.52	<.17	ND	<13	ND	<.05
98-01-002-WS-009	6/5/02	Building Sump	pCi	250cc	<.02	<.02	<.21	<.29	<.09	<2.32	<.07	ND	<5.01	ND	<.02
98-01-115/116/SF-010	6/5/02	Garage Drain	pCI/g					Re-Sampled per SPF 98-02							
98-01-115/116-SF-011	6/5/02	Garage Drain	pCi/g												
SPF-98-02 Re-Sample Results															
98-02-116-SED-12	6/28/02	Floor Trough	pCI/g	683g	0.03	<.06	1.69	0.61	0.16	3.73	0.17	ND	2.81	ND	0.01
98-02-116-SED-13	6/28/02	Floor Trough(QC)	pCI/g	739g	<.08	<.07	1.61	0.35	<.28	1.19	0.23	ND	<14.56	ND	<.07
98-02-115-SED-14	6/28/02	Oil Separator	pCI/g	660g	0.01	<.08	2.65	1.39	0.12	<7.25	0.21	ND	1.71	ND	<.07
98-02-115-SED-15	6/28/02	Floor Trough	pCI/g	773g	<.03	<.03	1.9	0.92	0.08	1.99	0.25	ND	12.03	ND	0.01
98-02-115-SED-16	6/28/02	Floor Trough(QC)	pCI/g	785g	<.03	0.02	1.32	0.23	<.18	<5.4	0.18	ND	<20.24	ND	0.01
98-02-002-SED-17	6/28/02	Building Sump	pCI/g	395g	0.04	0.01	0.21	0.62	0.03	0.47	<.43	ND	8.79	ND	<.06
		Background Value	pCI/g			0.42	1.2	2	0.11	1.9	1.4		0.13		
		Screening Value	pCI/g		0.07	0.76	1.8	2.1	0.56	10	1.47		55		6.3

ND = Not Detected

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Building 98 Sample Data

Attachment 3

Alpha Spectroscopy results for Sample #98-01-115/116-SF-011
(Lab ID# 0207662)

Isotope	Sample Activity		Uncertainty +/-		LDL	
	dpm/g	pCi/g	dpm/g	pCi/g	dpm/g	pCi/g
Pu-238	0.163	0.074	0.025	0.011	0.008	0.004
Pu-239/240	0.009	0.004	0.005	0.002	0.008	0.004
Th-232	0.339	0.153	0.04	0.018	0.008	0.004
Th-230	0.667	0.301	0.063	0.028	0.008	0.004
Th-228	0.397	0.179	0.045	0.02	0.022	0.01
Th-227	0.042	0.019	0.012	0.005	0.022	0.01

QC SAMPLE COMPARISON (REPLICATE) RESULTS

Attachment 4

Original Sample #	Replicate Sample #	Sample Type	Replicate Analysis Performed By	Isotope	Units	Original Result	Replicate Result	2 Sigma Uncertainty	Resolution	Ratio	Agreement	SDR #
98-02-12	98-02-13	Sed	BK	Pb-210	pCi/g	1.69E+00	1.61E+00	6.58E-01	5	1.05	YES	N/A
98-02-16	98-02-17	Sed	BK	Pb-210	pCi/g	1.90E+00	1.32E+00	5.82E-01	6	1.44	YES	N/A

SURVEY PLAN FORM

SP NUMBER	98-01	DATE OF REQUEST	June 3, 2002
TYPE OF SP	☐ FSS ☐ CHARACTERIZATION ☐ REFERENCE ☒ OTHER: Scoping		
AREA/LOCATION	Building 98		
PURPOSE	Obtain baseline survey data to support characterization survey design		
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See page 2 for specific instructions

☐ CORE SAMPLE:

☐ WATER SAMPLE:

☒ Loose Surface Contamination: See page 2 for specific instructions

☐ OTHER:

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	Ludlum 2360 (or equivalent)	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 5 minute integrated fixed-point surface measurements for α and β. See page 2 for specific survey instructions.
		PROBE TYPE	43-89 Alpha/Beta		
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
OTHER SURVEY TYPES OR COMMENTS	Laboratory analysis equipment shall be appropriate for the requested analysis and operated in accordance with Mound Procedures. Record Sample Plan Form number (98-01) on each RSDS used.				

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SP NUMBER	98-01	DATE OF REQUEST	June 3, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. Exercise caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.

Sediment Samples

1. Collect approximately 250ml of debris from all accessible floor drains, sumps, sink traps, roof gutters or downspouts.
2. If insufficient material is present at these sample locations, obtain a representative smear or swab.
3. Label sample container with sample number, date, time, and location in accordance with Mound procedures.
4. Document sample information and description of material on Attachment 1.
5. Show sample location on the RSDS map.
6. Submit sample to laboratory for gamma spectroscopy analysis.

Static Measurements Using L 2360 With a 43-89 alpha/beta probe (or equivalent)

1. Perform a 5 minute integrated alpha and beta count at approximately 30 biased locations on the inside and outside surfaces of the building. Obtain 4-5 data points for each type of material at varying locations. Vary locations to include a representation of each of the following type of building material:

   Flooring – Unpainted concrete, Carpet, Vinyl tile, Ceramic tile, etc.

   Walls (Interior)– Painted drywall, concrete block, poured concrete (painted and unpainted), tile, ceiling, etc.

   Walls (Exterior) – Painted poured concrete, Textured concrete, sidewalk, etc.

   Roof – metal material, etc.
2. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
3. Document gross activity for each location (No "<" values).

APPROVAL SIGNATURES

MARISSM Engineer	Roderick C. Case	DATE	June 3, 2002
Concurrence	Galen Tomlinson	DATE	June 3, 2002
Rad Con Manager	Steve Collas	DATE	June 3, 2002

SP CLOSE-OUT SIGNATURES

MARISSM Engineer		DATE	7/16/02
QA/QC Review		DATE	7/16/02
Rad Con Manager	AS Collas	DATE	7/16/02

COMMENTS

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SURVEY PLAN CONTINUATION SHEET

SP NUMBER	98-01	DATE OF REQUEST	June 3, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS

Loose Surface Contamination

1. Obtain a 100cm^2 coin smear for each survey point identified above.
2. Count each smear for alpha, beta, and H^3 (H^3 can be excluded from exterior surveys).
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Quality Control (QC) Measurements

1. QC measurements will be performed by randomly re-surveying 5% of survey points, as determined by the MARSSIM Engineer. Obtain static measurement and smear at each location.
2. Any sediment sample or smear with measured activity above the MDA shall be resubmitted for replicate analysis. Ensure alpha and beta smear results are obtained before performing H^3 analysis.
3. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.
4. Identify results with a "QC" designator.

NOTE: Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Continuation Sheet.

Attachment 1

Field Sample Data Collection Sheet

Sheet ___ of ___

Note: Attach to SP Form when complete

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									

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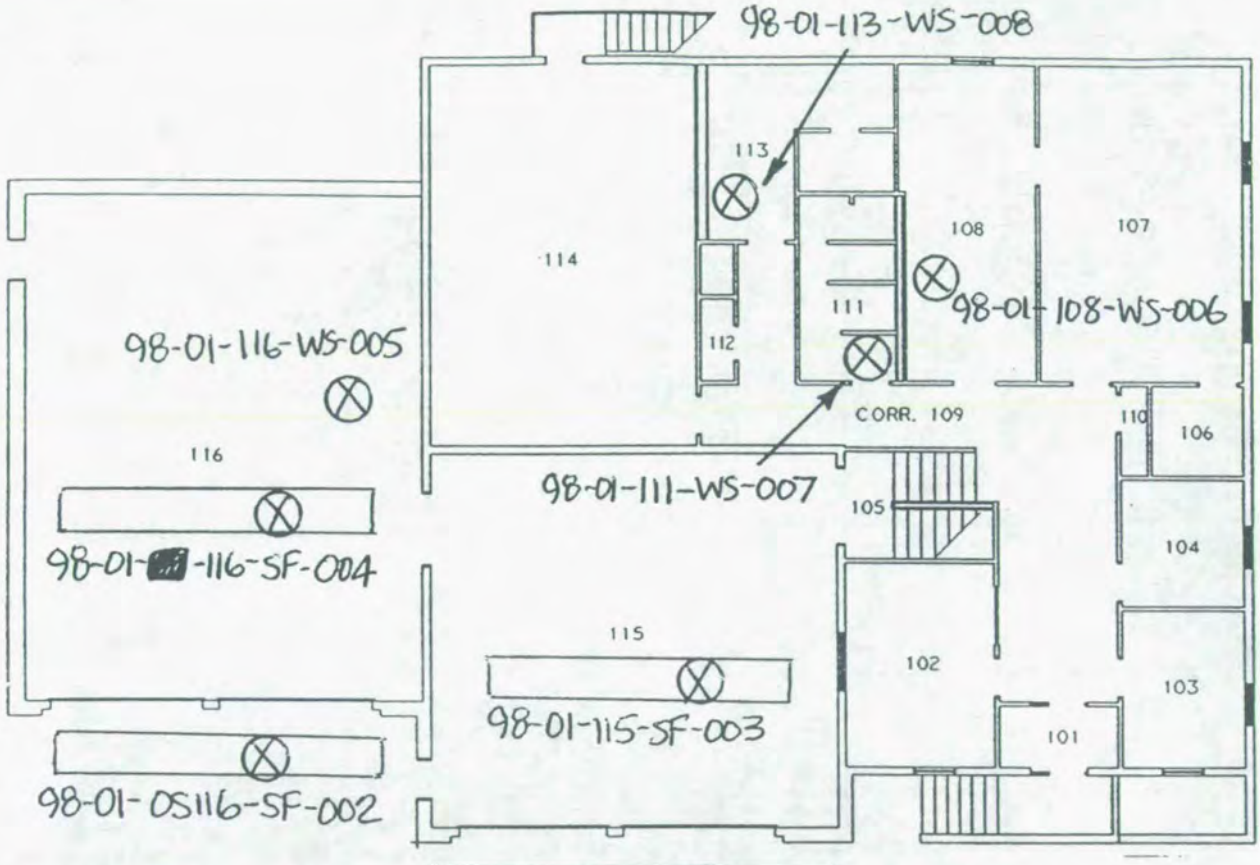
RADIOLOGICAL SURVEY DATA SHEET

1 of ~~13~~ 14 15 7-16-02

LOCATION: (BLDG./AREA/ROOM) BLD 98 FIRST FLOOR	SURVEY NO. 02-TF-1093
PURPOSE: FIELD SAMPLES FOR γ SPEC	RWP NO. NA
	DATE: 060502
	TIME: 1430

MAP/DRAWING



*Note: Scoping Survey Taken In Accordance With Sample Plan 98-01

COPY

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N/A	

Completed by: (Signature) V. Filippi	[redacted]	Date: 6/5/02
Completed by: (Print Name) V. FILIPPI		
Counted by: (Signature) See Attached	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature) RMCoblentz	[redacted]	Date: 6-24-02
Reviewed/Approved by: (Print Name) RMCoblentz		

ML-9620 (2-98)

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Survey No.

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	Comments

N/A

COMMENTS:

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.

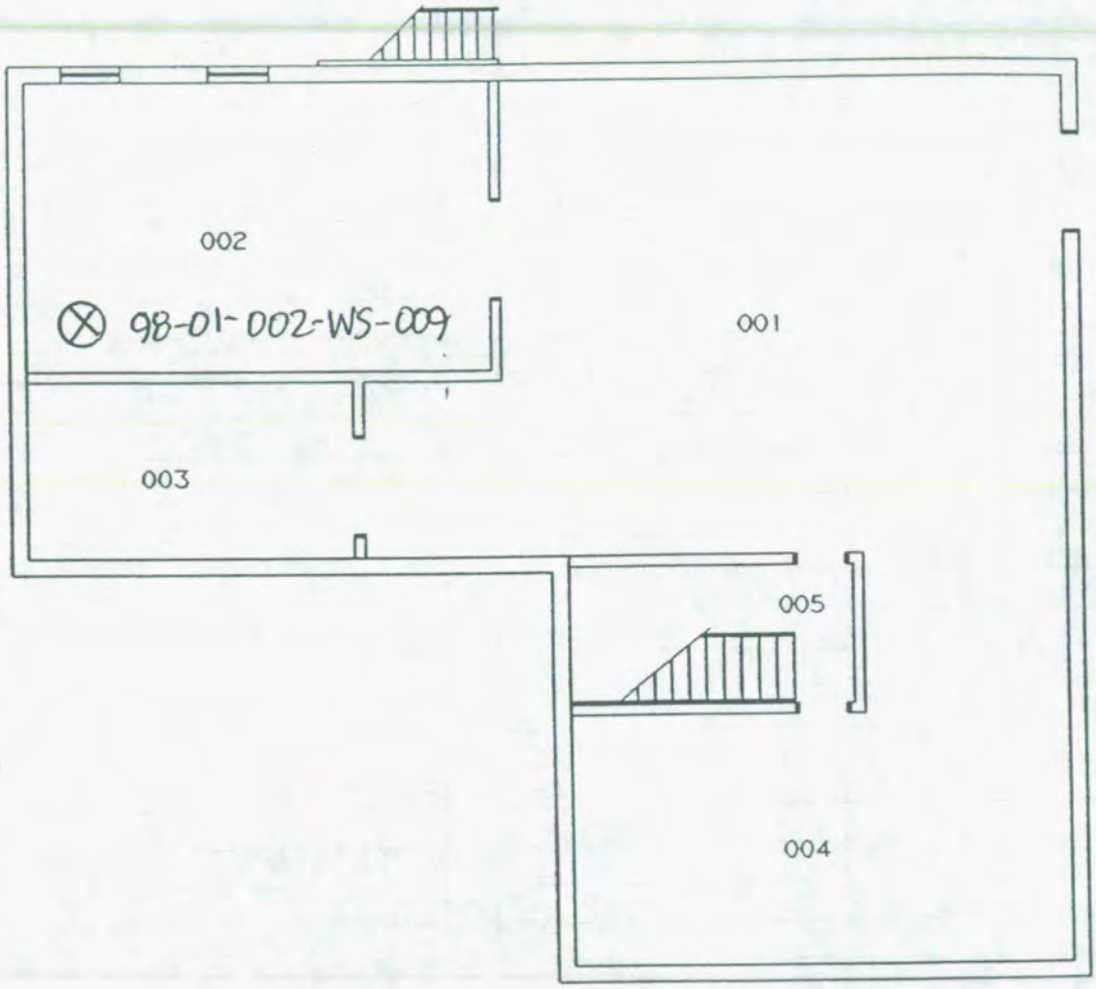
ML-9620A (4-98)

RADIOLOGICAL SURVEY DATA SHEET

2 of 13 14-15 29# 7-16-02

LOCATION: (BLDG./AREA/ROOM) BLD 98 SECOND (BSMT)	SURVEY NO. 02-TF-1093
PURPOSE: FIELD SAMPLES FOR γ SPEC	RWP NO. NA
	DATE: 060502
	TIME: 1430

MAP/DRAWING



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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

Completed by: (Signature)	HP # [redacted]	Date: 6/5/02
Completed by: (Print Name) V. FILEPPI		
Counted by: (Signature) See Attached	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature) See page 1	HP #	Date:
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98)

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Survey No.

Page ____ of ____

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	Comments

N/A

COMMENTS:

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)

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Attachment 1

Field Sample Data Collection Sheet

Sheet ___ of ___

Note: Attach to SP Form when complete

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
98-01-OS115-SF-001	6/5/02			DRAIN TROUGH O/S BLD COMPOSITE TO MAKE 010		6-6-02	0910	DGH	
98-01-OS116-SF-002								DGH	
98-01-115-SF-003				DRAIN TROUGH ITS BAY COMPOSITE TO MAKE 011				DGH	
98-01-116-SF-004								DGH	
98-01-116-WS-005			N/A	SUMP				DGH	
98-01-108-WS-006				KITCHEN SINK				DGH	
98-01-111-WS-007				BATHROOM SINK				DGH	
98-01-113-WS-008								DGH	
98-01-002-WS-009				SUMP				DGH	
98-01-OS115+116-SF-010	N/A			COMPOSITE OF 001 + 002	DGH	6-10-02	1350	DGH	
98-01-115+116-SF-011		N/A		COMPOSITE OF 003 + 004	DGH	6-10-02	1350	DGH	
98-01-	N/A			N/A			N/A		
98-01-									

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2-TF-1093

Attachment 1

Field Sample Data Collection Sheet

Sheet ___ of ___

Note: Attach to SP Form when complete

Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
98-01- 113-AE-012	6-11-02			LOCATION #23 ACID ETCH	HOPKINS	6-11-02	1400	DGH	LCH
98-01- OSSW-AE-013	6-11-02			LOCATION #67 ACID ETCH	HOPKINS	6-11-02	1400	DGH	LCH
98-01- ROOF-PS-014	6-18-02			LOCATION #31 PAINT SCRAPPING	HARVEY	6-18-02	1250	DGH	LCH
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									
98-01-									

N/A

LAB IS DGH 7-16-02

7/10/02

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02-TF-1043

Laboratory ID#:	**0206690-0206691**
Project/function:	**MHP**
Submitted:	**Jun 11, 2002**
Submitted by:	**L. Hopkins**
Point of Contact:	**D. Harvey**
RSDS#:	**N/A**
Date:	**Jun 17, 2002**

02-TF-1093

Lab ID	0206690
Sample Location	Bldg. 98 #23

Isotope	dpm/smear	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.05
Pu-239/240	<LDL	<LDL	0.05
Th-232	<LDL	<LDL	0.06
Th-230	<LDL	<LDL	0.06
Th-228	<LDL	<LDL	0.15
Th-227	0.25	0.08	0.15
U-238	0.08	0.04	0.05
U-235	<LDL	<LDL	0.05
U-233/234	<LDL	<LDL	0.05
Po-210	0.76	0.29	0.29

Lab ID	0206691
Sample Location	Bldg. 98 #67

Isotope	dpm/smear	Uncertainty +/-	LDL
Pu-238	0.25	0.10	0.10
Pu-239/240	<LDL	<LDL	0.10
Th-232	1.07	0.18	0.06
Th-230	4.04	0.43	0.06
Th-228	1.39	0.21	0.17
Th-227	0.07	0.04	0.06
U-238	3.38	0.66	0.40
U-235	0.27	0.16	0.24
U-233/234	4.66	0.82	0.24
Po-210	36.31	2.32	0.21

Lawell C. Hopkins [redacted] 6-17-02
Analyst HP # Date

[redacted] 6/17/02
Data Verification HP # Date

7/10/02

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C34 of 96

5 of 15 14/15 7-16-02

Laboratory ID#:	**0207010**
Project/function:	**TFV**
Submitted:	**Jun 18, 2002**
Submitted by:	**D. Harvey**
Point of Contact:	**D. Harvey**
RSDS#:	**N/A**
Date:	**Jun 20, 2002**

02-TF-1093

Lab ID	0207010
Sample Location	-98 Roof (Paint Scrappings)

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	1.13
Pu-239/240	<LDL	<LDL	1.13
Th-232	<LDL	<LDL	0.86
Th-230	0.63	0.38	0.57
Th-228	<LDL	<LDL	0.57
Th-227	<LDL	<LDL	0.57
U-238	<LDL	<LDL	1.06
U-235	<LDL	<LDL	0.93
U-233/234	<LDL	<LDL	0.62
Po-210	7.81	2.42	1.76

L.C. Hopkins — [redacted] — 6-20-02

Analyst — HP # — Date

[redacted] — 6/22/02

Data Verification — HP # — Date

7/10/02

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13657
File ID: MG101530.s0
Priority: Yes

Description\Location
98-01-OS115+116-SF-010

Collector: 6192
Date Received: 6/10/02
Date Collected: 6/5/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.04	45,000
Cs-137	*	0	0.04	45,000
Pb-210		0.96	0.28	45,000
Ra-226		0.97	0.36	800
Ac-227 (D)		0.15	0.14	40
Th-230	*	0.01	4.48	800
Th-232 (D)	*	0.09	0.2	130
Pu-238	*	0	10.53	500
Am-241	*	0.01	0.04	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.03

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

Σ_{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:

Date: 6/19/02 Counted By: 6152 Analyzed By: 6152 Initials

7/10/02

02-TF-1093 G 36 of 87 C 36 of 96 7 of ~~13~~ ~~14~~ 15 7-16-02

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13656
File ID: MG400323.s0
Priority: Yes

Description\Location
98-01-115+116-SF-011

Collector: 6192
Date Received: 6/10/02
Date Collected: 6/5/02

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		2.34	0.78	45,000
Ra-226		0.82	0.59	800
Ac-227 (D)	*	0.17	0.18	40
Th-230	*	5.2	5.56	800
Th-232 (D)		0.24	0.09	130
Pu-238		55.98	46.07	500
Am-241	*	0.04	0.06	500

Other Nuclides

Radionuclide	Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
U-238(D)	0.7	0.57	

Σ_{DOT} 0.07 nCi/g $\Sigma_{Respirator}$ 0.13

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

Σ_{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:

Date: 6/19/02 Counted By: 6152 Analyzed By: 6152 Initials

7/10/02

02-TF-1093 G3706 87 C3706 96 8 of ~~13~~ ~~14~~ 15 7-18-02

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-116-WS-005

Sample ID#: ML13651

Filename: C0000028.s0
Detector: Ge-C
Geometry: 250Chem
Mass (g): 291
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.04	
Cs-137			0.04	
Pb-210			0.46	
Ra-226			0.62	
Ac-227(D)			0.22	
Th-230			5.02	
Th-232(D)			0.2	
Pu-238			10.21	
Am-241			0.05	

Comments:
Only activity above the MDA has been reported.

Bkgd. corrected 06/27/02 - SEK

Energy Calibration File	Efficiency Calibration File
QC_00050.S0	614-33-1.S0
Resolution Calibration File	**Library File**
614-33-1.S0	SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/6/02
Sample Counted: 6/10/02
Sample Analyzed: 6/19/02
Product Cycle Time: 13 Days

Analyst: S. Elizabeth S. Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 G38 of 87 9 of ~~14~~ 15 29H 7-16-02
C38 of 96

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-108-WS-006

Sample ID#: ML13652

Filename: C0000029.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 135
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*		pCi/g	*MDA*	pCi/g
Co-60				0.08	
Cs-137				0.07	
Pb-210				0.77	
Ra-226	0.91	±	1.11	0.91	
Ac-227(D)				0.32	
Th-230				6.18	
Th-232(D)				0.2	
Pu-238				16.09	
Am-241				0.08	

Comments:
Only activity above the MDA has been reported.

Bkgd. corrected 06/28-27/02-SEK

Energy Calibration File QC_00052.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/6/02
Sample Counted: 6/12/02
Sample Analyzed: 6/19/02
Product Cycle Time: 13 Days

Analyst: S. Elizabeth Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 G39 of 87 10 of 14/15 29# 7-16-02
C39 of 96

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-111-WS-007

Sample ID#: ML13653

Filename: C0000030.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 122
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.08	
Cs-137			0.08	
Pb-210			0.72	
Ra-226			1.33	
Ac-227(D)			0.35	
Th-230			7.18	
Th-232(D)			0.3	
Pu-238			16.49	
Am-241			0.08	

Comments:
No gamma activity above the MDA.

Bkgd. Corrected 06/27/02 SEK

Energy Calibration File QC_00053.S0	Efficiency Calibration File 614-33-2.S0
Resolution Calibration File 614-33-2.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/6/02
Sample Counted: 6/13/02
Sample Analyzed: 6/18/02
Product Cycle Time: 12 Days

Analyst: S. Elizabeth Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 G-40 of 87 11 of ~~14~~ 15 7-16-02
C40 of 96

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-113-WS-008

Sample ID#: ML13654

Filename: C0000031.s0
Detector: Ge-C
Geometry: 150Chem
Mass (g): 128
Count Time (sec.): 10800
Priority: Y

Isotope	*Activity*		pCi/g	*MDA*	pCi/g
Co-60				0.04	
Cs-137				0.06	
Pb-210				0.59	
Ra-226	0.77	±	0.94	0.74	
Ac-227(D)				0.29	
Th-230				5.52	
Th-232(D)				0.17	
Pu-238				13	
Am-241				0.05	

Comments:
Only activity above the MDA has been reported..

Bkgd. corrected 06/27/02-SEK

Energy Calibration File	Efficiency Calibration File
QC_00054.S0	614-33-2.S0
Resolution Calibration File	**Library File**
614-33-2.S0	SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/6/02
Sample Counted: 6/14/02
Sample Analyzed: 6/18/02
Product Cycle Time: 12 Days

Analyst: S. Elizabeth Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 12 of ~~14~~ 15 29H 7-16-02 G41 of 87 C41 of 96

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-002-WS-009

Sample ID#: ML13655

Filename: C0000033.s0
Detector: Ge-C
Geometry: 250Chem
Mass (g): 292
Count Time (sec.): 36000
Priority: Y

Isotope	*Activity*	pCi/g	*MDA*	pCi/g
Co-60			0.02	
Cs-137			0.02	
Pb-210			0.21	
Ra-226			0.29	
Ac-227(D)			0.09	
Th-230			2.32	
Th-232(D)			0.07	
Pu-238			5.01	
Am-241			0.02	

Comments:
Only activity above the MDA has been reported..

Bkgd. corrected 06/27/02-SEK

Energy Calibration File QC_00054.S0	Efficiency Calibration File 614-33-1.S0
Resolution Calibration File 614-33-1.S0	Library File SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/6/02
Sample Counted: 6/14/02
Sample Analyzed: 6/18/02
Product Cycle Time: 12 Days

Analyst: S. Elizabeth Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 G4206 87 C4206 96 13 of ~~14~~ 15 7-16-02

Gamma Spectroscopy Report

Requested By: Dan Harvey

HP#: [redacted]

Description:
98-01-116-WS-005 (QC5)

Sample ID#: ML13651

Filename: C0000034.s0
Detector: Ge-C
Geometry: 250Chem
Mass (g): 291
Count Time (sec.): 7200
Priority: Y

Isotope	*Activity*		pCi/g	*MDA*	pCi/g
Co-60				0.05	
Cs-137				0.04	
Pb-210				0.43	
Ra-226	0.67	±	0.69	0.46	
Ac-227(D)				0.24	
Th-230				4.67	
Th-232(D)				0.15	
Pu-238				11.97	
Am-241				0.05	

Comments:
Only activity above the MDA has been reported.

Bkgd. corrected 06/27/02-SEK

Energy Calibration File	Efficiency Calibration File
QC_00050.S0	614-33-1.S0
Resolution Calibration File	**Library File**
614-33-1.S0	SOILS001.LIB

(D) denotes the isotope was identified by its daughter products

Sample Received: 6/20/02
Sample Counted: 6/24/02
Sample Analyzed: 6/27/02
Product Cycle Time: 7 Days

Analyst: S. Elizabeth Kay HP #: [redacted] Date: 06/28/02

02-TF-1093 G43 of 87 C43 of 96 14 of ~~14~~ 15 7-16-02

Laboratory ID#: 0207662
Project/function: SMPP/TFV
Submitted: Jul 2, 2002
Submitted by: Fileppi
Point of Contact: Harvey
RSDS#: N/A
Date: Jul 11, 2002

0207662

Isotope	Sample Location	dpm/g	Uncertainty +/-	LDL (dpm/g)
Pu-238	Bldg 98	0.163	0.025	0.008
Pu-239/240	Bldg 98	0.009	0.005	0.008
Th-232	Bldg 98	0.339	0.040	0.008
Th-230	Bldg 98	0.667	0.065	0.008
Th-228	Bldg 98	0.397	0.045	0.022
Th-227	Bldg 98	0.042	0.012	0.022

Bradley D Yates — [redacted] — 7/11/02
Analyst — HP # — Date

Denise Herr — [redacted] — 7/11/02
Data Verification — HP # — Date

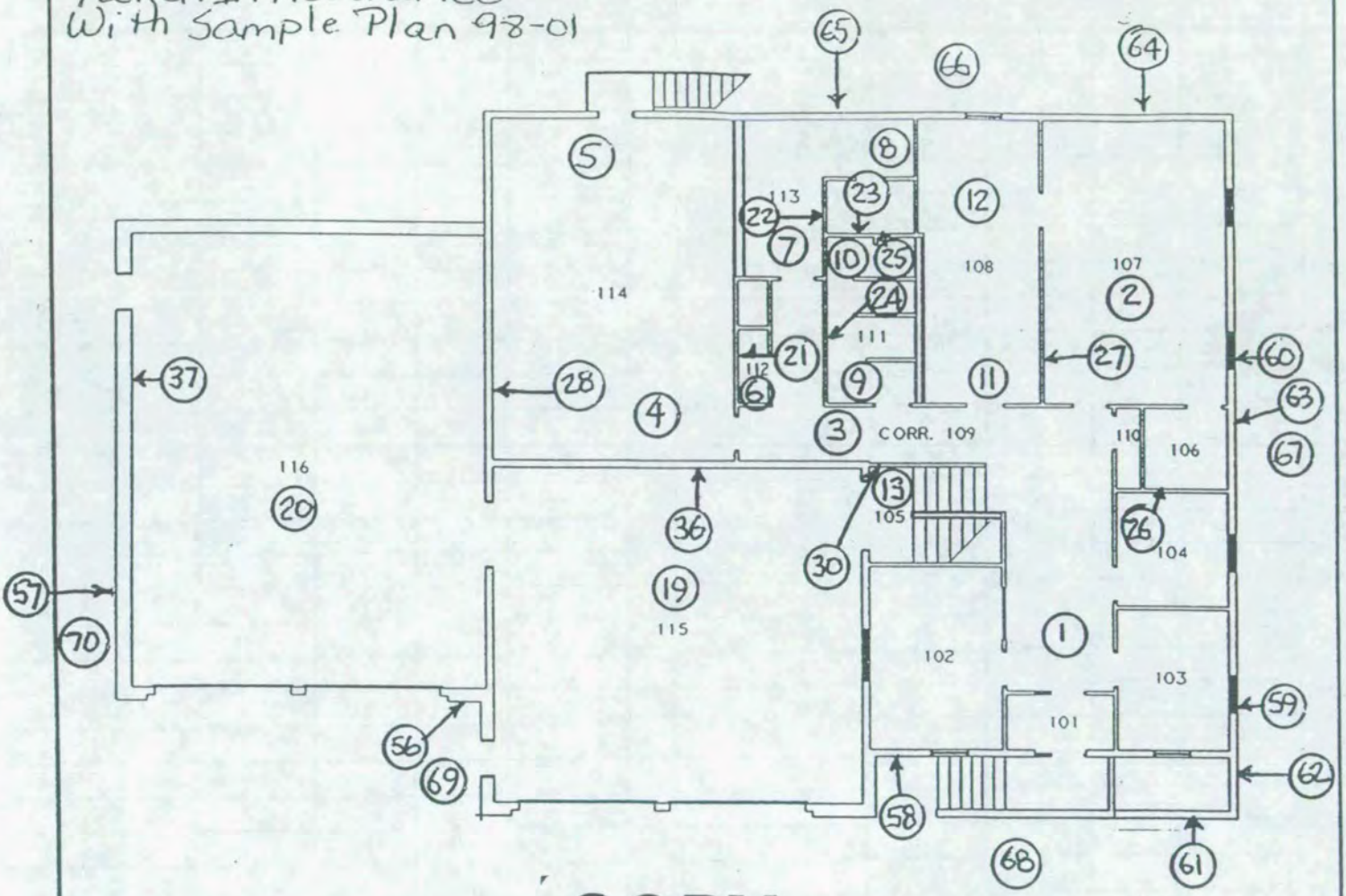
DgH
15 of 15
02-TF-1093

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 98 FIRST FLOOR	SURVEY NO. 02-TF-0835
PURPOSE: MARSSIM SURVEY	RWP NO. NA
	DATE: 060502
	TIME: 1600

*Note: Scoping Survey Taken In Accordance With Sample Plan 98-01

MAP/DRAWING



COPY

(#) → DENOTES SWIPE TAKEN ON WALL

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5671/5675/5148	092102
ELECTRA	5364/5377	050103
	N	
	A	

ML-9620 (2-98)

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Completed by: (Signature)	HP # [redacted]	Date: 0605
Completed by: (Print Name) FILEPPI / HARVEY / RADLEY		
Counted by: (Signature) See Attached	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature) RMCoblentz	HP # [redacted]	Date: 6/10/02
Reviewed/Approved by: (Print Name) RMCoblentz		

Survey No. 02-TF-0835

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-13	See			FLOOR
19-20		Attached		FLOOR
21-28				WALL
30				WALL
36-37				WALL
56-60				O/S WALL
61-65				O/S WALL
66-70				O/S FLOOR
			N/A	

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

COMMENTS: N/A

NOTES:

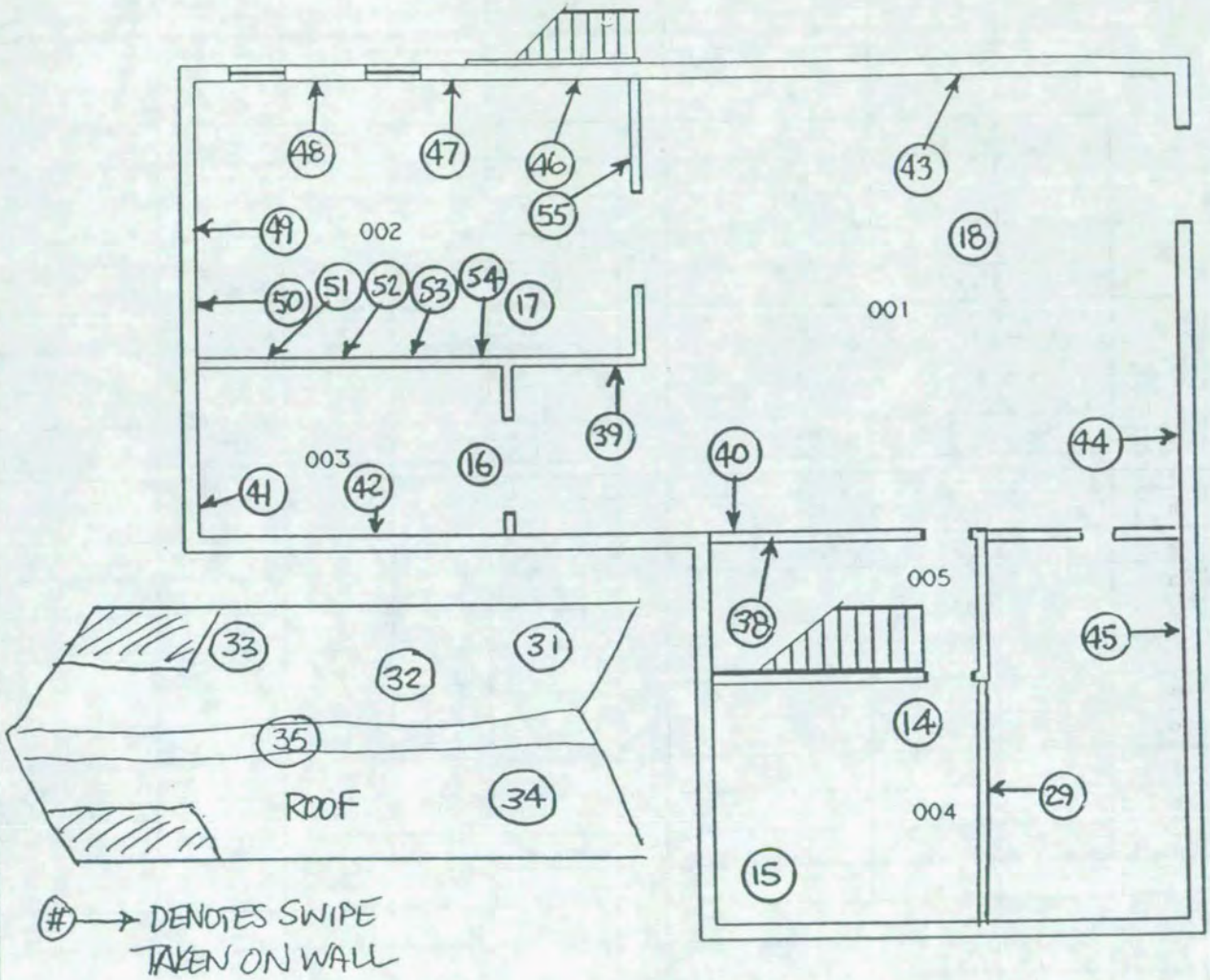
1. See MD-80036 10002 for calculations of WB, extremity and skin dose rates.
2. To request RO Count Room analysis for β/γ, alpha or tritium, leave column blank. Mark column N/A if not needed. If count room printout of results are attached, write "see attached" in column.
3. Annotate special sample type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

ML-9620A (4-98)

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 98 BASEMENT	SURVEY NO. 02-TF-0835
PURPOSE: MARSSIM SURVEY	RWP NO. NA
	DATE: 060502
	TIME: 1600

MAP/DRAWING



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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date

SEE PAGE 1

Completed by: (Signature)	HP #	Date:
Completed by: (Print Name)		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature)	HP #	Date:
Reviewed/Approved by: (Print Name)		

SEE PAGE 1

ML-9620 (2-98)

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Survey No. 02-TF-0835

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
14-18		See		FLOOR
31-35		Attached		ROOF
38-55				WALL
			N/A	

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

COMMENTS: N/A

NOTES:

1. See MD-89036 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)

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98-BLDG MARSSIM M-2350 SURVEY

RSDS# 02-TF-0- 0835 RCT: [illegible] RCT: DJH

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SRCBKG	5671	[redacted]	5675	4		6/4/02	4:22	21	300	8
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:24	2157	60	4037
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:25	2204	60	4125
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:27	2167	60	4055
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:29	2153	60	4029
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:30	2218	60	4151
SRCCHECK	5671	[redacted]	5675	4		6/4/02	4:31	2145	60	4014
SRCBKG	5671	[redacted]	5675	3		6/4/02	4:39	5	300	6
SRCCHECK	5671	[redacted]	5148	3		6/4/02	4:42	1796	60	10283
SRCCHECK	5671	[redacted]	5148	3		6/4/02	4:43	1822	60	10431
SRCCHECK	5671	[redacted]	5148	3		6/4/02	4:45	1873	60	10723
SRCCHECK	5671	[redacted]	5148	3		6/4/02	4:46	1885	60	10792
CARPET-1	5671	[redacted]	5675	4	1	6/4/02	6:26	28	300	10
CARPET-2	5671	[redacted]	5675	4	2	6/4/02	6:32	34	300	13
CARPET-3	5671	[redacted]	5675	4	3	6/4/02	6:38	30	300	11
CARPET-4	5671	[redacted]	5675	4	4	6/4/02	6:44	33	300	12
CARPET-5	5671	[redacted]	5675	4	5	6/4/02	6:50	25	300	9
CTILE1	5671	[redacted]	5675	4	6	6/4/02	6:56	47	300	18
CTILE2	5671	[redacted]	5675	4	7	6/4/02	7:02	37	300	14
CTILE3	5671	[redacted]	5675	4	8	6/4/02	7:09	43	300	16
CTILE4	5671	[redacted]	5675	4	9	6/4/02	7:14	37	300	14
CTILE5	5671	[redacted]	5675	4	10	6/4/02	7:20	44	300	16
TILE1	5671	[redacted]	5675	4	11	6/4/02	7:26	23	300	9
TILE2	5671	[redacted]	5675	4	12	6/4/02	7:31	15	300	6
TILE3	5671	[redacted]	5675	4	13	6/4/02	7:37	43	300	16
TILE4	5671	[redacted]	5675	4	14	6/4/02	7:43	31	300	12
TILE5	5671	[redacted]	5675	4	15	6/4/02	8:38	25	300	9
CONCRETE-1	5671	[redacted]	5675	4	16	6/4/02	8:45	39	300	15
CONCRETE-2	5671	[redacted]	5675	4	17	6/4/02	8:50	41	300	15
CONCRETE-3	5671	[redacted]	5675	4	18	6/4/02	8:56	35	300	13
CONCRETE-4	5671	[redacted]	5675	4	19	6/4/02	9:03	28	300	10
CONCRETE-5	5671	[redacted]	5675	4	20	6/4/02	9:09	46	300	17
CTILE1	5671	[redacted]	5148	3	21	6/4/02	9:17	73	300	84 *11

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* Corrected for background, see Final Status Report Attachment 2. VH

98-BLDG MARSSIM M-2350 SURVEY

RSDS# 02-TF-0- 0835 RCT: VH RCT: DJH

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	*
CTILE2	5671	[redacted]	5148	3	22	6/4/02	9:27	83	300	95	23
CTILE3	5671	[redacted]	5148	3	23	6/4/02	9:33	99	300	113	41
CTILE4	5671	[redacted]	5148	3	24	6/4/02	11:52	86	300	98	26
CTILE5	5671	[redacted]	5148	3	25	6/4/02	11:58	71	300	81	9
DWALL1	5671	[redacted]	5148	3	26	6/4/02	12:04	4	300	5	
DWALL2	5671	[redacted]	5148	3	27	6/4/02	12:12	3	300	3	
DWALL3	5671	[redacted]	5148	3	28	6/4/02	12:19	2	300	2	
DWALL5	5671	[redacted]	5148	3	29	6/4/02	12:36	0	300	0	
DWALL4	5671	[redacted]	5148	3	30	6/4/02	12:52	4	300	5	
ROOF1	5671	[redacted]	5148	3	31	6/4/02	13:12	47	300	54	40
ROOF2	5671	[redacted]	5148	3	32	6/4/02	13:50	50	300	57 →	44
ROOF3	5671	[redacted]	5148	3	33	6/4/02	14:04	49	300	56	42
ROOF4	5671	[redacted]	5148	3	34	6/4/02	14:26	48	300	55	41
ROOF5	5671	[redacted]	5148	3	35	6/4/02	14:41	25	300	29	
SRCBKG	5671	[redacted]	5148	3		6/5/02	5:07	4	300	5	
SRCCHECK	5671	[redacted]	5148	3		6/5/02	5:10	1748	60	10008	
SRCCHECK	5671	[redacted]	5148	3		6/5/02	5:11	2008	60	11496	
SRCCHECK	5671	[redacted]	5148	3		6/5/02	5:13	1909	60	10929	
SRCCHECK	5671	[redacted]	5148	3		6/5/02	5:14	1926	60	11027	
PCW1	5671	[redacted]	5148	3	36	6/5/02	6:49	2	300	2	
PCW2	5671	[redacted]	5148	3	37	6/5/02	6:55	4	300	5	
PCW3	5671	[redacted]	5148	3	38	6/5/02	7:04	5	300	6	
PCW4	5671	[redacted]	5148	3	39	6/5/02	7:52	2	300	2	
PCW5	5671	[redacted]	5148	3	40	6/5/02	7:58	4	300	5	
PPC1	5671	[redacted]	5148	3	41	6/5/02	8:05	6	300	7	
PPC2	5671	[redacted]	5148	3	42	6/5/02	8:11	5	300	6	
PPC3	5671	[redacted]	5148	3	43	6/5/02	8:46	7	300	8	
PPC4	5671	[redacted]	5148	3	44	6/5/02	8:53	10	300	11	
PPC5	5671	[redacted]	5148	3	45	6/5/02	8:59	1	300	1	
UPC1	5671	[redacted]	5148	3	46	6/5/02	9:06	15	300	17	
UPC2	5671	[redacted]	5148	3	47	6/5/02	9:12	12	300	14	
UPC3	5671	[redacted]	5148	3	48	6/5/02	9:19	15	300	17	
UPC4	5671	[redacted]	5148	3	49	6/5/02	9:27	32	300	37	
UPC5	5671	[redacted]	5148	3	50	6/5/02	9:33	10	300	11	
UPCB1	5671	[redacted]	5148	3	51	6/5/02	11:13	22	300	25	
UPCB2	5671	[redacted]	5148	3	52	6/5/02	11:19	11	300	13	
UPCB3	5671	[redacted]	5148	3	53	6/5/02	11:24	11	300	13	

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* Corrected for background, see Final Status Report Attachment 2. VFH

98-BLDG MARSSIM M-2350 SURVEY

RSDS# 02-TF-0- 0835 RCT: [illegible] RCT: [illegible]

LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	*
UPCB4	5671	[redacted]	5148	3	54	6/5/02	11:30	11	300	13	
UPCB5	5671	[redacted]	5148	3	55	6/5/02	11:36	14	300	16	
OSBW1	5671	[redacted]	5148	3	56	6/5/02	11:44	7	300	8	
OSBW2	5671	[redacted]	5148	3	57	6/5/02	11:50	14	300	16	
OSBW3	5671	[redacted]	5148	3	58	6/5/02	11:56	2	300	2	
OSBW4	5671	[redacted]	5148	3	59	6/5/02	12:02	12	300	14	
OSBW5	5671	[redacted]	5148	3	60	6/5/02	12:08	12	300	14	
OSPPC1	5671	[redacted]	5148	3	61	6/5/02	12:15	9	300	10	
OSPPC2	5671	[redacted]	5148	3	62	6/5/02	12:21	21	300	24	
OSPPC3	5671	[redacted]	5148	3	63	6/5/02	12:26	9	300	10	
OSPPC4	5671	[redacted]	5148	3	64	6/5/02	12:32	10	300	11	
OSPPC5	5671	[redacted]	5148	3	65	6/5/02	12:38	9	300	10	
SW1	5671	[redacted]	5148	3	66	6/5/02	12:44	31	300	35	21
SW2	5671	[redacted]	5148	3	67	6/5/02	12:49	48	300	55	40
SW3	5671	[redacted]	5148	3	68	6/5/02	12:56	24	300	27	13
SW4	5671	[redacted]	5148	3	69	6/5/02	13:02	38	300	44	29
SW5	5671	[redacted]	5148	3	70	6/5/02	13:08	43	300	49	34

*Corrected for background, see Final status Report Attachment 2. VKD

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CSI of 96

Beta Bkd's
6/4/02 = 805 dpm
6/5/02 = 804 dpm

98-BLDG MARSSIM BETA SURVEY

RSDS#02-TF-0835 RCT: VH RCT: DGH

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2	* Corrected for background, see Final Status Report, Att 2.
CARPET-1	5364	[redacted]	5377	1	6/4/02	300	1173	368
CARPET-2	5364	[redacted]	5377	2	6/4/02	300	1085	280
CARPET-3	5364	[redacted]	5377	3	6/4/02	300	1115	310
CARPET-4	5364	[redacted]	5377	4	6/4/02	300	1123	318
CARPET-5	5364	[redacted]	5377	5	6/4/02	300	1109	304
CTILE1	5364	[redacted]	5377	6	6/4/02	300	1797	992
CTILE2	5364	[redacted]	5377	7	6/4/02	300	1779	974
CTILE3	5364	[redacted]	5377	8	6/4/02	300	1833	1028
CTILE4	5364	[redacted]	5377	9	6/4/02	300	1772	967
CTILE5	5364	[redacted]	5377	10	6/4/02	300	1870	1065
TILE1	5364	[redacted]	5377	11	6/4/02	300	1117	312
TILE2	5364	[redacted]	5377	12	6/5/02	300	1208	403
TILE3	5364	[redacted]	5377	13	6/5/02	300	1143	338
TILE4	5364	[redacted]	5377	14	6/5/02	300	1132	327
TILE5	5364	[redacted]	5377	15	6/5/02	300	1157	352
CONCRETE-1	5364	[redacted]	5377	16	6/5/02	300	1421	616
CONCRETE-2	5364	[redacted]	5377	17	6/5/02	300	1426	621
CONCRETE-3	5364	[redacted]	5377	18	6/5/02	300	1323	518
CONCRETE-4	5364	[redacted]	5377	19	6/5/02	300	1321	516
CONCRETE-5	5364	[redacted]	5377	20	6/5/02	300	1259	454
CTILE1	5364	[redacted]	5377	21	6/5/02	300	1980	1175
CTILE2	5364	[redacted]	5377	22	6/5/02	300	1975	1170
CTILE3	5364	[redacted]	5377	23	6/5/02	300	2197	1392 ←
CTILE4	5364	[redacted]	5377	24	6/5/02	300	1998	1193
CTILE5	5364	[redacted]	5377	25	6/5/02	300	2035	1230
DWALL1	5364	[redacted]	5377	26	6/5/02	300	826	21
DWALL2	5364	[redacted]	5377	27	6/5/02	300	859	54
DWALL3	5364	[redacted]	5377	28	6/5/02	300	954	149
DWALL5	5364	[redacted]	5377	29	6/5/02	300	899	94
DWALL4	5364	[redacted]	5377	30	6/5/02	300	861	56
ROOF1	5364	[redacted]	5377	31	6/5/02	300	1072	267
ROOF2	5364	[redacted]	5377	32	6/5/02	300	955	150
ROOF3	5364	[redacted]	5377	33	6/5/02	300	994	189
ROOF4	5364	[redacted]	5377	34	6/5/02	300	971	166
ROOF5	5364	[redacted]	5377	35	6/5/02	300	680	-125
PCW1	5364	[redacted]	5377	36	6/5/02	300	1165	360
PCW2	5364	[redacted]	5377	37	6/5/02	300	1206	401

VKH

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C52 of 96

98-BLDG MARSSIM BETA SURVEY

RSDS# 02-TF-0835 RCT: VJ RCT: DJH

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2	Corrected for background, see * Final Status Report, Att 2.
PCW3	5364	[redacted]	5377	38	6/5/02	300	1130	325
PCW4	5364	[redacted]	5377	39	6/5/02	300	1192	387
PCW5	5364	[redacted]	5377	40	6/5/02	300	1068	263
PPC1	5364	[redacted]	5377	41	6/5/02	300	1269	464
PPC2	5364	[redacted]	5377	42	6/5/02	300	1204	399
PPC3	5364	[redacted]	5377	43	6/5/02	300	1267	462
PPC4	5364	[redacted]	5377	44	6/5/02	300	1200	395
PPC5	5364	[redacted]	5377	45	6/5/02	300	1187	382
UPC1	5364	[redacted]	5377	46	6/5/02	300	1230	425
UPC2	5364	[redacted]	5377	47	6/5/02	300	1189	384
UPC3	5364	[redacted]	5377	48	6/5/02	300	1241	436
UPC4	5364	[redacted]	5377	49	6/5/02	300	1232	427
UPC5	5364	[redacted]	5377	50	6/5/02	300	1216	411
UPCB1	5364	[redacted]	5377	51	6/5/02	300	1233	428
UPCB2	5364	[redacted]	5377	52	6/5/02	300	1086	281
UPCB3	5364	[redacted]	5377	53	6/5/02	300	1079	274
UPCB4	5364	[redacted]	5377	54	6/5/02	300	1157	352
UPCB5	5364	[redacted]	5377	55	6/5/02	300	1173	368
OSBW1	5364	[redacted]	5377	56	6/5/02	300	1167	362
OSBW2	5364	[redacted]	5377	57	6/5/02	300	1221	416
OSBW3	5364	[redacted]	5377	58	6/5/02	300	1214	409
OSBW4	5364	[redacted]	5377	59	6/5/02	300	1051	246
OSBW5	5364	[redacted]	5377	60	6/5/02	300	1280	475
OSPPC1	5364	[redacted]	5377	61	6/5/02	300	1128	323
OSPPC2	5364	[redacted]	5377	62	6/5/02	300	1245	440
OSPPC3	5364	[redacted]	5377	63	6/5/02	300	1250	445
OSPPC4	5364	[redacted]	5377	64	6/5/02	300	1188	383
OSPPC5	5364	[redacted]	5377	65	6/5/02	300	1174	369
SW1	5364	[redacted]	5377	66	6/5/02	300	1527	722
SW2	5364	[redacted]	5377	67	6/5/02	300	1782	977
SW3	5364	[redacted]	5377	68	6/5/02	300	1284	479
SW4	5364	[redacted]	5377	69	6/5/02	300	1420	615
SW5	5364	[redacted]	5377	70	6/5/02	300	1445	640

VKD

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR105
Batch Ended: 6/6/02 12:41
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-0835 HARVEY(70) BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.06		0.21	1.81	
A2	2	0.00	1.98		2.81	2.40	
A3	3	0.00	2.15		1.67	2.15	
A4	4	0.00	2.02		1.52	2.05	
B1	5	1.56	2.03		0.13	1.77	
B2	6	0.00	2.01		0.29	1.69	
B3	7	0.00	2.11		0.08	1.81	
B4	8	0.00	2.00		0.00	1.16	
C1	9	0.00	2.14		5.50	3.07	
C2	10	1.32	1.86		0.36	1.64	
C3	11	0.00	2.08		0.00	1.25	
C4	12	0.00	1.95		0.00	1.15	
D1	13	0.00	1.95		0.37	1.75	
D2	14	0.00	2.09		0.00	1.21	
D3	15	0.00	2.13		0.00	1.28	
D4	16	0.00	2.09		0.00	1.20	
A1	17	1.45	2.05		0.00	1.28	
A2	18	3.50	2.78		4.90	2.95	
A3	19	0.00	2.13		0.00	1.24	
A4	20	1.47	2.01		0.20	1.67	
B1	21	0.00	2.03		0.29	1.77	
B2	22	1.31	2.00		0.00	1.19	
B3	23	5.75	3.63	←	0.00	1.29	
B4	24	1.45	2.00		0.00	1.17	
C1	25	0.00	2.10		1.76	2.16	
C2	26	0.00	1.84		0.00	1.16	
C3	27	0.00	2.08		0.00	1.25	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR105
Batch Ended: 6/6/02 12:41
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-0835 HARVEY(70) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C4	28	0.00	1.96		0.00	1.60	
D1	29	0.00	1.96		1.60	2.14	
D2	30	0.00	2.09		0.00	1.21	
D3	31	3.74	3.04		2.60	2.56	
D4	32	0.00	2.19		8.70	3.60	←
A1	33	1.44	2.08		2.61	2.56	
A2	34	3.50	2.78		4.90	2.95	
A3	35	0.00	2.15		1.67	2.15	
A4	36	1.47	2.00		0.00	1.18	
B1	37	0.00	2.02		0.00	1.26	
B2	38	0.00	2.04		2.68	2.39	
B3	39	0.00	2.11		0.08	1.81	
B4	40	1.45	2.03		2.35	2.33	
C1	41	1.56	2.12		2.85	2.50	
C2	42	0.00	1.84		0.00	1.16	
C3	43	0.00	2.08		0.00	1.25	
C4	44	0.00	1.99		0.63	2.52	
D1	45	0.00	1.95		0.37	1.75	
D2	46	0.00	2.10		0.37	1.72	
D3	47	1.62	2.13		0.00	1.28	
D4	48	0.00	2.11		1.55	2.07	
A1	49	1.45	2.05		0.00	1.28	
A2	50	0.00	1.98		2.81	2.40	
A3	51	1.68	2.16		2.77	2.48	
A4	52	0.00	2.04		3.88	2.65	
B1	53	0.00	2.04		1.54	2.17	
B2	54	0.00	2.00		0.00	1.19	
B3	55	0.00	2.12		1.37	2.22	
B4	56	3.44	2.82		0.00	1.17	
C1	57	0.00	2.10		1.76	2.16	

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GSS 87
GSS 96

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR105
Batch Ended: 6/6/02 12:41
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-0835 HARVEY(70) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
C2	58	1.32	1.86		0.36	1.64	
C3	59	1.66	2.10		0.52	1.76	
C4	60	5.35	3.38		0.00	1.96	
D1	61	0.00	1.98		2.84	2.48	
D2	62	0.00	2.10		0.37	1[illegible]	
D3	63	0.00	2.13		0.00	1.29	
D4	64	0.00	2.10		0.36	1.69	
A1	65	0.00	2.06		0.21	1.81	
A2	66	1.58	1.96		1.46	2.08	
A3	67	0.00	2.14		0.44	1.75	
A4	68	0.00	2.00		0.00	1.18	
B1	69	0.00	2.06		2.79	2.50	
B2	70	0.00	2.04		2.68	2.39	

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06 Jun 2002 13:37 ALPHA/BETA - 1.09 Page #1
Protocol #: 1 Pw H3 405828 User : 5268

Time: 2.00
Data Mode: DPM Nuclide: SMGLS02 Quench Set: SMGLS02
Background Subtract: 1st Vial

	LL UL	LCR	2SZ	BKG
Region A:	0.5 - 18.6	0	0.0	5.91
Region B:	2.0 - 18.6	0	0.0	5.66
Region C:	40.0 - 2000	0	0.0	10.23

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
02-TF-0835 HARVEY(70) BSB
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT1.DAT
Count Data Filename: c:\data\SDATA1.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	5.91	5.66	0	B	583.03		0.00	10.23
0	2.00	146.82	135.35	0		489.89	317.87	45.02	2.77
1	2.00	3.48	3.40	0		632.42	6.65	8.79	2.27
2	2.00	4.09	4.34	0		661.95	7.61	8.83	5.27
3	2.00	1.09	0.65	0		637.63	2.06	7.69	0.00
4	2.00	0.00	0.00	0		669.09	0.00	0.00	0.00
5	2.00	2.59	2.84	0		612.14	5.02	8.54	0.00
6	2.00	4.09	2.72	0		652.95	7.67	8.89	1.77
7	2.00	0.00	0.00	0		663.31	0.00	0.00	0.00
8	2.00	3.59	3.44	0		669.12	6.65	8.58	1.27
9	2.00	5.09	4.94	0		667.07	9.44	9.18	0.00
10	2.00	2.09	1.97	0		652.31	3.92	8.05	0.89
11	2.00	5.09	4.98	0		643.33	9.62	9.36	0.00
12	2.00	1.62	1.63	0		581.29	3.23	8.32	5.27
13	2.00	0.00	0.00	0		614.57	0.00	0.00	0.00
14	2.00	1.21	0.96	0		586.40	2.39	8.08	0.00
15	2.00	3.09	3.05	0		603.91	6.03	8.83	2.77
16	2.00	1.59	0.58	0		590.30	3.14	8.24	2.27
17	2.00	2.59	2.84	0		635.26	4.92	8.38	0.00
18	2.00	5.09	5.34	0		640.20	9.64	9.38	0.00
19	2.00	0.09	0.34	0		580.79	0.17	7.55	1.27
20	2.00	1.09	1.34	0		566.65	2.19	8.16	0.00
21	2.00	3.03	2.78	0		605.56	5.91	8.79	0.00
22	2.00	2.09	1.47	0		651.34	3.92	8.06	1.27
23	2.00	0.59	0.84	0		658.32	1.10	7.32	0.00
24	2.00	1.09	1.34	0		660.76	2.03	7.54	0.00
→ 25	2.00	5.88	5.86	0		596.47	11.55	10.05	2.27
26	2.00	0.68	0.93	0		641.26	1.29	7.47	0.00
27	2.00	0.00	0.00	0		572.36	0.00	0.00	0.00
28	2.00	2.59	2.84	0		592.92	5.10	8.68	0.00
29	2.00	1.09	1.00	0		636.65	2.07	7.69	2.96
30	2.00	0.13	0.00	0		611.74	0.26	7.38	0.00
31	2.00	0.00	0.00	0		587.02	0.00	0.00	2.26
32	2.00	0.00	0.00	0		372.96	0.00	0.00	10.77
33	2.00	2.08	2.33	0		578.80	4.15	8.55	3.77
34	2.00	3.90	3.83	0		538.36	8.07	9.71	3.27

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GS706 87
CS706 96

S#	TIME	CPMA	CPMB	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	0.00	0.00	0	571.39	0.00	0.00	0.77
36	2.00	1.59	1.34	0	675.66	2.93	7.70	0.00
37	2.00	3.59	3.84	0	661.85	6.68	8.62	0.27
38	2.00	0.09	0.34	0	667.62	0.16	7.03	0.00
39	2.00	0.00	0.00	0	664.40	0.00	0.00	0.00
40	2.00	0.00	0.00	0	645.73	0.00	0.00	1.27
41	2.00	0.00	0.00	0	601.02	0.00	0.00	0.27
42	2.00	2.39	2.84	0	666.19	4.80	8.18	0.00
43	2.00	0.00	0.00	0	672.84	0.00	0.00	1.27
44	2.00	0.00	0.00	0	677.77	0.00	0.00	0.00
45	2.00	2.09	1.67	0	632.47	3.98	8.16	1.77
46	2.00	1.54	1.79	0	665.18	2.86	7.72	0.00
47	2.00	0.00	0.00	0	613.22	0.00	0.00	0.00
48	2.00	0.00	0.00	0	596.30	0.00	0.00	0.00
49	2.00	0.36	0.61	0	624.98	0.69	7.41	0.00
50	2.00	1.59	1.43	0	672.65	2.94	7.71	0.27
51	2.00	4.90	5.15	0	627.28	9.38	9.41	0.00
52	2.00	1.09	0.98	0	644.56	2.05	7.64	0.00
53	2.00	0.00	0.00	0	672.68	0.00	0.00	0.65
54	2.00	1.09	1.34	0	696.22	1.99	7.41	0.00
55	2.00	0.09	0.34	0	658.57	0.16	7.08	0.00
56	2.00	1.09	0.84	0	600.79	2.13	7.92	0.00
57	2.00	0.00	0.00	0	644.74	0.00	0.00	0.00
58	2.00	0.00	0.00	0	559.24	0.00	0.00	0.00
59	2.00	0.09	0.34	0	644.65	0.16	7.16	0.00
60	2.00	1.59	1.34	0	654.74	2.97	7.81	0.77
61	2.00	3.59	3.83	0	608.87	6.97	9.01	0.00
62	2.00	0.00	0.00	0	649.47	0.00	0.00	0.00
63	2.00	0.09	0.00	0	689.54	0.16	6.96	0.00
64	2.00	0.00	0.00	0	567.83	0.00	0.00	2.77
65	2.00	0.08	0.33	0	608.53	0.16	7.37	0.00
66	2.00	2.09	2.10	0	580.32	4.16	8.55	0.27
67	2.00	0.50	0.25	0	663.18	0.94	7.25	0.00
68	2.00	0.00	0.00	0	670.56	0.00	0.00	0.00
69	2.00	1.59	1.84	0	609.76	3.08	8.10	1.27
70	2.00	0.48	0.00	0	622.27	0.93	7.49	0.27

VJ

02-TF-0835

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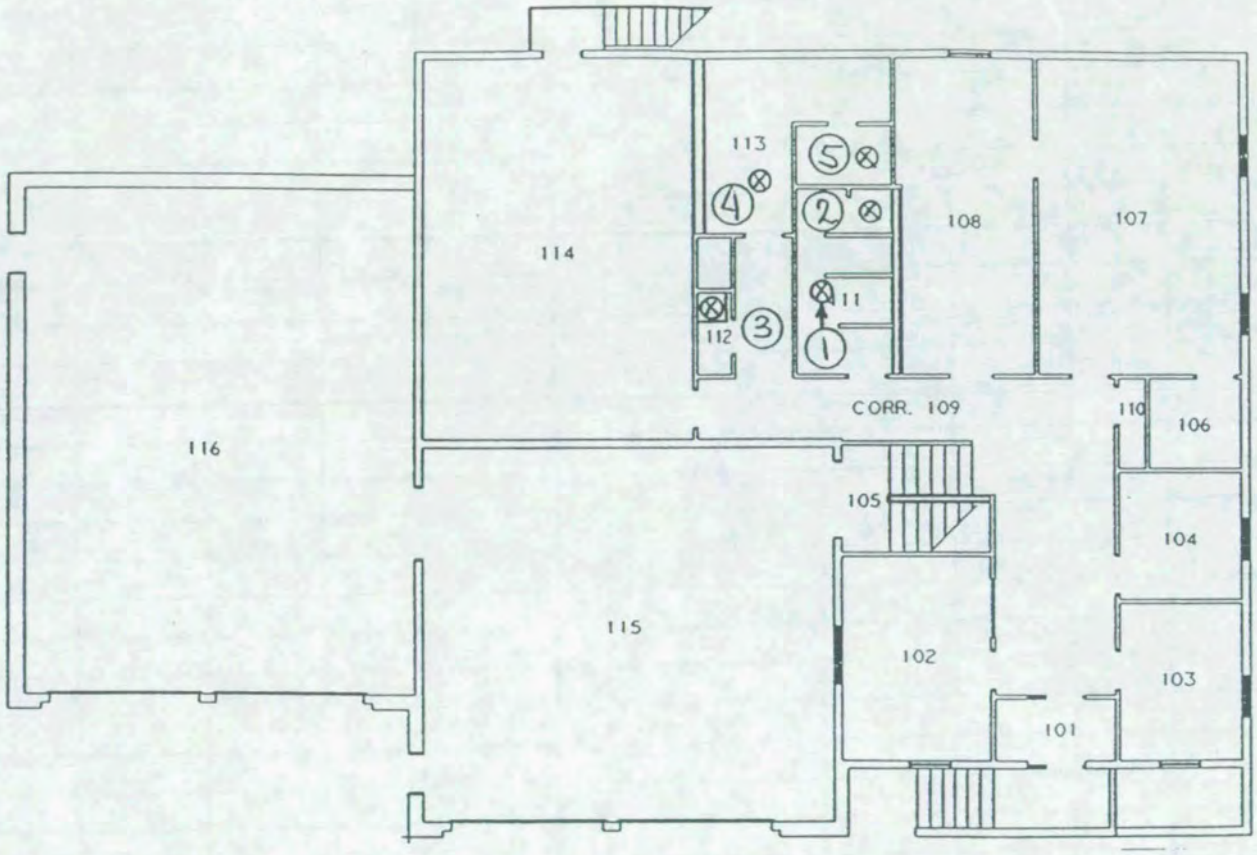
RADIOLOGICAL SURVEY DATA SHEET

Pg. 1 of 5

LOCATION: (BLDG./AREA/ROOM) 98/ 1ST FLOOR	SURVEY NO. 02-TF-0838
PURPOSE: DRAINS FOR MARSSIM SURVEY	RWP NO. N/A
	DATE: 6-6-02
	TIME: 1300

MAP/DRAWING

COPY



*NOTE: SCOPING SURVEY TAKEN IN ACCORDANCE WITH SAMPLE PLAN 98-1

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

Completed by: (Signature) PJ Radley	HP # [redacted]	Date: 6-6-02
Completed by: (Print Name) PJ RADLEY		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RN Coblentz	HP # [redacted]	Date: 6-28-02
Reviewed/Approved by: (Print Name) RN Coblentz		

ML-9620 (2-98)

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C 59 of 96

Survey No.
02-TF-0838

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE	ATTA	CHED	DRAIN - Rm 111
2	↓	↓	↓	↓
3	↓	↓	↓	Rm 112
4	↓	↓	↓	Rm 113
5	↓	↓	↓	↓
			N/A	

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

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)

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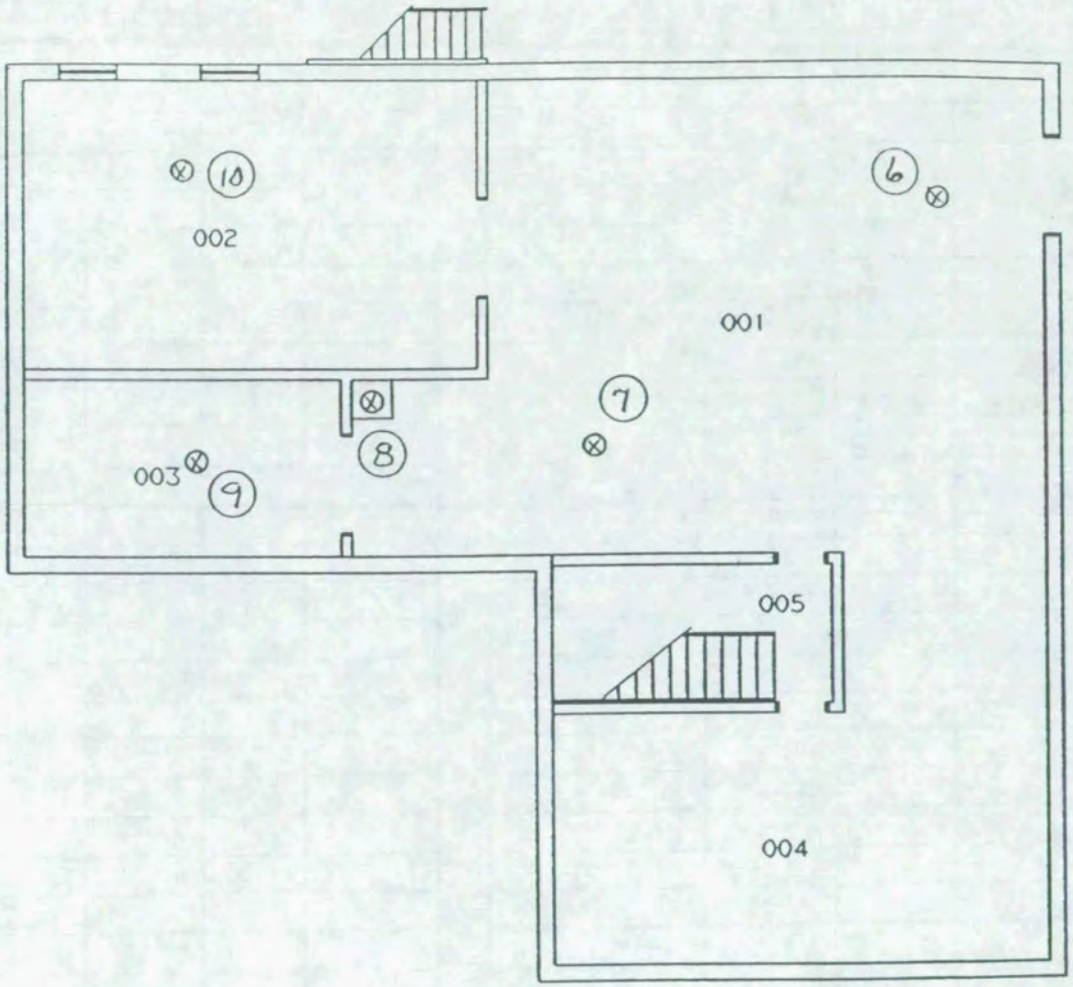
C60 of 96

RADIOLOGICAL SURVEY DATA SHEET

Pg. 3 of 5

LOCATION: (BLDG./AREA/ROOM) 98 / BASEMENT	SURVEY NO. 02-TF-0838
PURPOSE: DRAINS FOR MARSSIM SURVEY	RWP NO. N/A
	DATE: 6-6-02
	TIME: 1300

MAP/DRAWING



LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
= mrem/hr neutron
= air sample number
= swipe number
α/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

Completed by: (Signature) P.B. Radley	HP # [redacted]	Date: 6-6-02
Completed by: (Print Name) P.B. RADLEY		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature)	HP #	Date:
Reviewed/Approved by: (Print Name)		

ML-9620 (2-98)

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C 61 of 96

Survey No. 02-TF-0838

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
6	SEE	ATTA	CHED	DRAIN - Rm 001
7	↓	↓	↓	↓
8	↓	↓	↓	↓
9	↓	↓	↓	Rm-003
10	↓	↓	↓	Rm-002
			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)

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR106
Batch Ended: 6/6/02 13:31
Cal. Due Date: 4/25/03
Serial Number: 26966-3

Batch ID: 02-TF-0838 RADLEY(13) BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.05		0.00	1.28	
A2	2	9.28	4.40		11.64	4.19	
A3	3	0.00	2.13		0.00	1.24	
A4	4	0.00	2.04		3.88	2.65	
B1	5	0.00	2.04		1.54	2.17	
B2	6	0.00	2.01		0.29	1.69	
B3	7	1.59	2.12		1.20	2.22	
B4	8	1.45	2.01		0.03	1.64	
C1	9	0.00	2.14		5.50	3.07	
C2	10	0.00	1.88		2.84	2.32	
C3	11	0.00	2.08		0.00	1.25	
C4	12	0.00	1.95		0.00	1.15	
D1	13	0.00	1.93		0.00	1.24	

PGR PGR

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G63 of 87

CBSBrown

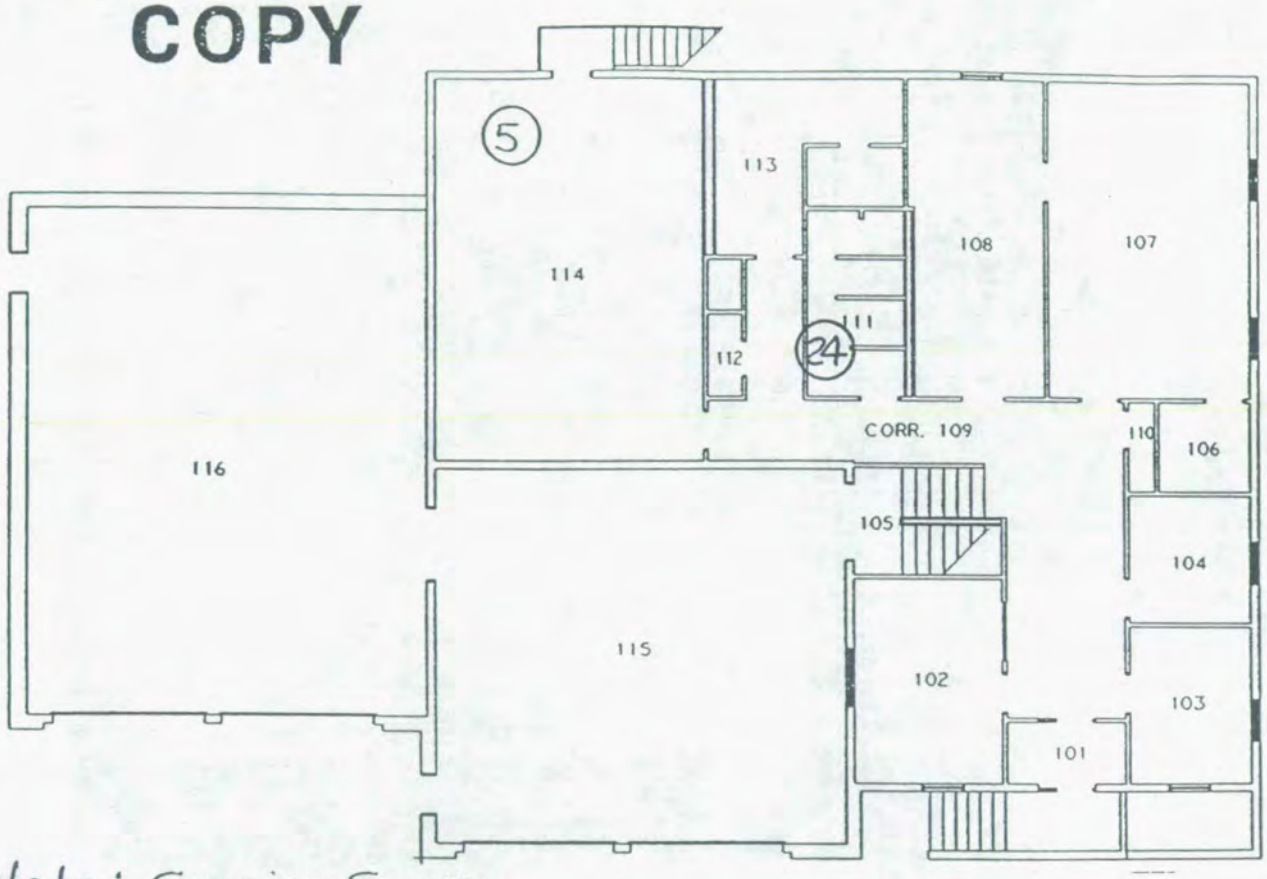
CountLab Results - 02-TF-08.pdf

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 98/ ALL ROOMS	SURVEY NO. 02-TF-0839
PURPOSE: RECOUNT: 5% QC CHECK MARSSIM	RWP NO. NA
	DATE: 060602
	TIME: 1600

MAP/DRAWING

COPY



*Note: Scoping Survey Taken in Accordance with Sample Plan 98-01

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
L2350	5671/5675/5148	092102
ELECTRA	5435/5495	5/8/03
	N	
	A	

Completed by: (Signature) [signature]	HP # [redacted]	Date: 6/6/02
Completed by: (Print Name) FILEPPI / HARVEY		
Counted by: (Signature) See Attached	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature) RNCoblentz	HP # [redacted]	Date: 6-10-02
Reviewed/Approved by: (Print Name) RNCoblentz		

ML-9620 (2-98)

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Survey No. 02-TF-0839

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
5	See Attached			Floor
24				Tile
			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.

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RADIOLOGICAL SURVEY DATA SHEET

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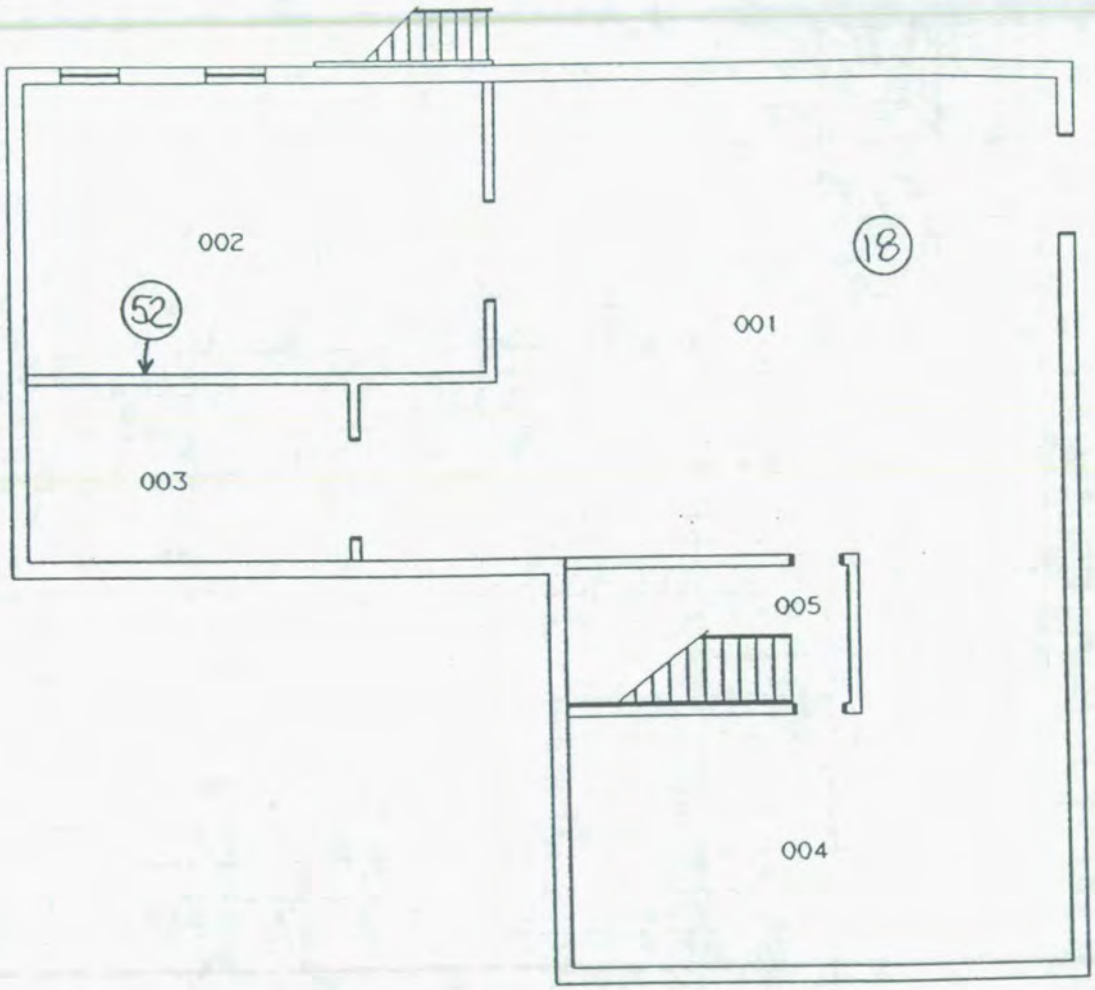
LOCATION: (BLDG./AREA/ROOM) 98/ ALL ROOMS	SURVEY NO. 02-TF-0839
PURPOSE: RECOUNT: 5% QC CHECK MARSSIM	RWP NO. NA
	DATE: 060602
	TIME: 1600

MAP/DRAWING



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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
SEE PAGE 1 of 6		

Completed by: (Signature)	HP #	Date:
Completed by: (Print Name)		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature)	HP #	Date:
Reviewed/Approved by: (Print Name)		

N A

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Survey No. 02-TF-0839

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
18	See			Floor
52		Attached		WALL
			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)

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98-BLDG MARSSIM M-2350 SURVEY RECOUNT

RSDS# 02-TF-0839 RCT: [illegible] RCT: DJH

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	[redacted]	5675	4		6/6/02	5:42	29	300	11	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	5:46	2212	60	4140	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	5:53	2122	60	3971	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	5:55	2188	60	4095	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	5:57	2225	60	4164	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	5:59	2062	60	3859	
SRCCHECK	5671	[redacted]	5675	4		6/6/02	6:00	2172	60	4065	
SRCBKG	5671	[redacted]	5148	3		6/6/02	6:10	1	300	1	
SRCCHECK	5671	[redacted]	5148	3		6/6/02	6:21	1972	60	11290	
SRCCHECK	5671	[redacted]	5148	3		6/6/02	6:23	1887	60	10804	
SRCCHECK	5671	[redacted]	5148	3		6/6/02	6:25	1228	60	7031	
SRCCHECK	5671	[redacted]	5148	3		6/6/02	6:26	1694	60	9699	
SRCCHECK	5671	[redacted]	5148	3		6/6/02	6:29	1958	60	11210	
CARPET-5	5671	[redacted]	5675	4	5	6/6/02	8:08	32	300	12	
CTILE4	5671	[redacted]	5148	3	24	6/6/02	9:00	39	300	45	
UPCB2	5671	[redacted]	5148	3	52	6/6/02	9:25	47	300	54	
CONCRETE-3	5671	[redacted]	5675	4	18	6/6/02	9:35	33	300	12	

98-BLDG MARSSIM BETA SURVEY RECOUNT

RSDS# 02-TF-0839 RCT: [illegible] RCT: [illegible]

LOCATION	electra	RCT ID	PROBE	ITEM #	DATE	CT TIME	dpm/100cm2
CARPET-5	5364	[redacted]	5377	5	6/6/02	300	1140
CTILE4	5364	[redacted]	5377	24	6/6/02	300	1826
UPCB2	5364	[redacted]	5377	52	6/6/02	300	1073
CONCRETE-3	5364	[redacted]	5377	18	6/6/02	300	1293

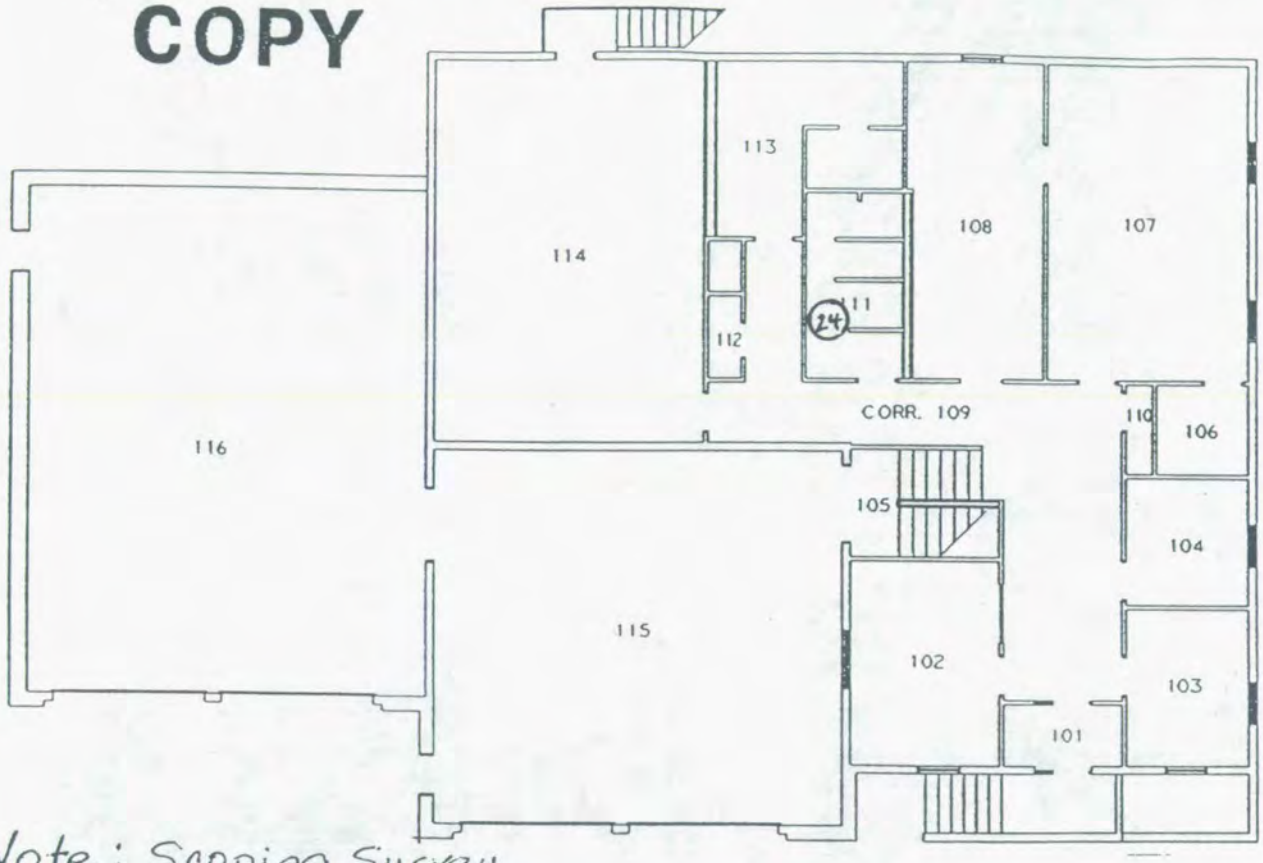
BETA BKD = 819 DPM

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 98	SURVEY NO. 02-TF-1081
PURPOSE: FOLLOW-UP QC CHECK	RWP NO. N/A
	DATE: 6-12-02
	TIME: 1300

MAP/DRAWING

COPY



*Note: Scoping Survey Taken In Accordance With Sample Plan 98-01

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5671/5148	9-21-02
	N/A	

Completed by: (Signature)	HP # [redacted]	Date: 6-25-02
Completed by: (Print Name) PAT RADLEY / DAN HARVEY		
Counted by: (Signature) SEE ATTACHED	HP #	Date:
Counted by: (Print Name)		
Reviewed/Approved by: (Signature)	HP # [redacted]	Date: 6-27-02
Reviewed/Approved by: (Print Name) RNCoblentz		

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Survey No. 02-TF-1081

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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	Comments

N/A

COMMENTS:

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.

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RADIOLOGICAL SURVEY DATA SHEET

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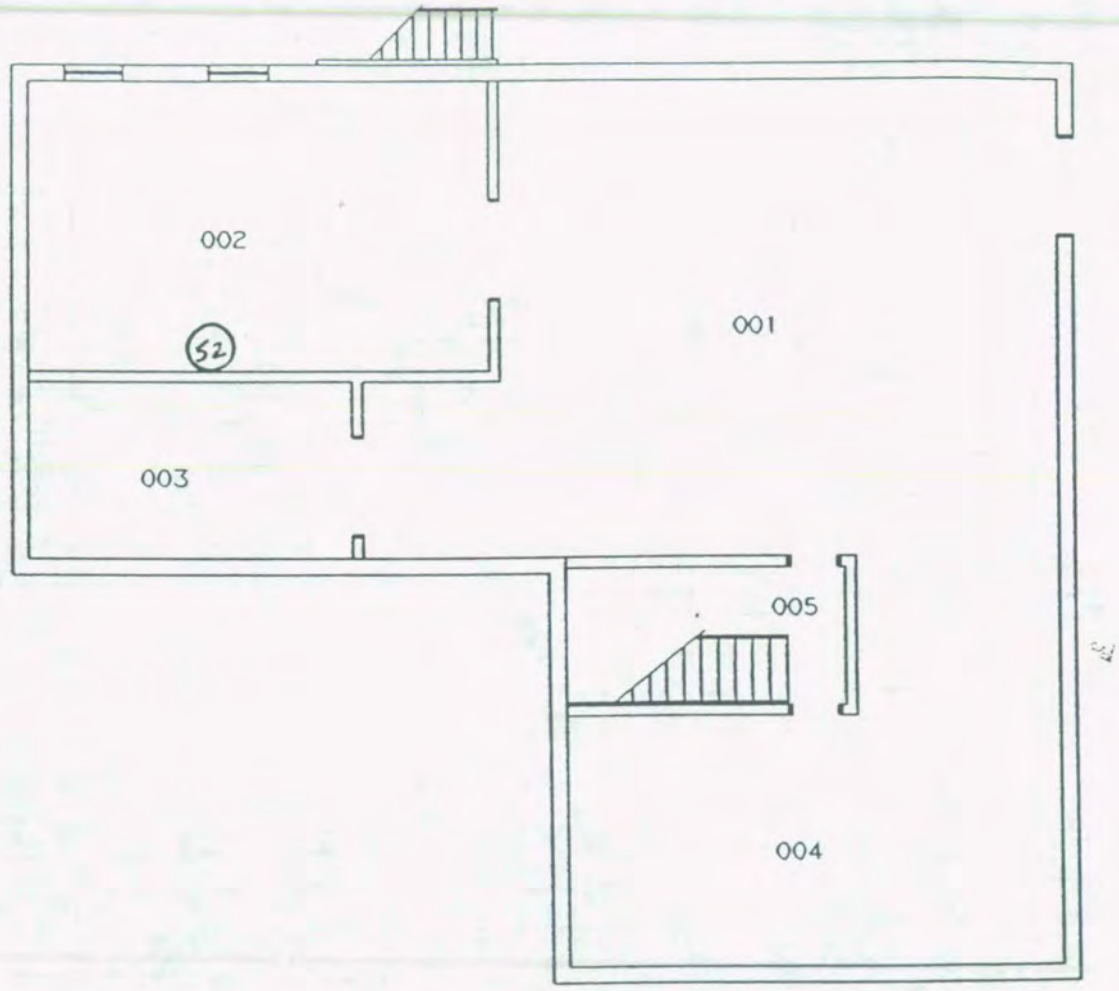
LOCATION: (BLDG./AREA/ROOM) BUILDING 98	SURVEY NO. 02-TF-1081
PURPOSE: FOLLOW-UP QC CHECK	RWP NO. N/A
	DATE: 6-12-02
	TIME: 1300

MAP/DRAWING



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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	SEE	
	PAGE 1	

Completed by: (Signature)	HP #	Date:
Completed by: (Print Name)		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) PAGE 1		
Reviewed/Approved by: (Signature)	HP #	Date:
Reviewed/Approved by: (Print Name)		

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"100"

Survey No. 02-TF-1081

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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	Comments

N/A

COMMENTS:

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.

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98-BLDG FOLLOW-UP QC CHECK

RSDS#02-TF-1081 RCT:_____ RCT: [illegible]

43-20 BKG:	0	EFF:	0.193	PROBE AREA:	181	cm2	Surface Eff:		0.5	Detector # :	3
43-37 BKG:	0	EFF:	0.183	PROBE AREA:	584	cm2	Surface Eff:		0.5	Detector # :	
LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
SRCBKG	5671	[redacted]	5148	3	0	6/12/02	10:47	2	300	2	
SRCCHECK	5671	[redacted]	5148	3	1	6/12/02	11:10	1918	60	10981	
SRCCHECK	5671	[redacted]	5148	3	2	6/12/02	11:11	1893	60	10838	
SRCCHECK	5671	[redacted]	5148	3	3	6/12/02	11:13	1868	60	10695	
SRCCHECK	5671	[redacted]	5148	3	4	6/12/02	11:14	2017	60	11548	
CTILE4	5671	[redacted]	5148	3	24	6/12/02	12:49	94	300	108 *	
UPCB2	5671	[redacted]	5148	3	52	6/12/02	13:00	20	300	23	

*REFER TO RSDS # 02-TF-0835 for isotopic analysis results

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SURVEY PLAN FORM

SP NUMBER	98-2	DATE OF REQUEST	June 25, 2002
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 98		
PURPOSE	Obtain sediment samples from sumps and drains		
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See page 2 for specific instructions

☐ CORE SAMPLE:

☐ WATER SAMPLE:

☐ Loose Surface Contamination:

☐ OTHER:

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
OTHER SURVEY TYPES OR COMMENTS	Obtain assistance from the responsible building custodian for access to floor drain traps, sumps, etc NOTE: Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Continuation Sheet.				

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C75 of 96

SP NUMBER	98-2	DATE OF REQUEST	June 25, 2002

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Sediment Sampling

1. Obtain a sample of sediment material from each of the following locations:

   Room 002 – Building Sump bottom sediment sample (250 ml).

   Room 115 – Floor Bay Drain – Collect approximately 250 ml of sediment from the floor drain at one foot from each end and at the mid point of the drain trough. Composite the three samples in an approved clean container and mix thoroughly. Collect two (2) 250 ml samples of the composited material. Label one of the samples as QC.

   Room 116 - Floor Bay Drain – Collect approximately 250 ml of sediment from the floor drain at one foot from each end and at the mid point of the drain trough. Composite the three samples in an approved clean container and mix thoroughly. Collect two (2) 250 ml samples of the composited material. Label one of the samples as QC.

   Room 116 – Oil Separator Sump – Sump bottom sediment sample (250).

   Place sampled material in an EPA dish and label sample container with the sample number, date, time, and location in accordance with Mound procedures.

2. Document sample date, time, sample net weight, and description of material (e.g. sludge, debris, etc.), and location on Attachment 2.
3. Show sample location on the RSDS map.
4. Submit samples for gamma spectroscopy analysis. Additional isotopic analysis may be required depending on initial gamma spec results.

APPROVAL SIGNATURES			
MARISSM Engineer	Roderick Case	DATE	June 25, 2002
Concurrence	Galen Tomlinson	DATE	June 25, 2002
Rad Con Manager	Steve Collas	DATE	June 25, 2002
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. Case	DATE	7-16-02
QA/QC Review	K. Doody	DATE	7/16/02
Rad Con Manager	AS Collas	DATE	7/16/02

COMMENTS

Sample Data Collection Sheet

Attachment 1

Note: Attach to SPF when complete.

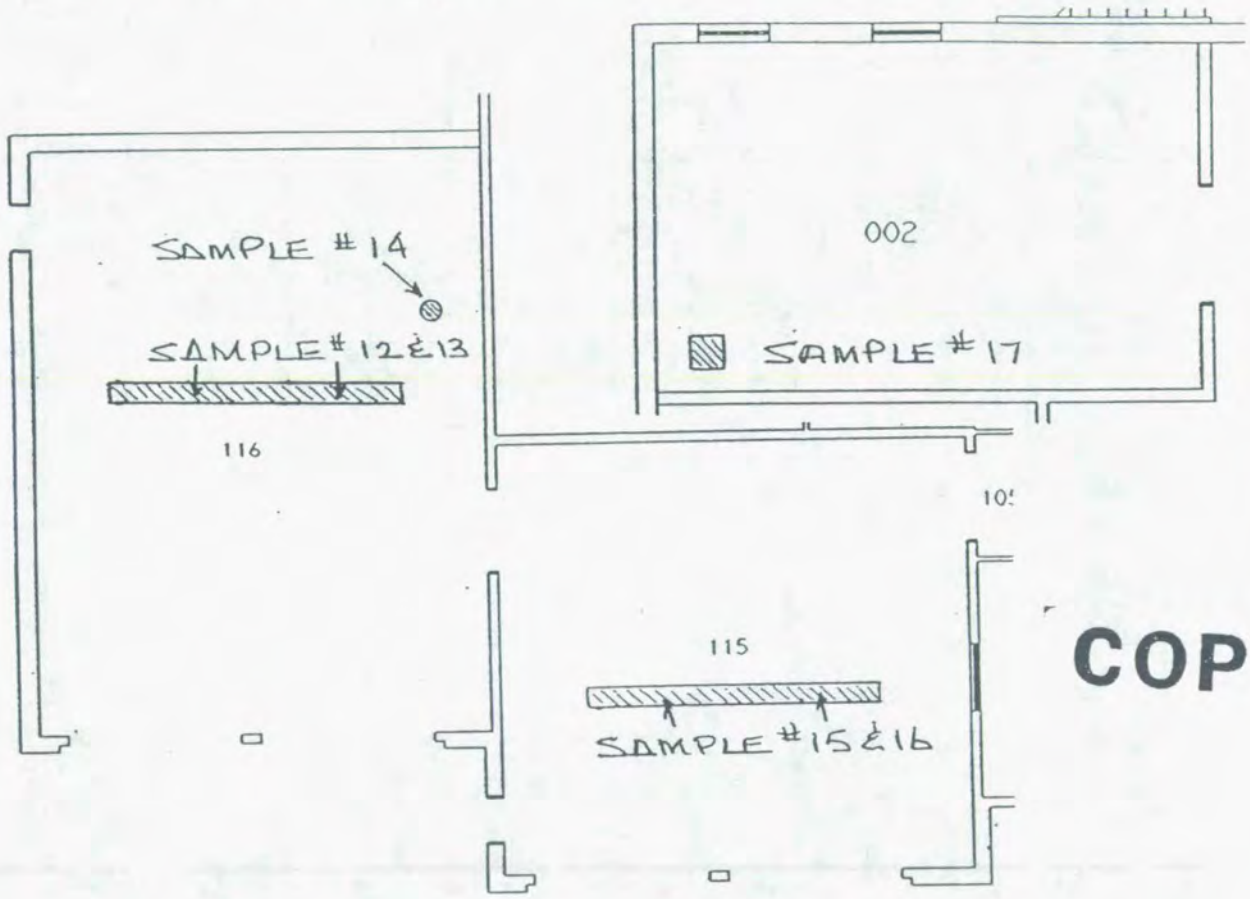
Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description/Location	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									

96 2CLL
87 2CLG

LOCATION: (BLDG./AREA/ROOM) 98 / HIGH BAYS / BASEMENT	SURVEY NO. 02-TF-1139
PURPOSE: COLLECT SEDIMENT SAMPLES	RWP NO. N/A
	DATE: 6-28-02
	TIME: 10:30

MAP/DRAWING

COLLECTION OF SEDIMENT SAMPLES OF HIGH BAY TROUGHS & BASEMENT SUMP (6 ea SAMPLES TOTAL, #12 THRU 17)



COPY

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/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N/A	

Completed by: (Signature) PGRadley	HP# [redacted]	Date: 6-28-02
Completed by: (Print Name) PG RADLEY		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RNCoblentz	HP# [redacted]	Date: 7-11-02
Reviewed/Approved by: (Print Name) RNCoblentz		

ML-9620 (2-98)

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13989
File ID: MG101595.s0
Priority: Yes

Description\Location
98-02-116-SED-12

Collector: 7868
Date Received: 7/1/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.03	0.04	45,000
Cs-137	*	0	0.06	45,000
Pb-210		1.69	0.6	45,000
Ra-226		0.61	0.61	800
Ac-227 (D)	*	0.16	0.17	40
Th-230	*	3.73	3.99	800
Th-232 (D)	*	0.17	0.18	130
Pu-238	*	2.81	10.55	500
Am-241	*	0.01	0.06	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.03

$\Sigma_{Respirator}$ <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

Σ_{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:

Date: 7/2/02 Counted By: 6152 Analyzed By: 6152 Initials SEH

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13990
File ID: MG101596.s0
Priority: Yes

Description\Location
98-02-116-SED-13

Collector: 7868
Date Received: 7/1/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.08	45,000
Cs-137	*	0	0.07	45,000
Pb-210		1.61	0.6	45,000
Ra-226	*	0.35	0.75	800
Ac-227 (D)	*	0	0.28	40
Th-230	*	1.19	5.49	800
Th-232 (D)		0.23	0.23	130
Pu-238	*	0	14.56	500
Am-241	*	0	0.07	500

Other Nuclides

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

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

Instrument type: High Purity Germanium

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

Σ_{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:

Date: 7/2/02 Counted By: 6152 Analyzed By: 6152 Initials SEH

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13991
File ID: MG101597.s0
Priority: Yes

Description\Location
98-02-116-SED-14

Collector: 7868
Date Received: 7/1/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.01	0.07	45,000
Cs-137	*	0	0.08	45,000
Pb-210		2.65	0.78	45,000
Ra-226		1.39	0.68	800
Ac-227 (D)	*	0.12	0.22	40
Th-230	*	0	7.25	800
Th-232 (D)		0.21	0.36	130
Pu-238	*	1.71	13.94	500
Am-241	*	0	0.07	500

Other Nuclides

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

Σ_{DOT} 0.03 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

Instrument type: High Purity Germanium

Σ_{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:

Date: 7/2/02 Counted By: 6152 Analyzed By: 6152 Initials

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13992
File ID: MG400355.s0
Priority: Yes

Description\Location
98-02-115-SED-15

Collector:
Date Received: 7/2/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.03	45,000
Cs-137	*	0	0.03	45,000
Pb-210		1.9	0.44	45,000
Ra-226		0.92	0.44	800
Ac-227 (D)	*	0.08	0.15	40
Th-230	*	1.99	4.28	800
Th-232 (D)		0.25	0.07	130
Pu-238	*	12.03	31.79	500
Am-241	*	0.01	0.05	500

Other Nuclides

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

Σ_{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

Σ_{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:

Date: 7/8/02 Counted By: 6152 Analyzed By: 6152 Initials SEK

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13993
File ID: MG500116.s0
Priority: Yes

Description\Location
98-02-115-SED-16

Collector:
Date Received: 7/1/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.03	45,000
Cs-137	*	0.02	0.03	45,000
Pb-210		1.32	0.68	45,000
Ra-226	*	0.23	0.61	800
Ac-227 (D)	*	0	0.18	40
Th-230	*	0	5.4	800
Th-232 (D)		0.18	0.1	130
Pu-238	*	0	20.24	500
Am-241	*	0.01	0.06	500

Other Nuclides

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

Σ_{DOT} 0.03 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

Σ_{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:

Date: 7/8/02 Counted By: 6152 Analyzed By: 6152 Initials SEK

SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML13994
File ID: MG101608.s0
Priority: Yes

Description\Location
98-02-002-SED-17

Collector:
Date Received: 7/1/02
Date Collected: 6/28/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0.04	0.09	45,000
Cs-137	*	0.01	0.06	45,000
Pb-210	*	0.21	0.87	45,000
Ra-226	*	0.62	0.79	800
Ac-227 (D)	*	0.03	0.33	40
Th-230	*	0.47	4.58	800
Th-232 (D)	*	0	0.43	130
Pu-238	*	8.79	14.94	500
Am-241	*	0	0.06	500

Other Nuclides

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

Σ_{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

Σ_{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:

Date: 7/8/02 Counted By: 6152 Analyzed By: 6152 Initials SEK

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TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 98		
PURPOSE	Obtain sediment samples from sumps and drains		
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A
SURVEY UNIT #	N/A	GRID #	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See page 2 for specific instructions

☐ CORE SAMPLE:

☐ WATER SAMPLE:

☐ *Loose Surface Contamination:*

☐ OTHER:

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
SURFACE SCAN	☐ BETA ☐ GAMMA ☐ ALPHA	INST TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
OTHER SURVEY TYPES OR COMMENTS	Obtain assistance from the responsible building custodian for access to floor drain traps, sumps, etc NOTE: Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Survey Plan Continuation Sheet.				

G850 87
C850 96

02-TF-1139

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Sediment Sampling

1. Obtain a sample of sediment material from each of the following locations:

   Room 002 – Building Sump bottom sediment sample (250 ml).

   Room 115 – Floor Bay Drain – Collect approximately 250 ml of sediment from the floor drain at one foot from each end and at the mid point of the drain trough. Composite the three samples in an approved clean container and mix thoroughly. Collect two (2) 250 ml samples of the composited material. Label one of the samples as QC.

   Room 116 - Floor Bay Drain – Collect approximately 250 ml of sediment from the floor drain at one foot from each end and at the mid point of the drain trough. Composite the three samples in an approved clean container and mix thoroughly. Collect two (2) 250 ml samples of the composited material. Label one of the samples as QC.

   Room 116 – Oil Separator Sump – Sump bottom sediment sample (250).

   Place sampled material in an EPA dish and label sample container with the sample number, date, time, and location in accordance with Mound procedures.

2. Document sample date, time, sample net weight, and description of material (e.g. sludge, debris, etc.), and location on Attachment 2.
3. Show sample location on the RSDS map.
4. Submit samples for gamma spectroscopy analysis. Additional isotopic analysis may be required depending on initial gamma spec results.

APPROVAL SIGNATURES			
MARSSM Engineer	Roderick Case	DATE	June 25, 2002
Concurrence	Galen Tomlinson	DATE	June 25, 2002
Rad Con Manager	Steve Collas	DATE	June 25, 2002

SP CLOSE OUT SIGNATURES			
MARSSM Engineer		DATE	
QA/QC Review		DATE	
Rad Con Manager		DATE	

COMMENTS

Sample Data Collection Sheet

Attachment 1

Note: Attach to SPF when complete.

02-TF-1139

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Sample Number	Sample Date	Sample Time	Sample Volume /Weight	Sample Description/Location	Sampled By	Chain of Custody Relinquished to Lab			
						Date	Time	Initials	Rec'd By
98-02-116-SED-12	6/28/02	0845	683g	SEDIMENT-FLOOR TROUGH	[redacted]	7-1-02	1000	PGR	SEH
98-02-116-SED-13	6/28/02	0845	739g	SEDIMENT-FLOOR TROUGH (QC)	[redacted]	7-1-02	1000	PGR	SEH
98-02-116-SED-14	6/28/02	0900	660g	SEDIMENT-OIL SEPARATOR	[redacted]	7-1-02	1000	PGR	SEH
98-02-115-SED-15	6/28/02	0945	773g	SEDIMENT-FLOOR TROUGH	[redacted]	7-1-02	1000	PGR	SEH
98-02-115-SED-16	6/28/02	0945	785g	SEDIMENT-FLOOR TROUGH (QC)	[redacted]	7-1-02	1000	PGR	SEH
98-02-002-SED-17	6/28/02	1025	395g	SEDIMENT-SUMP	[redacted]	7-1-02	1000	PGR	SEH
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									
98-02-									

RSDSs After Demolition

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 98/ 0/5	SURVEY NO. 02-TF-1458
PURPOSE: DEBRIS PILE CHARACTERIZATION	RWP NO. N/A
	DATE: 8/28/02
	TIME: 1300

MAP/DRAWING

NOTE: SMEARS (1)-(60) TAKEN AT RANDOM AROUND PERIMETER OF DEBRIS PILE.

INTEGRATED COUNT PERFORMED IF α AUDIBLE IS DETECTED.

ALL DIRECT READINGS INDICATE: $\frac{<100}{\alpha}$ $\frac{<5K}{\beta}$

COPY

LEGEND: # = mrem/hr (γ) whole body
[illegible] = [illegible] (β+γ) Efficiency on Contact
△# = mrem/hr neutron
[#] = air sample number
(#) = swipe number
(#/α) or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
ELECTRA	5607/5608	5-9-03
BICRON	3815/3846	1-7-03

Completed by: (Signature) PJKadley / Daily Harvey	HP [redacted]	Date: 8/28/02
Completed by: (Print Name) PJ KADLEY / DJ HARVEY		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) RMCoblentz	HP # [redacted]	Date: 9-5-02
Reviewed/Approved by: (Print Name) RMCoblentz		

ML-9620 (2-98)

Survey No. 02-TF-1458

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
36	SEE	ATTACHED		DEBRIS PILE
37	↓	↓	↓	↓
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60	↓	↓	↓	↓
		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)

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200208281613	Count Date:	8/28/2002
Group:	J	Count Minutes:	1.5
Serial Number:	78218-1	Count Mode:	Simultaneous
Batch ID:	02-TF-1458 RADLEY(60) BSB	Operating Volts:	1410
Selected Geometry:	Swipe/Smear	Cal Due Date:	6/19/2004

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	40	0.00	0.00	1.37	1.45
2	87	0.00	0.00	1.37	1.45
3	68	2.19	1.92	0.00	0.16
4	19	0.00	0.00	0.00	0.00
5	100	0.00	0.00	1.37	1.45
6	96	2.19	1.92	1.21	1.45
7	19	0.00	0.00	4.11	2.50
8	93	2.19	1.92	1.21	1.45
9	6	0.00	0.00	1.37	1.45
10	2	0.00	0.00	1.37	1.45
11	80	0.00	0.00	2.74	2.04
12	32	0.00	0.00	2.74	2.04
13	86	0.00	0.00	1.37	1.45
14	34	0.00	0.00	2.74	2.04
15	3	0.00	0.00	2.74	2.04
16	29	0.00	0.00	1.37	1.45
17	56	0.00	0.00	2.74	2.04
18	18	2.19	1.92	1.21	1.45
19	85	0.00	0.00	2.74	2.04
20	79	0.00	0.00	0.00	0.00
21	8	0.00	0.00	1.37	1.45
22	52	0.00	0.00	1.37	1.45
23	38	0.00	0.00	2.74	2.04
24	24	0.00	0.00	4.11	2.50
25	4	2.18	1.92	2.58	2.05
26	39	0.00	0.00	2.74	2.04
27	92	0.00	0.00	0.00	0.00
28	84	0.00	0.00	0.00	0.00
29	45	0.00	0.00	0.00	0.00
30	83	2.19	1.92	0.00	0.16
31	52	0.00	0.00	2.74	2.04
32	69	0.00	0.00	5.48	2.89
33	17	0.00	0.00	2.74	2.04
34	61	0.00	0.00	4.11	2.50
35	21	0.00	0.00	0.00	0.00
36	64	0.00	0.00	2.74	2.04
37	41	0.00	0.00	5.48	2.89

PGR Page 1 of 2 PGR PGR

RSBrown

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Alpha/Beta Analysis

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
38	4	0.00	0.00	5.48	2.89
39	78	0.00	0.00	0.00	0.00
40	3	0.00	0.00	0.00	0.00
41	63	0.00	0.00	0.00	0.00
42	43	0.00	0.00	1.37	1.45
43	15	0.00	0.00	1.37	1.45
44	9	0.00	0.00	1.37	1.45
45	64	0.00	0.00	2.74	2.04
46	28	0.00	0.00	2.74	2.04
47	34	0.00	0.00	0.00	0.00
48	50	0.00	0.00	1.37	1.45
49	13	0.00	0.00	1.37	1.45
50	38	0.00	0.00	2.74	2.04
51	88	2.18	1.92	2.58	2.05
52	30	0.00	0.00	1.37	1.45
53	22	0.00	0.00	1.37	1.45
54	85	0.00	0.00	6.85	3.23
55	49	0.00	0.00	0.00	0.00
56	65	0.00	0.00	5.48	2.89
57	58	0.00	0.00	0.00	0.00
58	47	2.19	1.92	1.21	1.45
59	53	0.00	0.00	2.74	2.04
60	71	0.00	0.00	1.37	1.45

PGR PGR

Batch ID: 02-TF-1458 RADLEY(60) BSB

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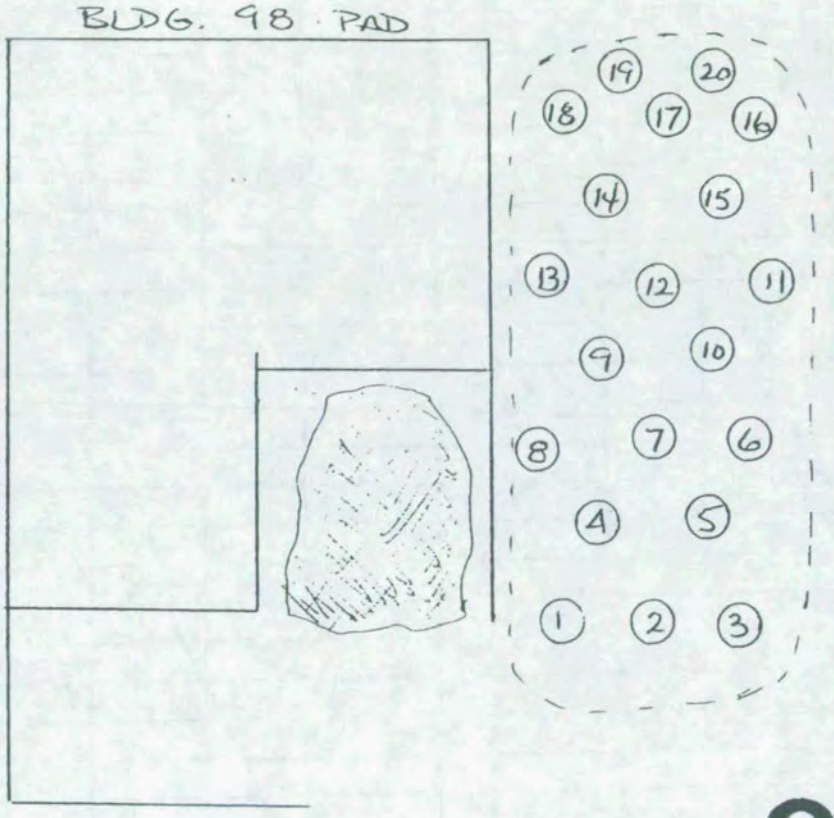
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 98 / O/S PARKING LOT	SURVEY NO. 02-TF-1469
PURPOSE: CONFIRMATION	RWP NO. N/A
	DATE: 9-12-02
	TIME: 10:00

MAP/DRAWING

NOTE: DIRECT READINGS AT SMEAR LOCATIONS INDICATE: <100 / α <5K / β



COPY

LEGEND: # = mrem/hr (γ) whole body

= mrem/hr neutron

= swipe number

= air sample number

#/α or/β = direct cont. measurement in dpm/100cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
ELECTRA	5607/5608	5-9-02
	N	
	A	

ML-9620 (2-98)

Completed by: (Signature) PGRadley	HP # [redacted]	Date: 9-12-02
Completed by: (Print Name) PG RADLEY		
Counted by: (Signature) SEE	HP #	Date:
Counted by: (Print Name) ATTACHED		
Reviewed/Approved by: (Signature) Dan Harvey	HP # [redacted]	Date: 9-12-02
Reviewed/Approved by: (Print Name) DANIEL J. HARVEY		

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RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200209120932	Count Date:	9/12/2002
Group:	D	Count Minutes:	1.5
Serial Number:	78218-1	Count Mode:	Simultaneous
Batch ID:	02-TF-1469 RADLEY(20) BSB	Operating Volts:	1410
Selected Geometry:	Swipe/Smear	Cal Due Dates:	6/19/2004

Efficiency (%)				Spillover (%)			
Alpha:	34.73	±	0.13	Alpha to Beta:	11.39	±	0.00
Beta:	46.13	±	0.13	Beta to Alpha:	0.07	±	0.00

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	53	8.74	3.84	8.97	3.84
2	12	0.00	0.00	0.00	0.00
3	22	0.00	0.00	1.37	1.45
4	48	2.18	1.92	8.06	3.54
5	40	0.00	0.00	4.11	2.50
6	60	0.00	0.00	4.11	2.50
7	31	0.00	0.00	1.37	1.45
8	91	0.00	0.00	5.48	2.89
9	65	0.00	0.00	4.11	2.50
10	52	0.00	0.00	4.11	2.50
11	69	0.00	0.00	1.37	1.45
12	17	0.00	0.00	5.48	2.89
13	61	0.00	0.00	4.11	2.50
14	21	0.00	0.00	2.74	2.04
15	64	6.55	3.33	5.01	2.90
16	4	0.00	0.00	1.37	1.45
17	78	0.00	0.00	2.74	2.04
18	8	0.00	0.00	1.37	1.45
19	44	6.55	3.33	5.01	2.90
20	97	0.00	0.00	9.59	3.82

✓PBR ✓PBR

B A Brown

Batch ID: 02-TF-1469 RADLEY(20) BSB

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SOIL ANALYSIS REPORT

Field Sample ID:
Lab Sample ID: ML14779
File ID: MG500246.S0
Priority: Yes

Description\Location
Bldg #98 Composit #1

Collector: 7868
Date Received: 8/27/02
Date Collected: 8/27/02

Radionuclide		Activity (pCi/g)	MDA	MD-10438 Limit (pCi/g)
Co-60	*	0	0.01	45,000
Cs-137	*	0.01	0.02	45,000
Pb-210		0.53	0.37	45,000
Ra-226		1.06	0.3	800
Ac-227 (D)	*	0	0.16	40
Th-230	*	0	3.19	800
Th-232 (D)		0.37	0.05	130
Pu-238	*	0	9.72	500
Am-241	*	0	0.03	500

Other Nuclides

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

Σ_{DOT} 0.02 nCi/g $\Sigma_{Respirator}$ 0.03

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

Σ_{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

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Comments:

02-TF-1469

Date: 8/28/02 Counted By: 5801 Analyzed By: 5801 Initials

C96-096