3004-060425001 2

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

CH2MHILL

ER/WM-126/04
October 27, 2004

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

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
Statement of Work Requirement 055 - Regulator Reports
BUILDING 72, BUILDING DATA PACKAGE, PUBLIC REVIEW DRAFT

Dear Ms. Marks:

Paul Lucas of your office has authorized the release of the following document for concurrent regulator and public review:

- Building 72, Building Data Package, Public Review Draft, October 2004

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

Sincerely,

David A. Rakel

David A. Rakel
CERCLA Lead

DAR/ms

Enclosures

cc: Tim Fischer, USEPA, (1) w/attachments
Brian Nickel, OEPA, (4) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Mary Wojciechowski, Tetra Tech, (1) w/attach
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, MCP, w/o attachments
Randy Tormey, DOE/OH, (1) w/attachments
Frank Bullock, MMCIC, (3) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) w/attachments
Chris Watson, CH2M Hill, (1) w/attachs
ER Records, CH2M Hill, (1) w/attachs
DCC (1) w/attachments
John Lehew, CH2M Hill, w/o attachments
Dave Rakel, CH2M Hill, w/o attachments
Val Darnell, CH2M Hill, w/o attachments
Bo Wier, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, w/o attachments
file

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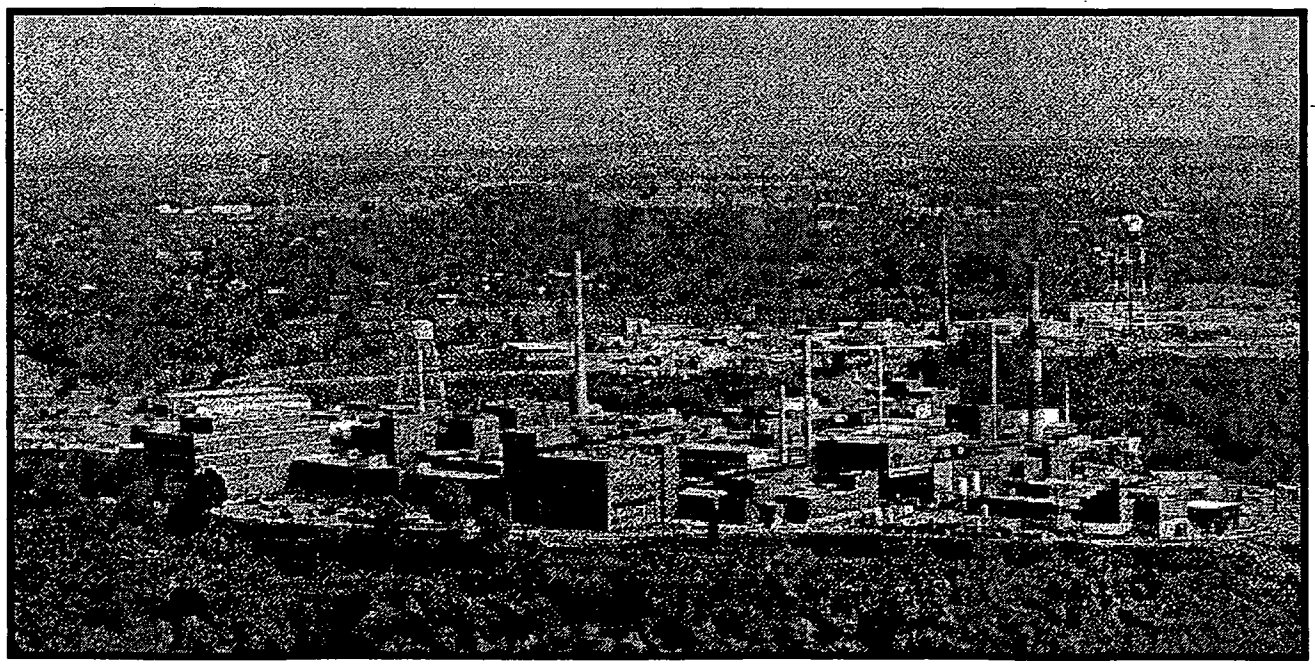
Environmental
Restoration
Program

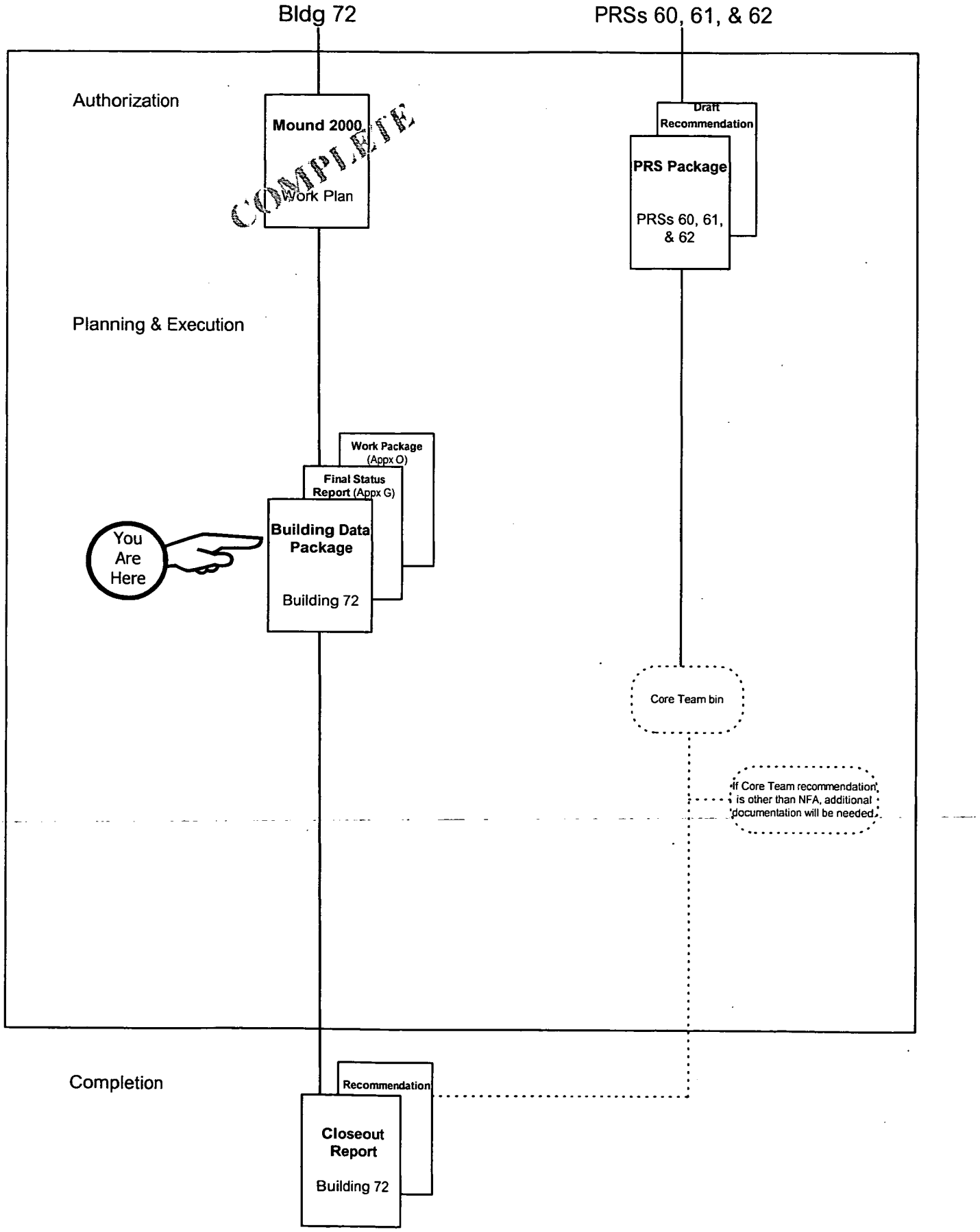
Miamisburg Closure Project
Building Data Package

Building 72
(Demolition)

Public Review Draft
October 2004



Building 72 and PRSs 60, 61, & 62



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MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available (October 29, 2004) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Building 72:
Hazardous Waste Storage Facility

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

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

BDP Building 72

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**October 2004**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	Public review will be October 29, 2004 through November 28, 2004.	**October 2004**
FINAL		

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 72 (Hazardous Waste Storage Facility) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration (ER) of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 72 located at the Department of Energy (DOE) Miamisburg Closure Project (MCP) in Miamisburg, Ohio. The investigation performed to support this BDP models procedures found in *ASTM Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process* (Designation E 1527-00).

The scope of the investigation included Building 72, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 72 included the following:

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

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

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- Operable Unit 9 (OU-9) Site Scoping Report, Volumes 1-12

- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Building Prints
- Potential Release Site (PRS) information
- MD-22153, Mound Site Radionuclides By Location, June 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

2.0 BUILDING 72 OVERVIEW

Building 72 is situated in the southwest portion of the site (Appendix C, Figure 1) and is located adjacent to the current western boundary fence of the plant site. The building footprint occupies approximately 2,400 square feet of floor space (floor plan provided in Appendix D).

The original structure, designated as Building 72, was constructed in 1981. The original structure was located near Building 87, approximately six-hundred feet southeast of where the current structure is sited. The original structure was built as a hazardous waste storage facility, and was operated in this capacity for approximately two and one-half years. It was soon determined that the original structure would not meet new Resource Conservation and Recovery Act (RCRA) regulations and that a new facility was needed.

The present Building 72 structure, designated as PRS 60, was constructed as a hazardous waste storage facility in 1984 using part of the framing from the original "Building 72" structure. The building is a 40-foot (ft) x 60-ft pre-engineered building constructed over an 8-inch (in.) thick concrete slab. The concrete slab was developed from a series of crack-free, monolithic pours to form three 20-ft x 40-ft diked bay areas. The concrete base of each bay is sloped to a catch basin (sump) located in the center of each bay area to collect any container leaks or spills. There is no piping or drains associated with the bays or catch basins, thus neither drains to the outside of the building. Portable drum pumps are used to remove any wastes collected in these sumps. The concrete walls of the 24 in. x 24 in. x 32 in. deep catch basins are 4.5 in. thick and the floor of the catch basin is 3 in. thick with a 3-in. concrete fill slab that was poured after the catch basin was placed. A fourth (5 ft X 16 ft) diked bay for explosive materials was placed inside the west edge of the west bay. It has a separate catch basin (constructed in a manner similar to the three others) in its lowest

corner. Additionally, masonry block walls, that serve as an explosion barrier, are built on the dikes surrounding this bay. The base and curbs were constructed from Type I Portland cement reinforced with 6 x 6, W4 x W4 welded wire mat pea gravel and a plastic membrane liner were placed below the concrete floor. Building foundations consist of 4 ft x 4 ft x 12 in. thick footings reinforced with #5 rebar. The footings are tied to vertical 12-in. x 12-in. column piers with #6 rebar, and the piers are reinforced with rebar cage consisting of #6 and #3 reinforcing bars. The column piers were not developed as part of the monolithic slab and are isolated from the slab with 0.5 in. of expansion joint material. Vertical steel I-beams, anchored at the base, support a standing seam steel roof and 4 in. fiberglass roof insulation with plastic bottom face. The roof is sloped for drainage.

After completion of the monolithic slab and curbing, the base of the unit was sealed with an ASTM C309 Type I membrane-forming concrete curing compound. The floor was then coated with a multilayered topping consisting of a primer applied to the surface, a silica-filled vinyl ester base coat, a fiberglass reinforcing mat, and a silica-filled topcoat to provide a total coating thickness of 125 mils. This floor topping was applied to the floor slab, sumps, and interior curbing of each bay to enhance the chemical resistance of these containment members.

The entire structure is electrically grounded. Explosion-proof overhead lighting and electrical outlets are provided as safety features. The east side of the building is open to the outside, but is fitted with a weather-protective canopy. To provide natural ventilation, the three remaining walls have screened openings near the top and bottom. Six ventilators are located on the roof to increase the air circulation in the facility. Two I-beams run east-west (attached below the roof's structural steel) and serve as the support rails for a bridge-mounted 1,000 pound capacity hoist that provides coverage to the majority of the building.

Waste containers were stored on galvanized, mild steel grating that is supported above the base of the containment system by 4-in. x 4-in. and 6-in. x 3-in. tubular steel framing that spans the length of each bay. The tubular steel framing is supported above the base by 3-in. x 3-in. tubular steel supports so that the grating is elevated above the lowest slab elevation by 18 in. The 2-in. steel grate is also isolated from the monolithic curb; therefore, the stored containers did not come into contact with the base.

Surrounding the building is a 2-in. thick asphalt pad extending to a secondary containment concrete curb and fencing. Access through the enclosure fencing is on the north side of the building and is wide enough to allow access to two roll-up dock doors. The asphalt pad area is larger on the east side of the building to facilitate short-term container storage. PRSs 61 (by southeast corner of the building; waste oils) and 62 (by northeast corner of the building; combustible/flammable liquids and waste oils) are located on this asphalt pad area. North of the building is a hydraulic lift for off-loading drums from truck bed height to the building's deck level. The lift's hydraulic pump and reservoir are mounted inside the building. Four storm drains are located within the secondary curb and are tied into the site's storm sewer system. Additionally, two roof drain downspouts on the building's south side are tied into the storm sewer. The interconnecting storm sewer piping is located one to three feet below grade.

Building 72 Eye Wash/Safety Shower Enclosure

A Thermaflow Plus freeze protected combination eyewash and safety shower enclosure is located outside on the north side of the building. The enclosure is constructed of fire-retardant fiberglass and urethane foam walls, with a yellow chemical-resistant UV inhibited Gelcote finish. The galvanized steel piping for the showers is heat taped and fiberglass insulated. Pipe insulation outside the enclosure is covered with aluminum flashing. The enclosure drains to the asphalt pad (thus, into the storm drain system) on the north side of the building. Photograph of the structure provided in Appendix O, page O49 of 59.

Utilities

Building 72 has electrical service of 240 Volts and is supplied with service water only. The building has no heating or cooling. There is no fire sprinkler system or sanitary services to the building. There are two storm sewer system drains, with grates, on the east and west sides of the building.

Additional Structure to be Demolished

A Water Sampling Station, unrelated to Building 72, will be demolished with the Building 72 demolition. This structure is a 30 sq.-ft., factory assembled, PAR-KUT Model 65 booth located approximately 20 feet to the south of Building 72. The booth is currently sitting on top of an open manhole and was used to monitor the plant sanitary outfall pipeline. The sampling station is not currently operating. Photograph of the structure provided in Appendix O, page O48 of 59.

2.1 Past Uses of Building 72

Building 72 was constructed as a hazardous wastes storage facility in 1984. The facility was operated as a RCRA permitted non-radioactive containerized hazardous wastes storage facility; with the initial permit for the facility issued in 1986. The storage area was separated into three bays in order to separate incompatible wastes. Bays 1, 2, and 3 stored flammable liquids, corrosive alkalis, and corrosive acids, respectively.

The physical forms of the wastes managed at Building 72 were primarily free liquids, solids, and sludges. However, all hazardous wastes that were accepted and stored inside the building were considered for containment purposes, to be entirely free liquid and were managed as such. The wastes were primarily contained in sealed 35- and 55-gallon drums of both metal and plastic construction. The hazardous wastes stored in Building 72 were to be shipped offsite within one year of the accumulation date. The building is not radiologically contaminated and no hazardous wastes were generated as part of the storage activities. Building 72 underwent closure as a hazardous waste storage facility in 2003 (reference RCRA closure certification letter in Appendix P).

2.2 Current Uses of Building 72

Building 72 is currently inactive and in the process of Safe Shutdown. All required equipment will be removed from the building (in accordance with 41 CFR 101-200), and any remaining equipment will be left in place and demolished/disposed of with the building.

2.3 Summary of Environmental Concerns and Findings – Building 72

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Building 72. During August of 2004, a comprehensive walk-through survey of all areas of Building 72 was performed in order to identify any existing or potential lead paint hazards. The paint coatings present were observed to be largely intact and no potential hazards observed. Since the building is scheduled for imminent demolition, painted surfaces will be tested for lead content as planned work indicates the need for such testing in order to avoid worker exposure to lead. (Appendix J).	No paint analysis would be necessary to protect occupant or worker health unless any coatings were to be disturbed by close worker contact (sanding, grinding, scraping, torch cutting, etc.). If these types of activities are planned, the affected paint coatings will be tested to verify the absence of lead. Waste Management performed worst-case scenario calculations to determine that building demolition debris containing lead-based paint meets the waste acceptance criteria at the landfill.
Chemicals	Appendix K provides a list of chemicals stored in Building 72.	All chemicals have been removed from the building as part of a RCRA facility closure.
Ballasts associated with Fluorescent Lamps	N/A	N/A
Air Emissions	There were no fuel-burning activities in the building. Although drums of organic waste and repackaging operations could have contributed to fugitive emissions during facility operation, it was deemed that there were no measurable sources of emissions due to the small quantities of volatile organic compounds (VOCs) in the waste constituents. No applications for air emissions permits were submitted for activities in this building.	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Asbestos	During August of 2004, a comprehensive walk-through survey of all areas of Building 72 was performed in order to identify all asbestos-containing materials (ACMs) prior to demolition of the facilities. Two (2) distinct types of materials, large and small explosion-proof light fixture gaskets, were assumed to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. There were six (6) of the large light fixtures and three (3) of the small fixtures located near the ceiling. Since the building is scheduled for demolition, these materials will have to be removed prior to demolition. (Appendix I).	During safe-shutdown activities, the gasket material will be removed from the light fixtures. If the gasket material is confirmed to be asbestos-containing, the gaskets will be removed in accordance with NESHAP requirements by properly trained workers prior to commencement of demolition activities, and disposed of per Waste Management direction. Notification of the EPA and the Ohio Department of Health of this removal activity is not required due to the small quantity involved.
Drainage Sumps	There are four dry sump pits located in Building 72.	Radiological evaluation of the sumps was performed and no activity above background was detected. Survey results are documented in the Final Status Report (Appendix G, pages G6 of 70, G7of 70, G23 of 80 through G32 of 80, and G39 of 80 through G50 of 80).
Lead	N/A	N/A
Mercury	N/A	N/A
Radiological	Building 72 meets radiological surface release criteria established by DOE Order 5400.5 and no further radiological surveys are required.	See Section 2.4 for a summary of the results, and Appendix G for the complete Final Status Report.
Septic System	N/A	N/A
Wastewater	N/A	N/A
Stains & Corrosion	N/A	N/A
Storage Tanks	There are no above ground or underground storage tanks within 15-feet of the Building 72 perimeter.	N/A
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A
Radon	Radon level is not applicable for open air demolitions.	N/A
HVAC	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Energetic Materials	All energetic materials stored in Building 72 were handled in compliance with the facility RCRA permit. All waste materials have been removed from the facility as part of a RCRA facility closure.	N/A
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15 feet of the perimeter of Building 72, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Two samples at locations 3J10 (Surface Sample) and C0103 (Borehole) show Th 232 results above Cleanup Objective. Location C0103 is above Hot Spot Criteria (reference Table 2). All other soil results within the 15 ft. perimeter of the building are less than the screening criteria (Core Team approved or the more stringent of either 10-6 Risk-Based Guideline Value plus background or Hazard Index = 1).	Elevated historic sample results at locations 3J10 and C0103 will be removed and verified as part of the PRS 41 Removal Action activities. No additional soil evaluation or removal (beyond that already specified in the PRS 41 Action Memorandum) is planned for this area.

N/A: Not applicable

Table 2: Maximum Results Exceeding Screening Levels (pCi/g)

Analyte	Maximum Result	Background	RBGV (10^{-6})	Screening Level
Thorium-232*	3.95**	1.4	0.07	1.47

RBGV: most stringent of construction and office worker scenarios per Risk-Based Guideline Values, March 1997, Final, as performed using April 2001 HEAST slope factors.

* Both historic sample locations, with results above cleanup objective (see Appendix L) within the 15-foot perimeter of Building 72 will be removed and verified via the PRS 41 Removal Action.

** Results from C0103 is above Hot Spot Criteria (3 X 10^{-5} + Background)

2.4 Radiological Information for Building 72

A radiological assessment of Building 72 was performed by reviewing its operational history and preliminary radiological survey information. Building 72 was constructed as a hazardous wastes storage facility in 1984 and has a footprint of 2,400 sq. ft. The facility has operated as a RCRA permitted non-radioactive containerized hazardous wastes storage facility continuously until undergoing RCRA closure in preparation for building demolition. There have been no incidents involving radioactive contamination. Building 72 is designated as impacted since there is a potential for residual radioactive material to be present. Building 72 is scheduled for demolition in accordance with MCP goals.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). The fixed point, scanning, judgmental (biased), and smear surveys found no residual activity above the Derived Concentration Guideline Level for the wide area average ($DCGL_W$). Sediment samples were obtained from three of the four collection pits (sumps). The fourth collection pit was dry and empty; so smear samples only were collected. No activity above background was detected. Smear samples taken from overhead and exterior surfaces found no activity above background levels.

The review team concluded that the building meets radiological surface release criteria established by DOE Order 5400.5 and no further radiological surveys are required. Subsurface material (under-slab, footers, etc) and associated soil is not evaluated in this survey, but will be assessed separately when surfaces are accessible.

Table 3 presents the highest values of the building surface radiological results. Supporting documentation for the information summarized in Table 3 is contained in the Final Status Report (FSR) (Appendix G).

Table 3: Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)#	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)
Highest Alpha Smearable Activity	04-TF-0268	Floor	4.93	20
Highest Group 1 Alpha Fixed Activity	04-TF-0268	Floor	35	100
Highest Group 3 Alpha Fixed Activity	04-TF-0296	Roof	121	5,000
Highest Beta Smearable Activity	04-TF-0296	Ceiling	7.45	1,000
Highest Beta Fixed Activity	04-TF-0268	Floor	2,752	5,000
Highest Tritium Smearable Activity	04-TF-0269	Wall	9.55	10,000

Note 1: DOE Order 5400.5 (DCGLw)

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 72 is located at the DOE MCP site, formerly known as the Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

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

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

3.2 Description of Structures, Roads, and Other Improvements in Proximity to Building 72

Building 72 is bordered by an asphalt paved storage area on the north; an asphalt service road, Trailer 13, and Building 124 on the east; a water sampling station, an asphalt service road, and the rail spur on the south; and a ravine and the site fence on the west. The terrain surrounding Building 72 is asphalt paving to the north and grass/shrubbery on the east, west, and south (Appendix C, Figures 3A and 4A).

3.3 Current and Past Uses of Buildings in Proximity to Building 72

Current buildings in proximity (Figure 1) to Building 72 include:

- The Water Sampling Station is a 30 square-foot factory assembled, PAR-KUT Model 65 booth located approximately 20 feet to the south of Building 72. The booth is currently sitting on top of an open manhole and was used to monitor the plant sanitary outfall pipeline. The sampling station is not currently operating. This structure will be demolished as part of the Building 72 demolition activities.

- Building 124 (Consolidated Waste Processing Facility or CWPF) is a 5,250 square-foot metal-framed Rubb-brand building (tent-type temporary structure). The

structure is located approximately 167 feet to the northeast of Building 72. Building 124 was constructed in 1998. Building 124 was used for soil blending of transuranic (TRU) soils, opening/venting tritium containers for repackaging, compaction of "compactable wastes" (such as plastic bags of trash and cardboard), and decontamination of materials for disposal. Building 124 is currently being used as a heavy-duty equipment maintenance area. The building is planned to be demolished as a CERCLA Removal Action in Fiscal Year 2005.

- Trailer 13 is a 780 square-foot trailer, located approximately 70 feet to the east of Building 72. The trailer is modified for use as a lavatory.

Previous buildings in proximity (Figure 1) to Building 72 include:

- A Maintenance Garage, which included an underground gasoline tank and a gasoline pump, is believed to have been demolished in 1948 (most likely as an industrial demolition). The Maintenance Garage, tank, and pump were located approximately 130 feet north of Building 72.

- Building 19, a 4,480 square-foot one-story metal quonset hut with mezzanine, was demolished in June 2003 as an industrial demolition. Building 19 was located approximately 70 feet north of Building 72. The building was used for a number of functions and housed a number of processes at three different locations: first at the Dayton Unit III location (Manhattan Project) (1946-1949), and two locations at the Mound site (1950-1962 and 1962-2003). During its use at Mound, Building 19 was used to store drums of radioactive wastes from several site missions and later served as a warehouse/salvage storage/surplus sales facility.

- Building 55 was demolished June 2002 as an industrial demolition. The 330 square-foot one-story building was constructed in 1973. Building 55 was located approximately 45 feet south of Building 72. In its initial use, the two-room building consisted of a water testing laboratory (with a sink and electric water heater) and a storage/equipment room, and was used to monitor effluent water from various outfall sewer locations. Building 55 was later used for storage of various types of environmental monitoring (EM) equipment.

These buildings are believed to have had no adverse environmental impact on Building 72.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under RCRA, the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site had operated a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. The site currently maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either

permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that reportable chemicals were stored in Building 72. Currently there are no reportable chemicals stored in Building 72. (Appendix K).

The Mound Plant was identified as a contaminated site on the National Priorities List (NPL) under CERCLA (Superfund) in 1989. The Mound Plant was originally listed due to volatile organic compound (VOC) contamination in the western end of the lower valley area. The cleanup of the site was originally to be accomplished under the CERCLA mandated procedures for regulating Superfund Sites using the operable unit (OU) system to define and characterize cleanup areas. As the cleanup effort went forward, it became apparent that the site did not fit the profile for a cleanup strategy based on the operable units. The DOE, the United States Environmental Protection Agency (USEPA), and OEPA designed a new decision making process for the cleanup of the site.

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

Through the process described above, the specific PRSs in the vicinity of Building 72 (Section 4.2.3) are listed in Table 4 along with their binning status. Their locations are shown on Figure 2 of Appendix C. Of the six PRSs in the vicinity of Building 72, one is a Removal Action (RA), three are Unbinned (UB), one requires Further Assessment (FA), and one has been determined by the Core Team to require No Further Assessment (NFA). For a PRS to be binned NFA or as a completed RA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 72 have been identified.

4.2 Specific Record Sources for Building 72

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed no occurrence reports.

4.2.2 Spills and Releases

None.

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE ER Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Six PRSs are at or near Building 72, as identified in Table 4. The PRS locations are shown on Figure 2 of Appendix C, and recommendation sheets are provided in Appendix N.

There are three PRSs associated with Building 72 and its associated outside storage area. PRS 60 is Building 72, a former hazardous waste storage facility, that underwent RCRA closure (reference RCRA closure certification letter in Appendix P). PRS 61 is an outdoor hazardous waste storage area where waste oils were stored. PRS 62 is an outdoor empty drum storage area. A PRS package will be prepared to disposition these three PRSs. Additionally, Building 72 is located within the boundary of PRS 41 (also know as Area 3, Thorium Drum Storage and Redrumming Area). The storage and redrumming activities predate the construction of Building 72. After building demolition, the two elevated historic sample results (see Appendix L) at locations C0103 and 3J10 will be removed and verified as part of the PRS 41 Removal Action activities.

Table 4: PRSs in Proximity to Building 72

PRS	CERCLA or Bldg. Related	Binning Status	Comments
7	CERCLA	FA	Underground plant sanitary outfall pipeline.
41	CERCLA	RA	Area 3, Thorium Drum Storage and Redrumming Area.
60	Building	Unbinned	Hazardous Waste Storage Area (Building 72).
61	Building	Unbinned	Building 72 Outdoor Hazardous Waste Storage Area.
62	Building	Unbinned	Building 72 Empty Drum Storage Area.
63	CERCLA	NFA	Building 19 soils

Note: PRSs 60, 61, and 62 have not yet been binned by the Core Team. The structure will be removed during these demolition activities. A PRS package will be provided to the Core Team for evaluation and binning.

4.3 Review of Building Prints

Building prints were reviewed and no significant items were identified. Floor plans are included in Appendix D.

4.4 Aerial Photographs

Aerial photographs from 1983 (prior to construction of Building 72), 1994 (following construction of Building 72), and 1996 (most recent aerial photo) were reviewed and no significant items were identified. Aerial photographs are presented in Appendix E.

4.5 Interviews

Past Building Manager, M. P. Isper, was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager, Gary Weidenbach, was also interviewed regarding past facility operations and current conditions. No significant items in the building were identified based on the questionnaire or interviews.

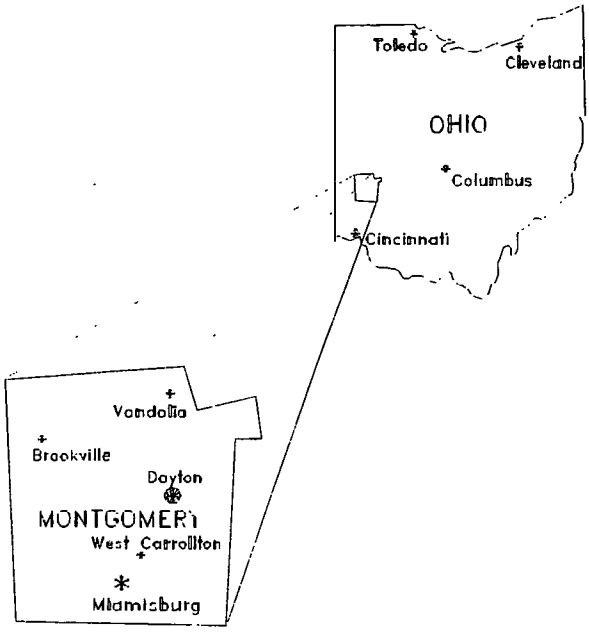
Appendix A

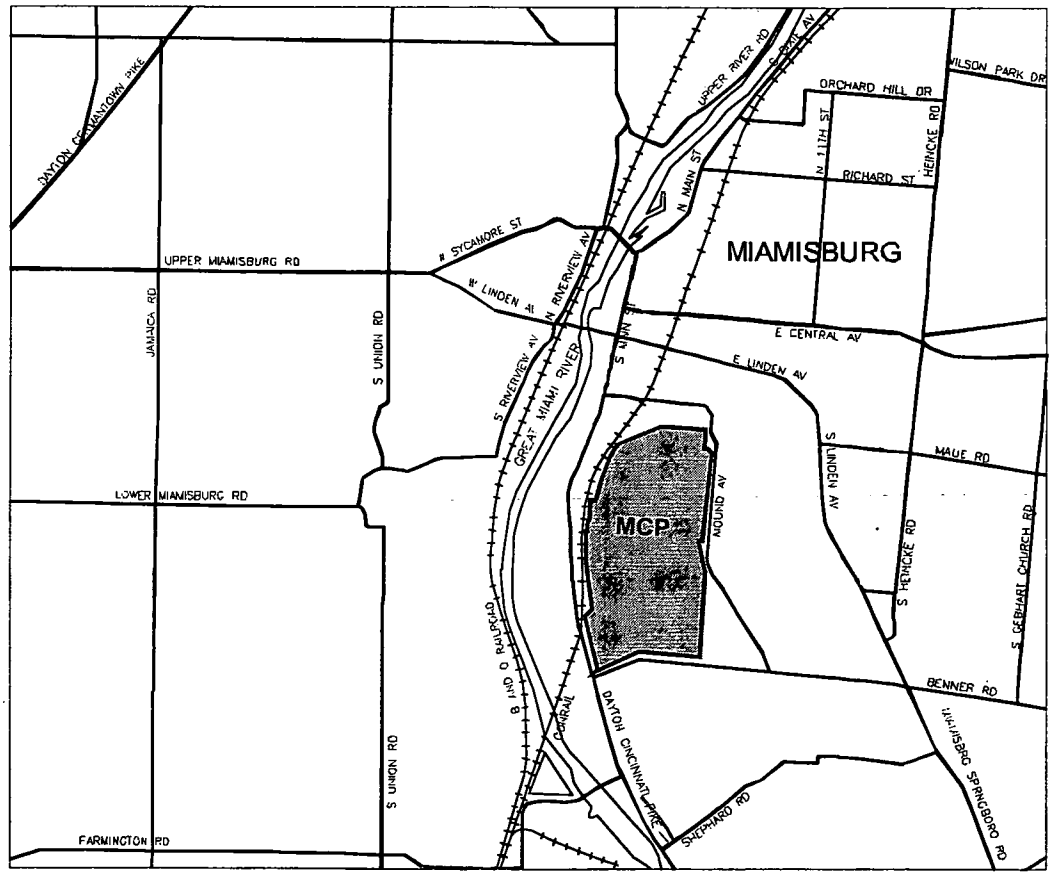
General Listing of Acronyms

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

Appendix B

Map of Montgomery County


Toledo
Cleveland
OHIO
Columbus
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


DAYTON CENTERVILLE PIKE
UPPER MIAMISBURG RD
JAMAICA RD
S UNION RD
LOWER MIAMISBURG RD
FARMINGTON RD
N SYCAMORE ST
W LINDEN AV
N RIVERVIEW AV
S RIVERVIEW AV
GREAT MIAMI RIVER
UPPER RIVER RD
N MAIN ST
S MAIN ST
ORCHARD HILL DR
WILSON PARK DR
N 11TH ST
RICHARD ST
HEMCKE RD
MIAMISBURG
E CENTRAL AV
E LINDEN AV
S LINDEN AV
MAUE RD
MCP
MOUND AV
S HEMCKE RD
S GEBHART CHURCH RD
BENNER RD
B AND O RAILROAD
CONRAIL
DAYTON CINCINNATI PIKE
SHEPHARD RD
MIAMISBURG SPRINGBORO RD

B 1 of 1

Appendix C

Figures

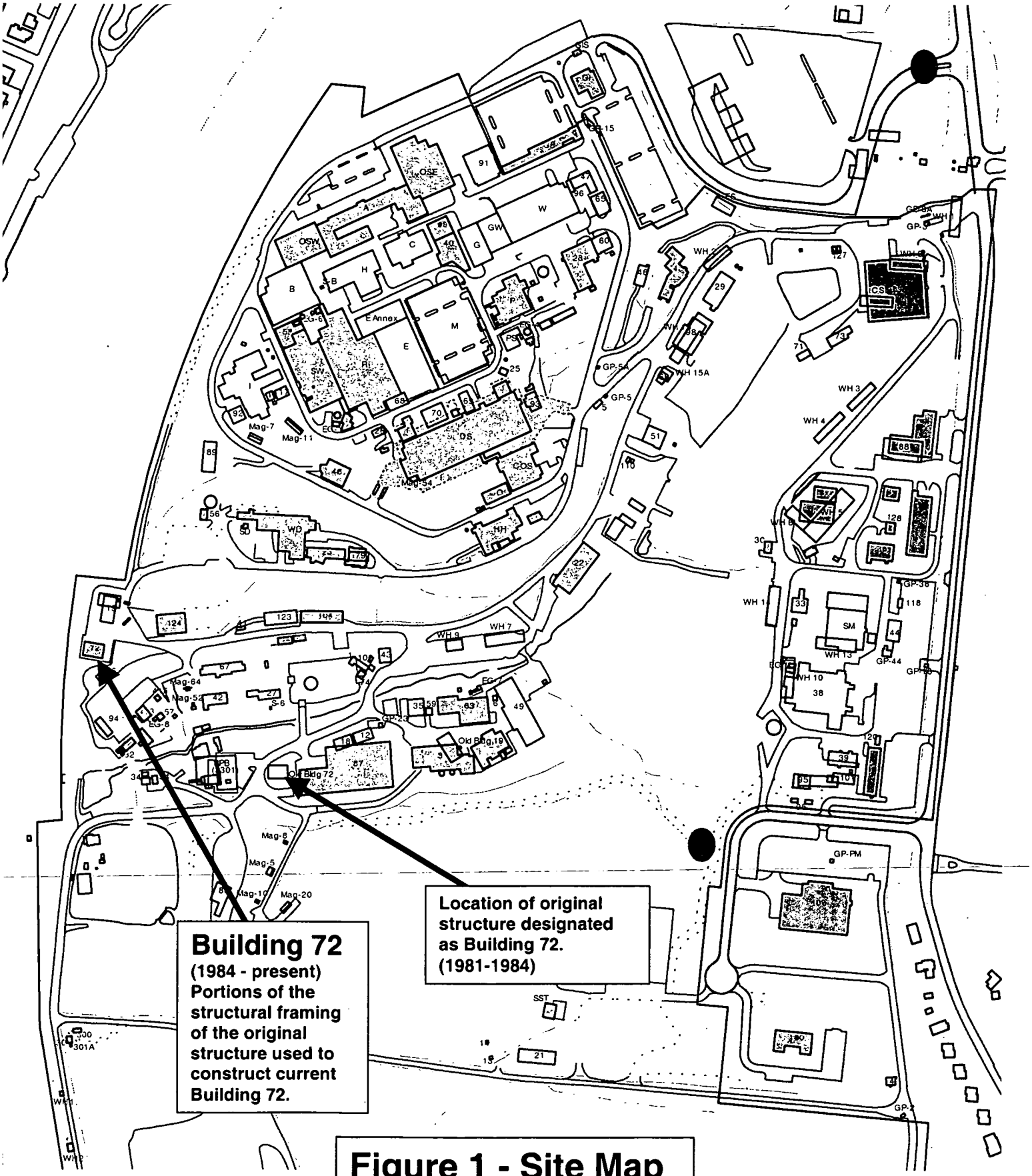
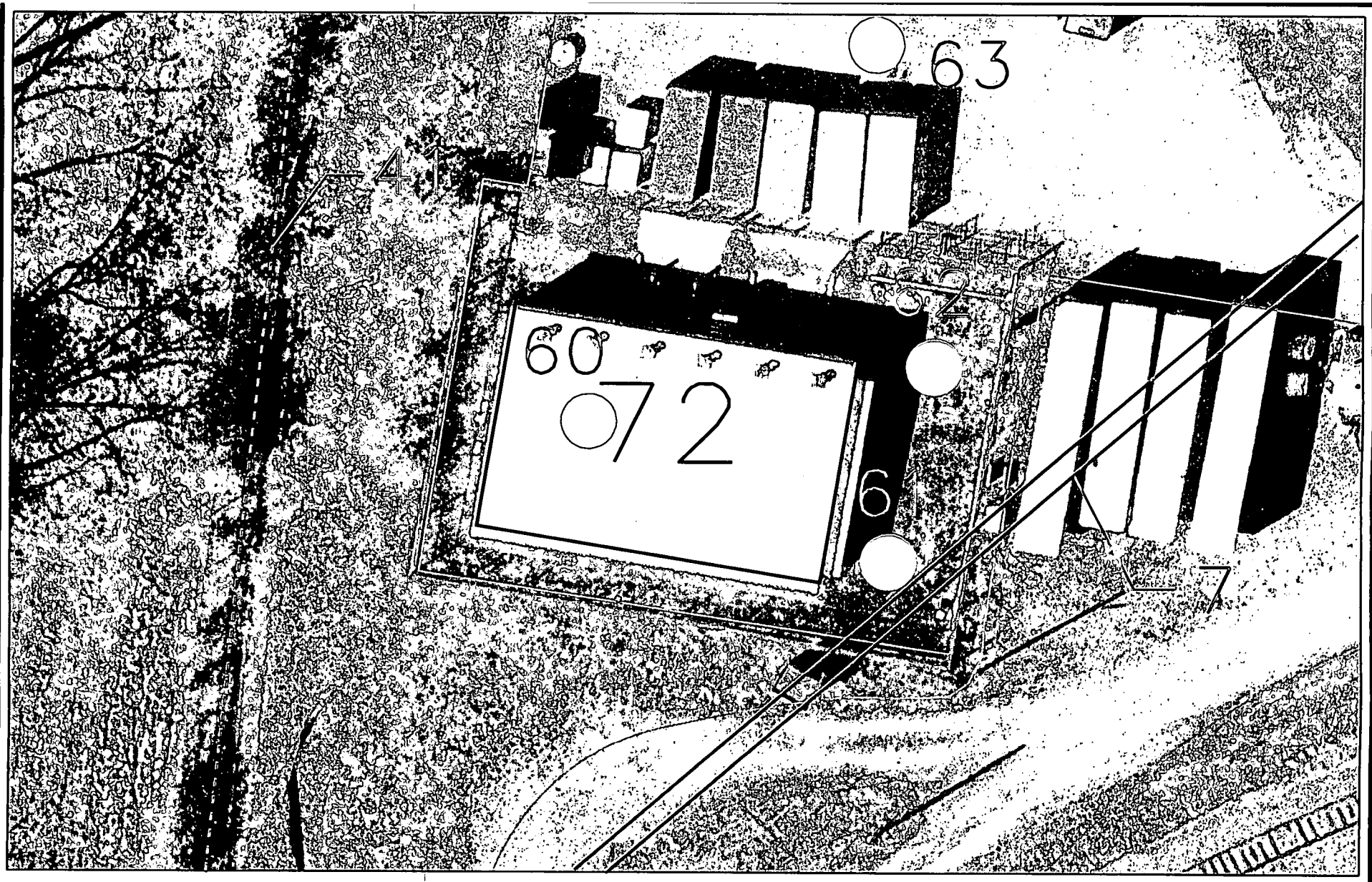


Figure 1 - Site Map



PRS Point

PRS Area

PRS Line

20 10 0 20 40FT

GRAPHIC SCALE

07/27/04		SSF						
DATE	REVISION	BY	CHKR	DSG	UPREC	APVD		

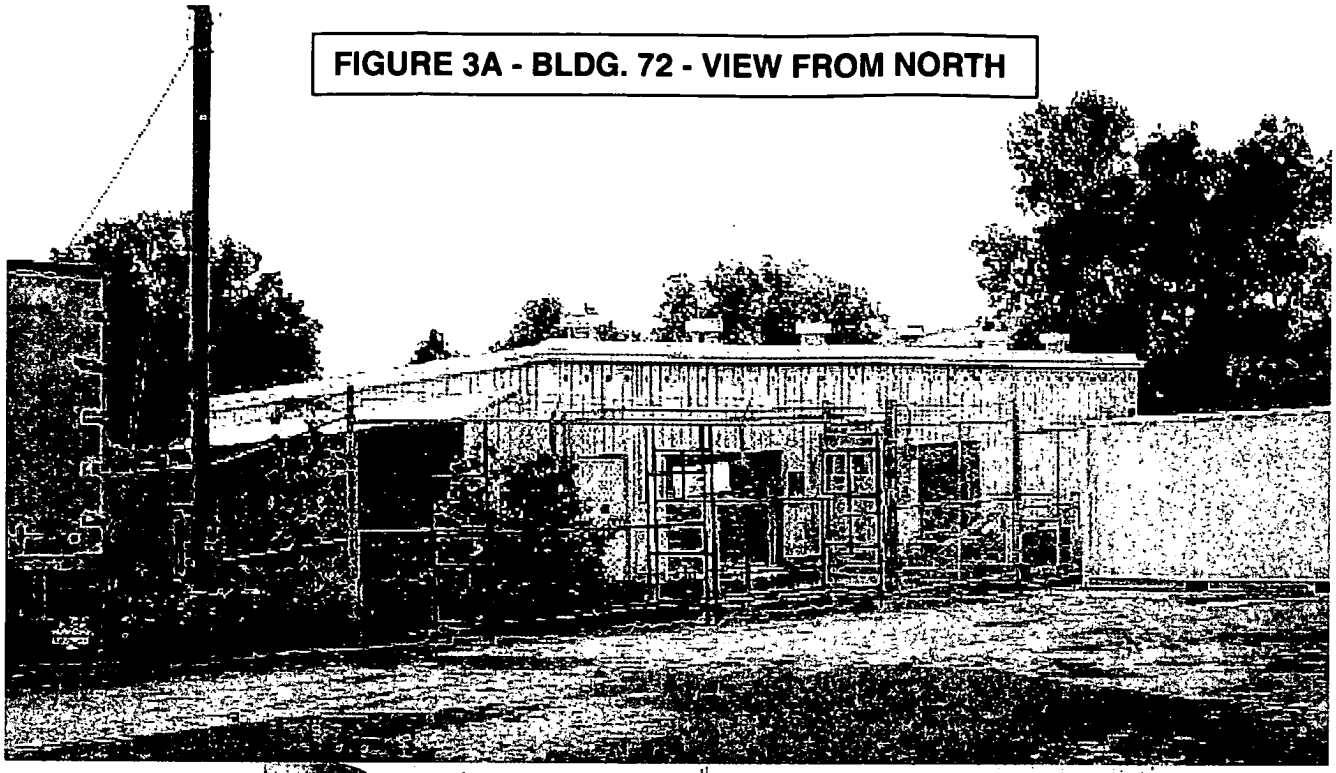
MOUND

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	Figure 2 Building 72 and Vicinity
ISSUE	
PART CLASSIFICATION	
DRAWING CLASSIFICATION UNCLASSIFIED	SIZE / DRAWING NUMBER vicinity.dgn / JOB NUMBER
DWG TYPE STE / PROJ ER-GIS	CADD / SCALE / SHEET 1 OF 1
STATUS MD-REL-09/08/03	ORIGIN MSTATION / J

02 of 4

FIGURE 3A - BLDG. 72 - VIEW FROM NORTH



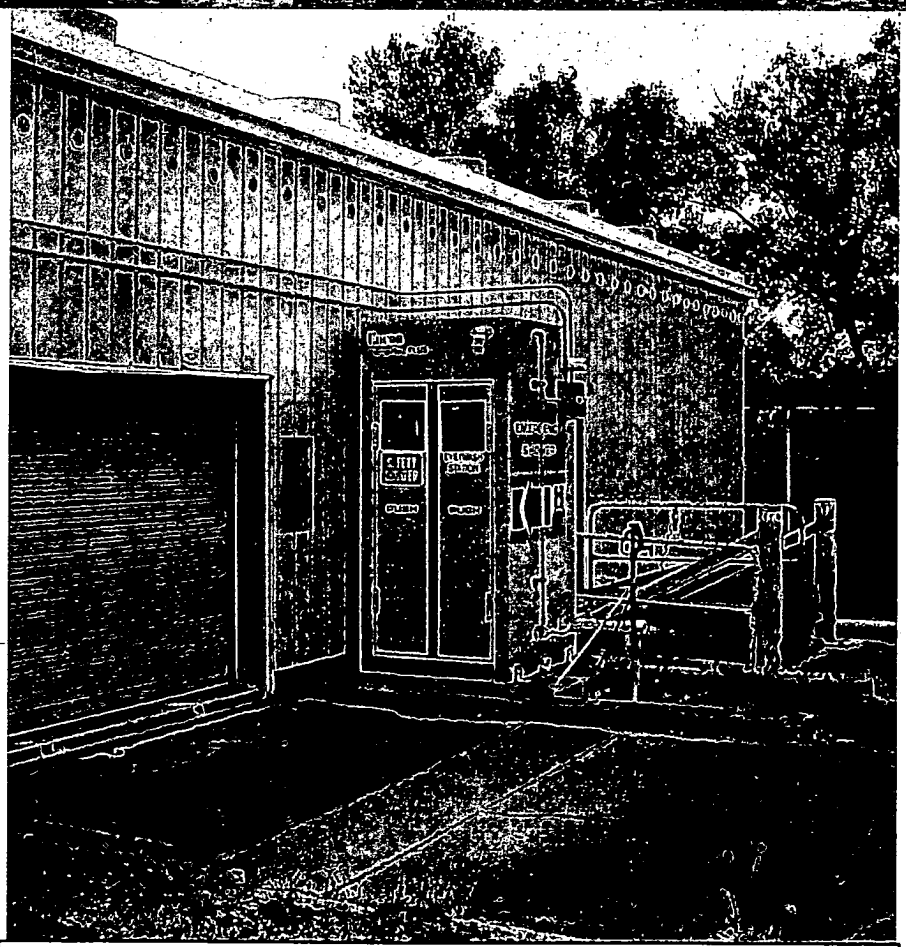


FIGURE 3B - BLDG. 72 EYE WASH/SHOWER STATION

FIGURES 3A AND 3B – BLDG. 72 EXTERIOR PHOTOS

FIGURE 4A - BLDG. 72 - VIEW OF EAST SIDE LOT/BLDG.

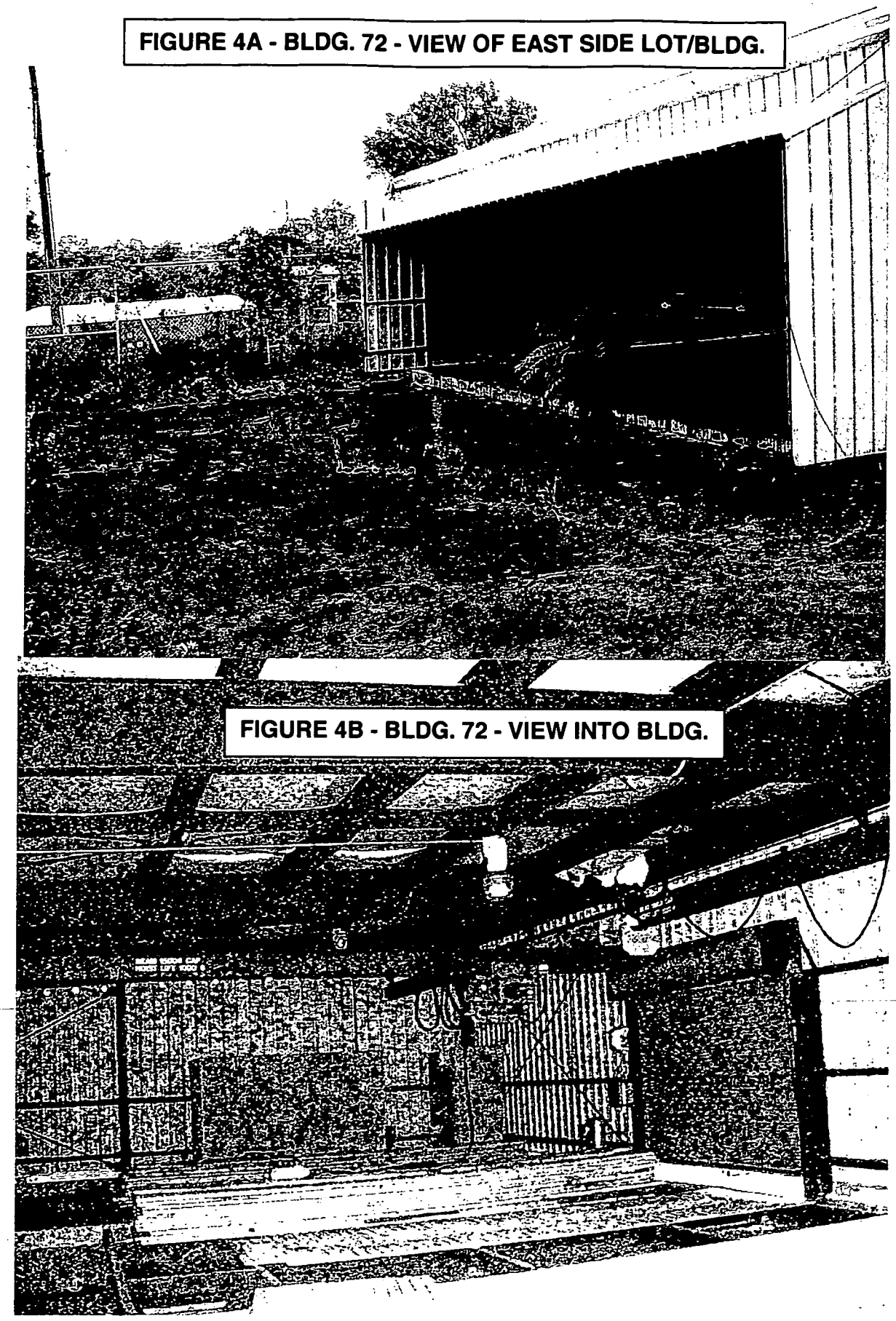


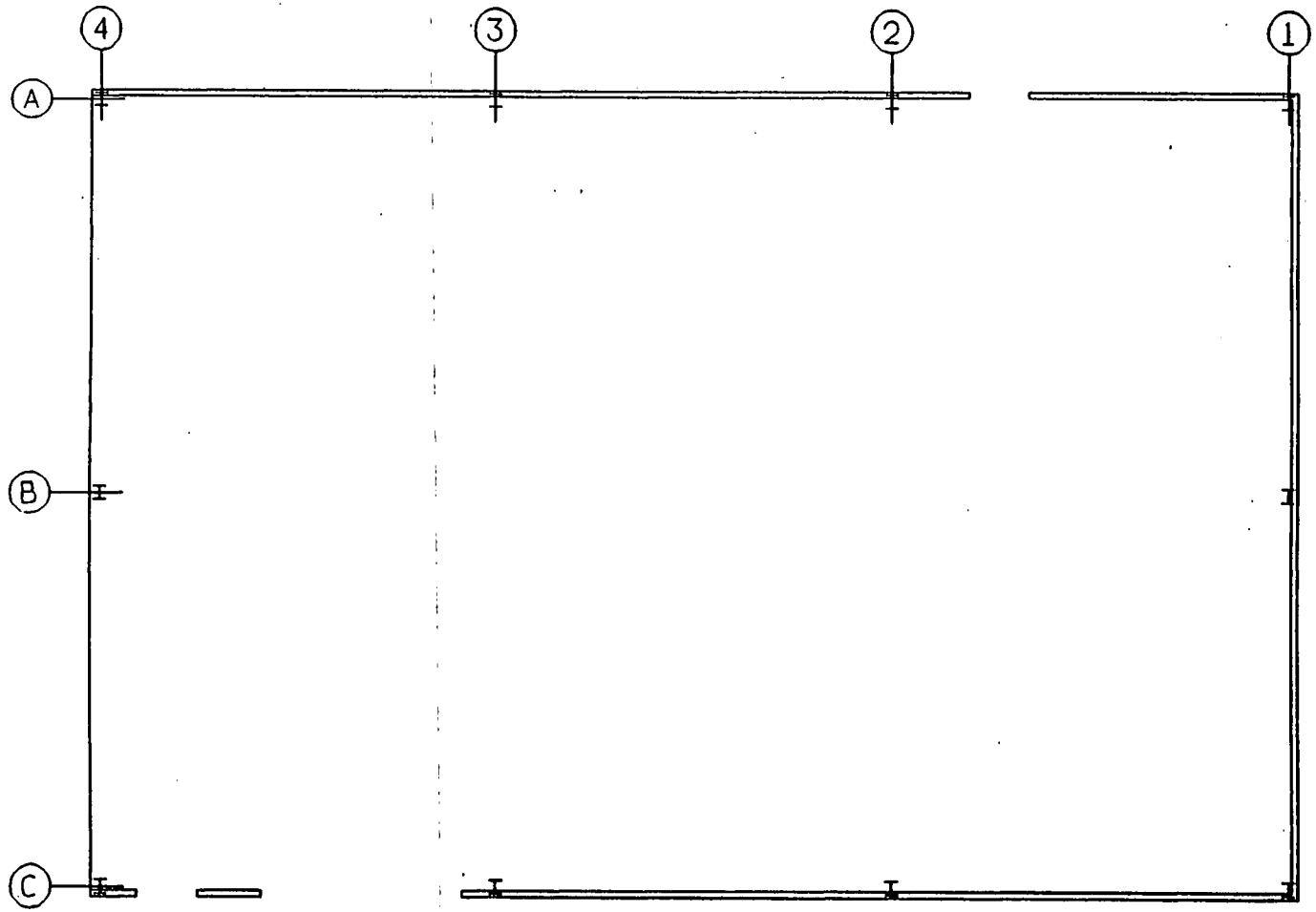
FIGURE 4B - BLDG. 72 - VIEW INTO BLDG.

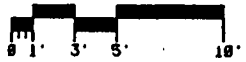
FIGURE 4A AND 4B – BLDG. 72
OPEN SIDE VIEW

Appendix D

Floor Plans

ISS	DATE	REVISION	BY	CHKR			APVD	N
0	12/12/91	ASBUILT ISSUE	DCW				DVD	





SHED #72
FIRST FLOOR
BLDG CODE:3472

APPROVALS: DATE:
SAFETY COMMITTEE REQUIRED:
___NONE ___TRUEROC ___TEROC ___EVROC
TECH. REP. ___
BR. MGR. ___
TRUEROC ___
TEROC ___
EVROC ___

DESIGN ENG	PROJ MGR
BRSHB	CHG SUPV
LP & EC	MGR REV
CHG MGR	
APVD	DATE

SHEET	1	2	3	4	5	6
ISSUE	0					
PART CLASSIFICATION						

TITLE (U) TITLE CLASSIFICATION
SHED #72
FLOOR PLANS

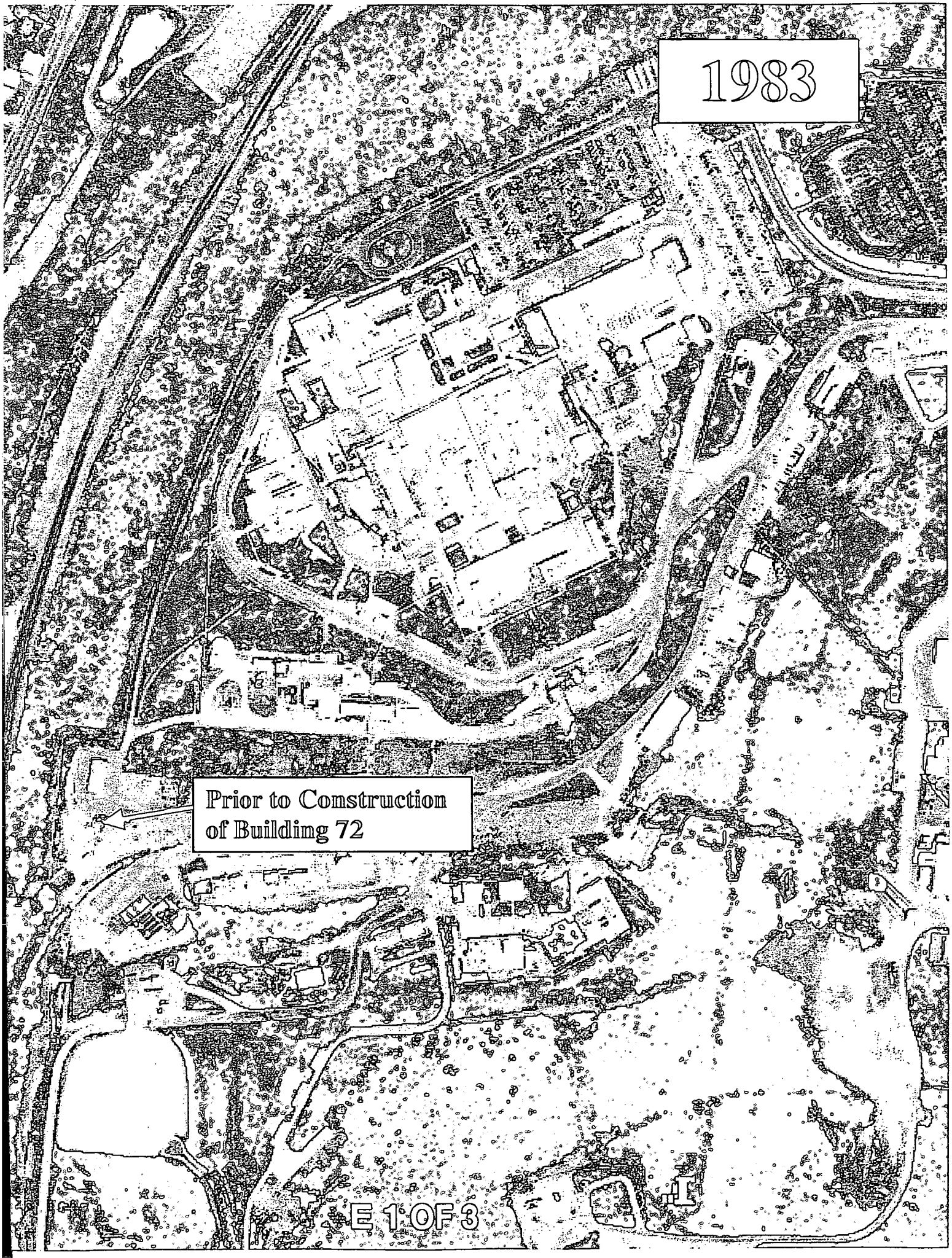
DRAWING CLASSIFICATION UNCLASSIFIED	SIZE C	DRAWING NUMBER FSC911356	JOB NUMBER 12335
DWG TYPE SFP	FROM SHED #72	CAMEC 14865	SCALE AS NOTED	SHEET 1 OF 1
STATUS MD-REL-12/12/91		ORIGIN MD-BRJ-VJ.0	

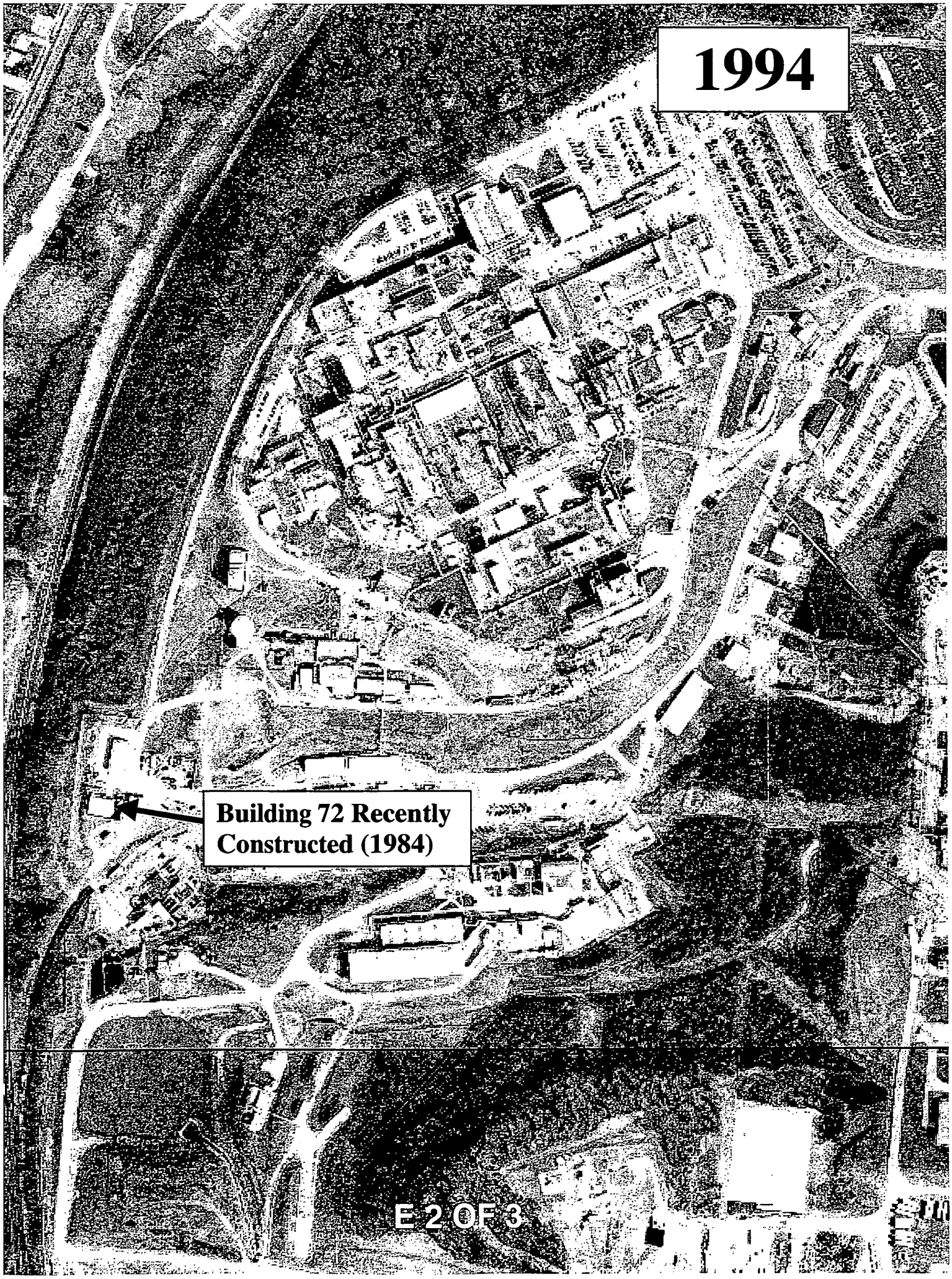
1 of 1

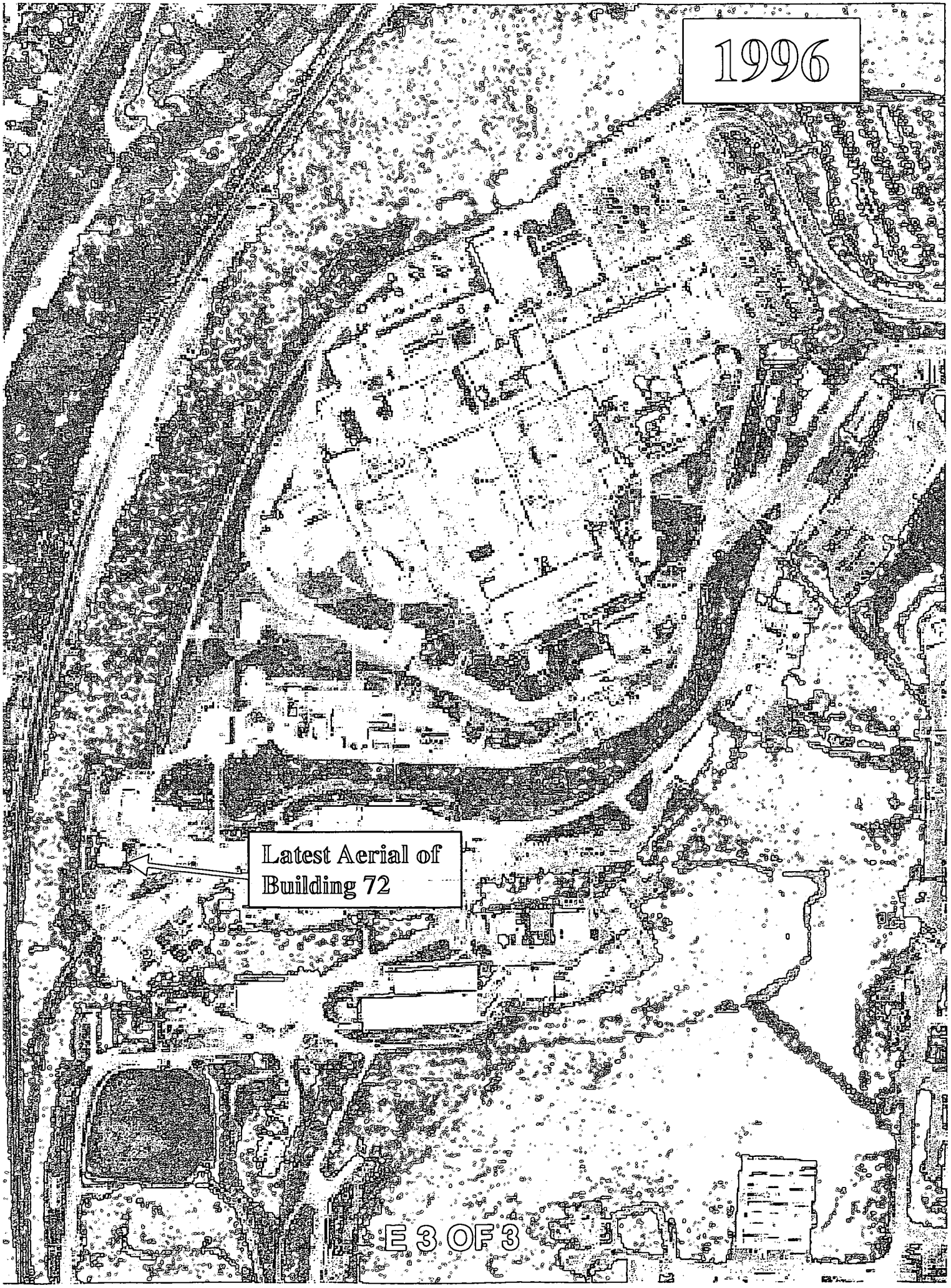
9.89-59

Appendix E

Aerial Photographs


1983
Prior to Construction
of Building 72
E 1 OF 3


1994
Building 72 Recently Constructed (1984)
E 2 OF 3


1996
Latest Aerial of Building 72
E 3 OF 3

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

The Environmental Appraisal Report was prepared in 1996 and documents the observed conditions at the time of the inspection. Information provided in the Building Data Package text supercedes information provided in this appendix.

Based on a review by subject matter experts, hand-written corrections have been made to the report provided in this appendix. Only the text portion of the report is provided herein.

9.89 BUILDING 72

9.89.1 Scope of Building 72 Report

In late 1995 and the early months of 1996, EG&G MAT performed a review of environmental conditions at the Mound Plant. The purpose was to develop a performance baseline, and to identify areas for improvement on a building and a sitewide basis. EG&G MAT did not perform a "due diligence" or Phase I Environmental Site Assessment as specified by ASTM 1527 or ASTM 1528. The scope of the appraisal effort and a discussion of the appraisal methodology are detailed in Sections 2.0 and 5.0, found in Volume 1 of this report.

The appraisal team performed a walk-through of Building 72 on the morning of February 24, 1996. The building was visited for a second time on March 8, 1996 to evaluate compliance with Resource Conservation and Recovery Act (RCRA) operating requirements. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.89.6.1). The appraisers were accompanied by the building manager, who is also the process manager and building operator. He has been associated with activities in the building for several years and has extensive historical and current knowledge. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.89.6.2).

9.89.2 Description of Building 72

Building 72 is the Mound hazardous waste storage facility. It is located ~~east~~ South SBD 8-18-04 of Building 19 and west of the wastewater treatment plant. Location is shown in Attachment* 3 (Section 9.89.6.3). SBD 8-18-04

* Location shown in Appendix C, figure 2 of this BDP; Attachment 3 not included in BDP.

The building is a 2,400-square-foot, steel frame building with a metal roof. It was constructed** in 1984. There is electrical service of 240V. No heat is supplied to the building. The building is supplied with service water only. A floor plan is presented as Attachment 4 (Section 9.89.6.4).***

*** A floor plan is included in Appendix D, page D1 of 1; Attachment 4 not included in BDP. SBD 8-18-04

Building 72 was designed for and has been used for hazardous waste storage since it was constructed. The design was not reviewed in detail, but appears to conform to requirements for a hazardous waste treatment, storage, and disposal facility (TSD). The building has three bays, with a dry sump under each bay to collect spillage. The sump's contents are pumped to drums. A masonry wall provides extra protection for explosive materials. There is an additional dry sump in the area for explosive materials. The sump location is not shown on Bldg. drawings.

Wastes are segregated and stored by compatibility and U.S. Department of Transportation (USDOT) classification. Storage procedures are to be commended. For example, peroxide-forming chemicals are refrigerated. It should be noted that both hazardous and non-hazardous wastes are stored in Building 72.

** The original structure, designated as Building 72, was constructed in 1981 at a location east of the present Bldg. 72. The present structure, designated as Bldg. 72, was constructed in 1984, using structural steel portions of the original structure. SBD. 8-18-04

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9.89.3 Summary of Findings

The appraisal of Building 72 addressed building-specific issues within the hazardous waste management program at Mound. For a review of the hazardous waste management program, refer to Volume 1, Section 6.0, Sitewide Overview.

Building 72 was well-maintained, and in compliance with requirements for storage practices and operating records. Procedures for operations, documentation, and waste minimization generally conformed to applicable regulations. Performance requirements are defined in Mound Procedure MD 70523, and applicable provisions of OAC 3745-45 through 59 and 65.

Issues of concern, such as waste characterization procedures and storage of uncharacterized waste in Building 72, have been identified in regulatory agency reviews and past Department of Energy (DOE) and EG&G MAT audits of Building 72. These issues were revisited to determine if appropriate action had been taken. At the conclusion of the appraisal, there was disagreement between members of the appraisal team and the building manager/TSD facility operator regarding requirements for characterization of waste by generators prior to receipt at Building 72. The issues raised were not resolved by the appraisal and require attention by Mound and waste management consultants.

9.89.4 Observations

9.89.4.1 Air Emissions

There are no fuel-burning activities in the building. There are no measured sources of emissions, although drums of organic waste and repackaging operations could contribute to fugitive emissions. At the time of the appraisal this situation was deemed unlikely due to the small quantities of volatile organic compounds (VOC's) of constituents. The building is not included in the Mound Air Emissions Database, 11-30-95. No applications for air emissions permits have been submitted for activities in this building.

There is no fugitive dust. It was noted that dumpsters holding dry materials awaiting bulk disposal, such as asbestos, were covered to preclude materials being blown away.

9.89.4.2 Wastewater Emissions

The Mound Facility has three wastewater collection systems: a sanitary wastewater system; a storm water system; and a radioactively contaminated process wastewater system. Sanitary wastewater is treated at an onsite tertiary treatment plant and subsequently discharged by hard pipe to the Great Miami River. Storm water and any non-process wastewater, single pass cooling water, and softener backwash may be discharged directly to the Great Miami River, via the Miami-Erie Canal,* or may be diverted to a 3.1-million-gallon holding pond for settling prior to discharge. Radioactively contaminated wastewater is treated in Building WD by physical-chemical treatment. If appropriate, wastewater may be discharged by hard pipe to the Great Miami River. If concentrations of radioactive contaminants cannot be reduced to acceptable

levels, wastewater is solidified and shipped to the Nevada Test Site or Envirocare for disposal. All outfalls are permitted under an active National Pollutant Discharge Elimination System (NPDES) permit. Routine monitoring activities are in place. Based on NPDES monitoring report data reviewed, it appears that the facility is in compliance with qualitative and quantitative conditions of the permit.

* Subsequently, MCP effluent was re-routed around the canal via a covered pipe to the Mound Overflow Creek. SBD 8-18-04

9.89.4.2.1 Sanitary Wastewater

Diagram of underground utility lines not included as an attachment SBD 8-18-04

According to a *diagram of underground utility lines, presented as Attachment 5 (Section 9.89.6.5), the building is not serviced by a sanitary wastewater collection line. There are no sinks or toilets in the building.

9.89.4.2.2 Storm Wastewater

SBD 8-18-04 *Drawings not included SBD 8-18-04

The building is ~~not~~ serviced by storm drains according to drawings presented in Attachment 5 (Section 9.89.6.5) The downspouts SBD from the roof drains into ~~the spillway~~ the Storm Drains SBD 8-18-04 behind the building, and water eventually exits the site at an NPDES-permitted outfall. The eyewash and safety shower are located outside, and they drain to the ground. It was outside the scope of this appraisal to perform tests to confirm drainage patterns. ~~No~~ FOUR 8-23-04 SBD exterior grates and drains were observed in the area around the building.

9.89.4.2.3 Chemicals

The building could contain liquid or solid chemicals containing Clean Water Act (CWA) pollutants. A partial list is included in the BMQ. The list was generated from an annual inventory performed at Mound. Data from 1994 are included since, at the time of the walk-through, 1995 data had been collected but was not compiled. An inventory was not performed as part of the appraisal.

The building is designed such that any chemical spilled in Building 72 would drain into one of ~~three~~ four sumps, and then be pumped back into a drum. Sump integrity is checked through annual inspection by EG&G MAT facility Maintenance. The building manager is provided with a report. SBD 8-23-04

9.89.4.3 Potable and Service Water

Potable water is not supplied to the building, according to information presented in the site drawing and shown as Attachment 5 (Section 9.89.6.5). Service water is supplied to the building. The hose bibb has a sign to denote the source. There is no water cooler.

9.89.4.4 Chemical Storage and Hazardous Materials

Building 72 is inspected weekly to confirm that containers are intact, that there is adequate spill containment, and that safety equipment is in working order.

* However, the ceiling-mounted explosion-proof light fixtures may have gaskets made with asbestos-containing materials. The light fixtures will be checked during safe-shutdown activities and any asbestos-containing materials will be removed and disposed of in accordance with State and Federal regulations. SBD 8-23-08

Containers were segregated based on Department of Transportation (DOT) hazard classifications and chemical compatibility. No heat is provided to the building. According to the process manager, drums are not filled to the top so that as they freeze, they do not leak. It is difficult to sample frozen materials.

Individuals working in the building have completed requisite hazardous waste operation and emergency response (HAZWOPPER) training and Resource Conservation and Recovery Act (RCRA) training.

There were over a hundred containers of chemicals stored in the building. There were some Material Safety Data Sheets (MSDS's); note that the facility is exempt from requirements for MSDS's. The MSDS's were used for characterization as well as for safety purposes. Containers included 55-gallon drums which contained mostly characterized waste streams and lab packs. Lab packs are chemical bottles and containers with less than 10 gallons of waste. At the time of the walk-through most containers were labeled as to content in conformance with 49 CFR 172 and Mound Procedure MD-70523. Some containers of commercial products were labeled by the manufacturer, but had no generator's information confirming content or addressing content modification due to use.

The building is equipped with emergency response equipment such as an eyewash, a shower, and a fire extinguisher as required in 29 CFR 1910. Equipment is inspected weekly. It should be noted that the safety shower and eyewash had been inoperable for two months, reportedly due to a broken water line. A portable unit had been moved to the building. A check with Maintenance indicated that no work order to repair the line was on file. Signs related to the Emergency Evacuation Plan and response were posted in work areas as required in 29 CFR 1910. It was recommended that the size of the signs be increased to make them more visible. This is especially important as contractor personnel working around Building 72 might not be aware of Mound procedures.

There are no aboveground storage tanks in or around the building. ~~There are no sumps, separators, or catch basins in the building other than the three sumps under each of the three bays, described earlier in this report.~~ There is one additional sump located in the area designated for explosive materials. This area is enclosed by masonry block walls as a protective barrier. SBD 8-23-04

There are no capacitors or transformers in the building. Large capacitors and transformers removed from service are stored in place until removed from the site. Waste oils and waters containing polychlorinated biphenyls (PCB's) have been stored in the building awaiting disposal. Materials have been contained; there is no record to indicate if the building is contaminated.

The building was ~~tested and does~~ surveyed and is believed to not contain asbestos, based on screening recorded in MD-10391, *Asbestos Program Manual* (9-14-95). *

There were small gas lecture cylinders in the storage area on the day of the walk-through. Gas cylinders can be stored at Building 72. It was recommended that the process manager discuss waste gas cylinder storage issues with the manager of Building 73, the cylinder storage building, as several cylinders were stored there. Due to the large number of cylinders identified by the Safe

Shutdown process, requirements for characterization, labeling, and storage of waste cylinders should be discussed to assure that Building 72 and Building 73 policies agree.

9.89.4.5 Solid, Hazardous, and Radioactive Wastes

According to information provided in the BMQ (Attachment 2, Section 9.89.6.2), an average of 300,000 pounds of hazardous wastes are stored in Building 72. No waste is generated in the building. Building 72 contains no low-specific activity (LSA) waste, other than containers of scintillation vials which are exempt from LSA disposal requirements. Monitoring in accordance with DOE Order 5820.2A is not performed to confirm that exposures are kept below 25mrem/year. The requirements for handling and monitoring of an exempt LSA waste is not clear.

A limited amount of solid waste is generated in the building. The waste stream is composed of containers. If lab packs are bulked, containers are typically included in the disposal drum.

Waste is picked up from Building 72 for transport to permitted disposal facilities. Personnel have completed training in DOT transport requirements.

It is Mound policy for Building 72 to accept only characterized and labeled wastes. Also, in accordance with OAC 3745-52-11 and OAC 3745-65-13, wastes must be characterized by the waste generators prior to receipt at Building 72.

Selected waste characterization forms were reviewed to establish that documentation of building contents conformed to OAC regulations. From the review of records found in Building 72, Building 19, and Building 91, it appears that waste is characterized by the generator and a profile is provided to the Building 72 operators. There is one notable exception. If waste is less than 10 gallons, it is listed as a lab pack, and generally does not have a generator's profile. It is the Building 72 operator's position that lab packs are fully characterized based upon the contents stated on the label, which may be a commercial chemical label. It was the position of members of the appraisal team that generators should complete waste profiles for lab packs in order to comply with requirements of state and Federal laws and Mound procedure. More importantly, it ensures that generators confirm content is as labeled.

An example illustrates this concern. Solvents in original commercial bottles were shipped to Building 72 for disposal. Some solvents had been used to clean equipment, then returned to the bottle for disposal. Others were unused. All were characterized by the Building 72 operators using process waste "F" codes, which are designated for spent solvents. In reality, only those that had been used to clean equipment were spent solvent wastes; the unused solvents were waste commercial chemical products. The Building 72 operator indicated that they had been designated "F" as a conservative measure. Building 72 personnel do not know if chemicals were poured out, used, and returned to the containers, as waste profiles had not been developed by generators. This is an example of mischaracterization of waste which results from characterization by others than the generator.

Other documentation maintained in Building 19 and Building 91 were reviewed, including: weekly inspection checklists, waste shipping profiles, hazardous waste manifests, waste analysis records, and LDR certifications. All documents reviewed were in order.

9.89.4.6 Waste Minimization and Pollution Prevention

At Mound there is an active program to minimize waste streams in accordance with state and federal requirements and Executive Order 12856.

Waste is minimized before it arrives at Building 72.

Procedures in Building 72 as well have been implemented to minimize waste. Opportunities for waste reduction have been explored. For example, to minimize packaging requirements, asbestos has been stored and packaged in bulk containers.

9.89.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment*6 (Section 9.89.6.6). Waste characterization, storage, and handling conform to requirements set forth by Mound procedure, and Federal and state regulations.

* Attachment 6 not included in BDP. SBD 8-18-04

typo? should probably be 72 SBD 8-18-04

The environmental appraisal of Building 89 indicates that the following action items, in priority order, should be planned and scheduled for accomplishment thus assuring that best management and operating practices are in place.

72-1 Waste must be characterized by generators prior to acceptance at Building 72, in conformance with OAC 3745-52-11 and OAC 3745-65-13. Practices related to lab packs should be reviewed for conformance to these regulations. Proper characterization and waste description will lead to appropriate waste code designations.

72-2 LSA monitoring requirements set forth in DOE Order 5820.2A must be reviewed to determine if they apply to areas of LSA-exempt waste storage. It is recommended that a Memorandum to File be issued regarding the justification for the decision that monitoring is not required.

72-3 Discussions should be initiated with the process manager of the gas cylinder storage building to determine if waste cylinders are present at Mound, and what storage arrangements are envisioned for characterized waste cylinders. The area in Building 72 for storage of cylinders is extremely limited.

72-4 The size of emergency response signs should be increased to make them more visible.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 72

Appraisers:

Nancy Vigas
Name Discipline

John Hausfeld
Name Discipline

Name Discipline

Name Discipline

Building Manager: Michael Isper

Process Manager:

Date: 1-24-95

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ENVIRONMENTAL APPRAISAL CHECKLIST

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* there is a fourth sump pit in the explosive materials area. 8-24-04

Environment. ppraisal Checklist

Building Name: 72 Appraisers: Vyas/Hansfield Date: 1/24/98

Clean Water Act (CWA) Screening Checklist

Question	Response	Comments
Does the outside drain spouting of the building discharge directly to a storm sewer/sanitary system?	(Y) N	around bldg to storm ditch
Are there sinks, toilets and floor drains in the building?	Y (N)	If the answer to any of these questions is yes, proceed with the following checklist.
Are chemicals being used in the building?	(Y) N	line to 002
Is there a process which discharges to the storm or sanitary system?	Y (N)	

CWA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 122 Appendix D Table V	If chemicals are used/stored in the building, are they on the attached list? Are they properly contained?	(Y) / N Y / N	The list changes weekly as a function of waste pickup.
	Is the building in operation? What are the processes and where do they discharge to?	(Y) N _____ _____	NO DISCHARGE
	Do the floor drains, sinks & toilets appear to be draining properly?	N/A Y / N	
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary N Storm N	
	Is there a sump/pit in the building? If so, what does it contain? How often is it pumped out? Does water collect in sump? Does sump have secondary containment?	(Y) / N _____ _____ Y / (N) (Y) / N	3 dry sumps under each of 3 bays contain spills. Sumps contents are pumped to drums. *
	Are there any manholes, catch basins, drains, or fill pipes in or around the building? If so, are there any unusual appearances, colors, and/or odors? Describe in comment section. Can chemicals flow into the drain?	(Y) / N Y / (N) Y / (N)	

Facility maintenance - Jim Brown - checks integrity of sumps annually.

There are no chemicals that can spill out of the bldg. In loading dock is protected. Interior bays are self contained.

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Hansfeld Date: 1/24/96

Clean Air Act (CAA) Screening Checklist

Regulatory Guideline	Question	Response	Comments
	Are there any rooms that have air emissions sources that vent to the outside of the building, e.g., fumehoods, equipment? If so, note the rooms.	Y / N	
OAC 3745-35	Using the air emissions inventory reference for this building, are there any sources in the building that are not documented?	Y / N	
	Is there evidence of fugitive dust emissions inside or outside of the building	Y / N	

CAA Checklist

Regulatory Guideline	Question	Response	Comments
	Are there existing air permits or applications applicable to the building?	Y / N	
OAC 3745-31,35	If yes, are the terms and conditions of the permit or the information included on the application (see air emissions database) being followed? Note any differences and update the air emissions database.	Y / N	
OAC 3745-31	Are there any sources that are not included in the air emissions database? If so, note the room, hood number, active or not, POC, and applicable air emission database information on Table B.	Y / N	
OAC 3745-31-03	Are there sources which are lab equipment of lab fumeheads used exclusively for chemical or physical analyses and bench scale lab equipment? These sources do not require a permit. However, the air emissions database should be updated.	Y / N	
	Has there been any release of air contaminants from this building?	Y / N	

Dumpster covered to preclude blowing materials

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Environmenta. ,praisal Checklist

Building Name: 72 Appraisers: Vyas Hausfeld Date: 1/24/96

CAA Checklist

Comments: Note the number of sources/hoods per room, the number that are active, and the POC on the reference document.

TABLE A									
Process Source	Room Number	Hood Number	In Database	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					
			Y / N	Y / N					

Source:_____

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Bhuerfeld Date: 1/24/91

Hazardous Materials (HM) Screening Checklist

Question	Response	Comments
Are any chemicals used or stored in this building, now or in the past?	(Y) N	If the answer is yes, proceed with the following checklist.

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.1200(b,f)	All containers of hazardous chemicals shall be labeled as to the identity of the chemical and the appropriate hazard warnings.	(Y) / N	
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y / N	TSD exempt from MSDS Sheets.
29 CFR 1910.22, 1910.106, 1910.176	All places of employment, passageways, storerooms and service areas shall be kept clean and orderly and in a sanitary manner. Aisles shall be unobstructed. Drums and containers are not leaking and are tightly sealed.	(Y) N	
29 CFR 1910.106	Storage cabinets for flammable materials are constantly kept closed, are fire resistant and are labeled "FLAMMABLE - Keep Fire Away". Containers inside should be labeled and closed. No spills inside cabinet.	(Y) / N	
29 CFR 1910.106(d)(7)	Incompatible chemicals are not stored together.	(Y) / N	
29 CFR 1910.106(d)(4)	Inside Flammable/combustible storage rooms must meet the following: 4 in. raised sill or trench that drains to a safe area, liquid tight wall/floor joints, self-closing doors, gravity or mechanical exhaust providing 6 room changes/hr., exhaust switch located outside room, at least one 3 ft. aisle; no cracks in secondary containment.	Y / N NA.	

Environmenta ,praisal Checklist

Building Name: 72

Appraisers: Hansfeld Merker

Date: 1/24/96

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.106(d)(7)	All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted.	(Y) N	
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	(Y) / N	
CGA P-1 3.3 & 3.3.10	All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents.	Y / N	cylinders 32 to 73
CGA P-1 3.5.3	Full and empty containers should be stored separately with the storage layout planned so that containers comprising of old stock can be removed first with a minimum handling of other containers.	(Y) N	
CGA P-1 3.5.8	All compressed gas containers in service or in storage shall be stored standing upright and the container shall be secured.	Y / N NA	
CGA P-1 4.2.2	Oxygen cylinders shall be separated from flammable gas containers or combustible materials a minimum of 20 ft. or a noncombustible barrier 5 ft. high.	Y / N NA	
29 CFR 1910.104(2)(10)	Oxygen stored as a liquid shall be on a noncombustible surface. Asphalt is considered combustible. Wood and long dry grass shall be cut back 15 ft. from the container.	Y / N NA	
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N NA	
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y) N	Post larger sign
	Is there an emergency response plan available?	(Y) N	

• Post larger sign for emergency response.

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Hausfeld Meiker Date: 1/24/96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	(Y) / N	Waste is bulked into larger containers
	Does it have proper containment?	(Y) / N	
	Is there a liquid bulk transfer area?	Y / (N)	
	Is there proper containment?	Y / (N)	
	Is there an above ground storage tank? If so, complete Table B.	Y (N)	

Above Ground Storage Tanks Inventory

TABLE B—Above Ground Storage Tanks Inventory

Building	Capacity (Gal.)	Contents	Estimated Volume	In Service	Containment	Visual Stains/ Contamination	If Empty, Flushed
		None		Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N

Source: _____

Environmei ..ppraisal Checklist

Building Name: 72 Appraisers: Vyas Hawfield Date: 1/24/96

Safe Drinking Water Act (SDWA) Screening Checklist

Does this facility have potable water?	Y / N	If yes, conduct the following survey.

SDWA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 95-02 (A)	Do actual or potential cross-connections exist between potable (light green) and service water (dark green)?	Y / N	
OAC 3745 95-04 (B)(C)	Are backflow prevention devices installed where cross connections (hoses connected to faucets, hot water tank vented directly to a drain) exist?	Y / N NA	
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	Y / N	
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	Y / N	

hose service water - noted & signed

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
	None		

Source: Hose w/service water

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Hausfeld / Merker Date: 1/24/96

RCRA Screening Checklist

Does this facility generate waste or use chemicals?	(Y) N	If yes, conduct the following survey.

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745 52-11	Has any material generated been characterized RCRA hazardous? Was charactarization by analysis or by process knowledge? Are lab results or documentation of process knowledge readily available? Note any uncharacterized material in comment section. Is it waste? If yes, proceed with next section.	(Y) N analysis / process (Y) N Y / N	
OAC 3745 52-11	Are any of the materials noted RCRA hazardous waste? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed with the appropriate section below.	(Y) N	

Jasper concerned that cuts in funding slow down movement of waste off site. Of particular concern as site undergoes "shutdown" + many bldgs are safe shutdown + processes discontinued.

Check - yes / Funding cut by DOE EM

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Building Name: 72 Appraisers: Virgis Hausfeld Date: 1/24/96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
I. HAZARDOUS WASTE STORED IN CONTAINERS			
	Is there an area in the building that could qualify as a Satellite Accumulation Area?	Y / N	
	Is it treated as such?	Y / N	
OAC 3475-52-34 (C)	Has any of the RCRA hazardous waste in this building been managed in Satellite Accumulation Areas? If no, proceed to the next section. If yes, answer the following.	Y / N	moved from SAA to B72
	Are the containers marked with the words hazardous waste, or other words denoting the hazard?	Y / N	
	Are the containers in good condition?	Y / N	
	Are the waste compatible with the containers?	Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the plant site boundary?	Y / N	per Tspert & King's knowledge of SAAs
	Are containers kept closed and locked except during filling?	Y / N	
	Are containers moved within 3 days of being filled?	Y / N	

75% waste in B72 characterized by process knowledge; 25% by analysis

NO SAA in B72

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Haussfeld ~~Atef~~ Vigas Date: 1-24-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745-52-11 (A)	If a Satellite accumulation area has been abandoned and/or if waste left in place, and the containers may be subject to the 90-day-storage exclusion. If this exclusion does not apply, go to the next section. If the containers have been in storage under this exclusion, answer the following:	NA	
	Are the containers in good condition?	Y / N	
	Are the waste compatible with the containers?	Y / N	
	Are the containers kept closed except during filling?	Y / N	
	Are the containers managed in such a way, that they are not ruptured, or leaks caused?	Y / N	
	Is the area inspected at least once weekly?	Y / N	
	Is the inspection recorded? Where is the log? Is it properly completed, dated, and signed?	Y / N Y / N	
	Are containers managing ignitable hazardous waste stored at least 50 feet from the facility boundary?	Y / N	
	Are incompatible wastes managed in such a way that they will not react with another incompatible waste?	Y / N	
OAC 3745-52-34(B)	Has any of the waste (except in Building 23, Building 72 and the Burn Area) been managed in excess of 90-days?	Y / N	
	If no go to next section.		
	If yes, note.		
	For Building 23, Building 72 & Burn Area use special checklist.		

Waste management does not accept waste from buffer areas. If waste is in buffer area, ~~it~~ health physics performs tests & creates paperwork to prove no contamination.

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Building Name: 72 Appraisers: Virgie Huesfeld Date: 1-24-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
II. **HAZARDOUS WASTE STORED IN TANKS**			
OAC 3745-52-32 (B)	Has any chemical waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	
	If the answer was no, then proceed with the following:	Y / N	
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Is there a sump?	Y / N	
	Is it dry?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Has any hazardous waste stored in a tank, piece of process equipment or ancillary equipment been in storage in excess of 90-days?	Y / N	
	If the answer was no, then proceed with the following:		
	Has the tank or piece of equipment had an integrity assessment?	Y / N	
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	
	Has spill control prevention been enacted?	Y / N	
	Is there a closure plan?	Y / N	
	If yes, then note.		
OAC 3745-67	Has any of the waste been managed in a surface impoundment? If yes, then note. Go to the next section.	Y / N	

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vytas Haensfeld Date: 1-24-96

RCRA Checklist

Regulatory Guideline	Question	Response	Comments
OAC 3745-68	Has any of the waste been managed in a Landfill? If yes, then note. Go to the next section.	Y / N	
OAC 3745-68	Has any of the waste been managed in an Incinerator (other than Burn area units)? If yes, then note. Go to the next section.	Y / N	
OAC 3745-68	Has any of the waste been managed in a Thermal treatment Unit (other than Burn area units)? If yes, then note. Go to the next section	Y / N	
OAC 3745-69	Has any of the waste been managed in a Miscellaneous Treatment Unit (other than Burn area units)? If yes, then not. Go to the next section.	Y / N	
OAC 3745-56	Has any of the waste been managed in a Waste Pile? If yes, then note. Go to the next section.	Y / N	

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General Comments:

Environment: ppraisal Checklist

Building Name: 72 Appraisers: Vyas Hansfield Date: 1-24-96

Asbestos Screening Checklist

Does this facility contain ACBM?	Y / N	If yes, conduct the following survey.

Bldg constructed 1990. * constructed in 1984 (current location) 8-24-06

Asbestos Checklist

Note: Routinely, the asbestos standard for ACBM in schools has been applied to facilities for purpose of cleanup. In addition to AEHERA, there are additional standards in the NESHAPS that may be of importance.

Regulatory Guideline	Question	Response	Comments
ADAPTED FROM TSCA ACBM IN SCHOOLS:			
	Has this building been characterized either through process knowledge, by analyses, or by inspection to determine if it contains asbestos? If no for this building or area note this conclusion in the comment section.	Y / N	
	Is there any evidence of friable asbestos?	Y / N	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N	If there is no asbestos removal, do not complete the following section.
NESHAPS FOR ASBESTOS FOR ANY ONGOING ASBESTOS REMOVAL:			
40 CFR 61.156	There are no discharges of visible emissions to the outside air from collection, processing, packaging, transporting, or deposition of ACBM during the removal.	Y / N	
40 CFR 61.152(b) (1)	ACBM is treated with water in accordance with 40 CFR 152(b)?	Y / N	
40 CFR 61.154	Is friable asbestos adequately wetted during stripping? Or, has an adequate ventilation and collection system been installed?	Y / N	
40 CFR 61.152	Is wetting continued until the waste friable asbestos is collected for disposal?	Y / N	

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Hansfield Date: 1/24/91

Toxic Substances and Control Act (TSCA) PCB's Screening Checklist

Does this facility potentially contain any PCB's or PCB contaminated equipment?	(Y) / N	If yes, are transformers labeled (Blue or Yellow stickers)? If yes, conduct the following survey.

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761	Has any waste generated in, or from, this building been characterized either through process knowledge or by analyses to determine if it contains PCB's ? If the answer is no, note . If the answer is yes, proceed with next section.	(Y) / N	
	Based on an inspection, are any of the materials or equipment potentially PCB contaminated? If no, note and stop here. If yes, note the location of the management unit, and the method of management, and proceed.	(Y) / N	
40 CFR 761.65 (c) (5)	Are PCB articles or containers stored in this building checked for leaks at least once every 30 days?	(Y) / N	Checked weekly. Weekly building insp list.
	If yes, are auditable records maintained.	Y / N	
40 CFR.30 (a) (1) (ix)	Are any PCB transformers in use, or stored for possible reuse, that contain PCB's at concentrations of 500 ppm or greater?	Y / (N)	
	Are they visually inspected quarterly? If yes, are auditable records maintained?	Y / N NA	

Weekly building inspection is conducted to make sure that safety equipment works, containers are intact, adequate spill containment.

Environmental Appraisal Checklist

Building Name: 72

Appraisers: Vogue / Hansfield

Date: 1-24/96

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761.30 (a) 1,viii	Are all combustible materials (i.e., paints, solvents, plastics, paper, sawn wood, etc.) cleared from areas containing PCB transformers to a distance of five meters?	(Y) / N	
40 CFR 761.65 (b) (8)	Are all PCB articles and containers labeled with the date they were placed in storage?	(Y) / N	
	Are labeled PCB articles and containers stored so that the labels can be referenced?	(Y) / N	
40 CFR 761.65 (a)	Are all PCB's and PCB contaminated items at concentrations above 50 PPM, that are stored for disposal, stored no longer than one year from the date they were placed in storage?	Y / (N)	
40 CFR 761.62 (b) (1) (i)	Do all PCB storage areas have an adequate roof and walls to prevent rainwater from reaching the stored items?	(Y) / N	
40 CFR 761.62 (b) (1) (iv)	Are storage are floors curbed and constructed of continuous smooth and impervious materials?	(Y) / N	
40 CFR 761.62 (b) (1) (i)	Are the curbs at least 6 inches high?	(Y) / N	
40 CFR 761.62 (b) (1) (iii)	No drains are allowed in storage areas. Are there drains in the storage areas?	~~Y~~ / (N)	

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Environmental Appraisal Checklist

Building Name: 72

Appraisers: Vyas Hausfeld

Date: 1/24/96

TSCA Checklist

Regulatory Guideline	Question	Response	Comments
40 CFR 761.65 (c) (2)	Only non-leaking and undamaged large high voltage PCB's capacitators and PCB-containing electrical equipment are allowed to be stored outside of PCB storage areas, on pallets if stored outside, with containment for 10 percent of the volume of the equipment. Do all PCB's stored in this configuration conform with this requirement?	Y / N	Large capacitors / transformers stored in place for immediate removal.
40 CFR 761.45 and .65	Are all PCB storage areas marked with a large PCB mark as described in 40 CFR 761.45 (a)?	(Y) / N	
40 CFR 761.65 (c) (5)	Have all leaking PCB articles and containers been transferred to non-leaking containers?	(Y) / N	
40 CFR 761.65 (c) (6)	Do all PCB storage containers for the storage of liquid and non-liquid PCB's comply with DOT shipping container specifications?	(Y) / N	

GENERAL COMMENTS:

Environmen[illegible] Appraisal Checklist

Building Name: Vega 72 Appraisers: Vigo/Hansfield Date: 1/24/91

Low-Level Waste and Transuranic Waste Screening Checklist

Does this facility contain radioactive waste ?	Y / N	If yes, conduct the following survey.

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
Low-Level Waste			
DOE Order 5820.2A Chapter III	Can any waste generated in, or from, this building be characterized either through process knowledge or by analyses to determine if it is LLW ? If the answer is no, note. If the answer is yes, proceed with next section.	Y / N ? !	SCINT VIALS ARE exempt LSA
DOE Order 5820.2A Chapter III.	Are any of the materials noted by inspection LLW? If no, The audit would stop here, because there are no LLW. If yes, note the location of the management unit, and the method of management, and proceed with the section below.	Y / N SCINT VIALS?	
DOE Order 5820.2A Chapter III, 3.a.	Have the storage configurations in use in this area been taken into account for keeping external exposures to the general public below 25 mrem/yr?	Y / N	
	Is the waste stored in a configuration that protects ground-water resources?	Y / N	
DOE Order 5820.2A Chapter III, 3.b.	Has monitoring been conducted in this area in accordance with DOE Order 5820.2A in order to evaluate the area against the performance standard?	Y / N	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N	

Discuss with Fontaine if LSA waste management rules apply to SCINT VIALS - exempt waste - Exempt [illegible]

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Hunsfeed Date: 1/24/96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A Chapter III, 3.d.	Based on field data, is the characterization of the materials in this area sufficient to assure proper segregation to assure proper segregation, treatment, storage, and disposal?	Y / N	
	Based on field data does the characterization as documented at the time of generation of the waste ensure that the actual physical and chemical characteristics, and major radionuclide content of this material are recorded and known at all stages of the waste management process?	Y / N	NOT REVIEWED DETERMINE IF APPLICABLE.
	Do characterization data include the following:		
	Physical and chemical characteristics of the waste?	Y / N	
	Volume of the waste (including solidification and absorbent material)?	Y / N	
	Weight of the waste (including solidification and absorbent material)?	Y / N	
	Major radionuclides and their concentrations?	Y / N	
	Packaging date, package weight, external volume?	Y / N	
	How were the concentration of radionuclides determined? Direct methods?	_____	
	How were the concentrations of radionuclides determined? Indirect methods?	_____	
DOE Order 5820.2A Chapter III, 3.h	Is the storage configuration in long term storage sufficient to meet the performance standard?	Y / N	
	Are records maintained at the facility enabling this waste to be traced from its origin?	Y / N	

Building Name: 72 Appraisers: Vyas Hansped Date: 1-24-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
TRU WASTE			
	Can any waste generated in, or from this building be characterized either through process knowledge or by analyses to determine if it is TRU waste? If no, note and stop. If yes, proceed with the next section.	Y / N	
	Are any of the materials noted as being TRU waste during an inspection? If no, note and stop. If the answer is yes, note the location of the management unit, and the method of management and proceed with the appropriate section below.	Y / N	
DOE Order 5820.2A, Chapter II, 3.a	Was this material evaluated as soon as possible in the generating process, to determine if it is TRU (>100nCi/g), if it is recoverable, or if it is waste? (Note if the activity level is less than 100nCi/g, the waste is not TRU, and can be managed as LLW.)	Y / N	
	Did the determination of TRU radionuclide concentration include the mass of the container, including shielding? These should be included in calculating the specific activity of the waste.	Y / N	

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Hansfield Date: 1-24-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II, 3.b	Has the TRU waste been assayed or otherwise evaluated to determine its radioactive content prior to storage?	Y / N	
	Has the TRU waste been characterized or otherwise evaluated to determine if hazardous waste is present?	Y / N	
	Has classified TRU waste been treated to destroy the classified characteristics?	Y / N	
DOE Order 5820.2A, Chapter II 3.d	Has all newly generated TRU waste been packaged in non-combustible packaging that meets DOT requirements?	Y / N	
	Have all Type A TRU waste packages been equipped with a method to prevent pressure buildup?	Y / N	
	Have all TRU packages been marked, labeled and sealed in accordance with 40 CFR 261 Subpart C and 49 CFR 172 Subparts D, E and 49 CFR 173 Subpart I?	Y / N	

Environmenta ppraisal Checklist

Building Name: 72

Appraisers: Vigo Hansfield

Date: 1-24-96

Low-Level Waste and Transuranic Waste Checklist

not completed

Regulatory Guideline	Question	Response	Comments
DOE Order 5820.2A, Chapter II 3.e	Has the TRU waste been segregated in manner that will not permit commingling of TRU waste with LLW or high-level waste?	Y / N	
	Has the TRU waste been protected from unauthorized access?	Y / N	
	Has the TRU waste been monitored periodically to ensure that it is not releasing its radioactive and/or hazardous constituents?	Y / N	
	Has this TRU waste storage area been designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	
	Does the facility have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of its radioactive and/or hazardous constituents?	Y / N	

GENERAL COMMENTS:

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyoktausfed Date: 1/24/96

Waste Minimization/Pollution Prevention Activities Screening Checklist

Does this facility generate waste or use chemicals?	(Y) / N	If yes, conduct the following survey.

Waste Minimiaztion/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Based on available information and a walk through, are there any apparent opportunities to curtail the consumption of raw materials (including but not limited to paper, chemicals, electricity, and etc.). If yes, list candidate areas in the comment section.	(Y) / N	save via bulk disposal + minimizing packaging must
	Are there solvent wastes?	Y / N	waste min occurs before waste gets to B72
	Is vehicle maintenance performed?	Y / N	
	Are oils used ?	Y / N	
	Are these corrosive wastes?	Y / N	
	Are there sludges?	Y / N	
	Are there halogenated organic (nonsolvent) wastes?	Y / N	
	Are metals recovered from wastewater?	Y / N	
	Is waste sludge generated?	Y / N	
	Are any waste minimization practices used that reduce the generation of sludge?	Y / N	
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

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Revision 3.0 (1-5-96) should have been initiated by generators Page 22 of 27

minimize - find uses for chemicals

asbestos in bulk disposal in roll offs. 1 month save: 17K

Environmen ..ppraisal Checklist

Building Name: 72 Appraisers: Vogs Hausfeld Date: 1-24-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES		NA	
	Are halogenated organic wastes used as fuel in cement kilns?	Y / N	
	Are baghouse filters used to collect pesticides and pesticide intermediates?	Y / N	
	Are solid wastes generated from the collection of baghouse dust?	Y / N	
	Wet instead of dry grinding used?	Y / N	
	The output spray dried?	Y / N	
	Has baghouse emptying and recycling of baghouse fines been scheduled?	Y / N	
	Have operations been evaluated to improve procedures such as handling, storage and spill prevention for increased efficiency?	Y / N	
METAL WASTES		NA	
	Are any technologies for the recovering of metals from waste rinsewater used?	Y / N	
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES		NA	
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vegas Hausfeld Date: 1-24-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are ion exchange resins used to remove heavy metals and cyanides from acid and base solutions?	Y / N	
	Is crystallization used to remove corrosives from solution by cooling?	Y / N	
	Is the process of evaporation of liquid wastes by heating used to leave behind a more concentrated solution?	Y / N	
CYANIDE AND REACTIVE WASTES		NA	
	Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ?	Y / N	
	Are any of these processes used to recycle cyanide wastes?	Y / N	
	Refrigeration/crystallization?	Y / N	
	Evaporation?	Y / N	
	Ion exchange?	Y / N	
	Membrane separation which includes reverse osmosis or electrodialysis?	Y / N	
VEHICLE MAINTENANCE		NA	
	How are auto parts cleaned?	Y / N	
	Solvent sink?	Y / N	
	Solvent dunk bucket?	Y / N	
	Solvent dip tank?	Y / N	
	Are parts cleaning solvents used for anything else besides cleaning parts?	Y / N	
	Are spills reduced by locating sinks or dunk buckets near auto service bays?	Y / N	

Building Name: 72 Appraisers: Vyas Haresfeld Date: 1-24-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / N	
	Are drip tanks used to capture losses?	Y / N	
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / N	
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	
OILS			
	What kind of oils are used?		
	Hydraulic oil?	Y / N	
	Transformer oil?	Y / N	
	Metal working fluids?	Y / N	
	Spent lubricating oils?	Y / N	
	Can the process be modified or changed to use water-based fluids?	Y / N	
	Are these good housekeeping and operation practices used to minimize oil waste production?		
	Use oils not contaminated with other liquids?	Y / N	
	Oil spills prevented?	Y / N	
	Drip pans installed?	Y / N	
	Oil soaked rags laundered?	Y / N	
	Rags and absorbants used to their limit?	Y / N	

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Environmental Appraisal Checklist

Building Name: 72 Appraisers: Vyas Hirsfeld Date: 1-24-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		
	Reclaiming process to remove water and solvents by heat?	Y / N	
	Gravity setting?	Y / N	
	Screening?	Y / N	
	Centrifugation?	Y / N	
	Filtration?	Y / N	
SOLVENT WASTES		NA	
	Has there been an attempt to reduce volume or toxicity by:		
	Eliminating solvents?	Y / N	
	Reducing the use of solvents?	Y / N	
	Reducing the loss of solvents?	Y / N	
	Increasing recyclability?	Y / N	
	Are solvents segregated?	Y / N	
	Are waste solvents free from water and garbage?	Y / N	
	Are recycled solvent containers labeled as such?	Y / N	
	Are containers kept closed?	Y / N	
	Free and sheltered from the elements?	Y / N	
	Are solvent tanks kept as free from contaminations as possible so that the waste can be recycled?	Y / N	
	Is a method used to minimize the use of new materials such as a countercurrent process?	Y / N	

Building Name: 72 Appraisers: Vogus / Hunsfeld Date: 1-24-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	If there is a recycling program, what technique is used?	Y / N	
	Distillation?	Y / N	NA
	Solids removal?	Y / N	
	Dispersion breaking?	Y / N	
	Dissolved and emulsified organics recovery?	Y / N	
	Are any of these housekeeping procedures used to minimize the production of solvent wastes?		
	Separators cleaned and checked?	Y / N	
	Parts not allowed to enter the degreaser while wet?	Y / N	
	Sludge from the bottom of the tank not allowed to accumulate?	Y / N	
	Lids kept on tanks?	Y / N	
	Freeboard space on tanks increased?	Y / N	
	Are better operating practices used to reduce waste?	Y / N	
	How long is solvent waste stored and where?	_____ _____	

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: X 4526 Date: 12-07-95
Alternate: STEVE KING Phone: X 5117

1. What are the access requirements (training, clearance, etc.)?

   APPROPRIATE RCRA AND OSHA HAZ WASTE TRAINING

2. What protective equipment is required to enter the building?

   SAFETY GLASSES W/SIDE SHIELDS

3. Are there any restricted areas? Yes (No)
   Where are they?

4. Provide a physical description of the building.

Building is an 2,400-ft^2 steel frame building with a metal roof. It is open on one side. Building is not contaminated with any radioactive or energetic materials.

Source: Mound Facility Physical Characterization, 12-1-93

5. Provide a drawing of the building.

Attached.

6. What is the current building use?

Building is used to store hazardous wastes.

Source: Mound Buildings, 5-9-95

7. What is the history of building use other than that described in #6?

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x 4526 Date: 12-07-95
Alternate: STEVE KING Phone: x 5117

8. What are ongoing operations or processes? What are the raw materials and waste streams from each process? Who is the best contact for each process?

Process(es) Housed: Hazardous waste storage

How Wastes Are Generated:

All hazardous wastes stored here until pickup for disposal are kept in separate compartments or containers.

No hazardous wastes are generated in this building. WASTES ARE GENERATED PLANT-WIDE.

Contact: MIKE ISPER
Phone #: x 4526

Source: Characterization of Mound's Hazardous, Radioactive, and Mixed Waste, (8-15-90).

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x 4526 Date: 12-07-95
Alternate: STEVE KING Phone: x 5117

9. In the last six months, have any modifications been made to the building or to processes in the building? Yes No

NEW/ADDITIONAL GARAGE DOOR WITH HYDRAULIC LIFT DOCK

10. Does the building have air emission sources? No

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissions
			Y / N					
			Y / N					
			Y / N					
			Y / N					
			Y / N					

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x 4526 Date: 12-07-95
Alternate: STEVE KING Phone: X 5117

11. Describe air pollution control equipment used to reduce emissions for each source. None Listed

Process Source	Emissions	Control Equipment	Functioning
			Y / N
			Y / N
			Y / N
			Y / N
			Y / N

Source: Air Permits 2/4/95

12. For existing permits are emissions monitored? At what frequency? Where are the records maintained? None Listed

Process Source	Permit	Log	Permit Conditions & Frequency of Monitoring
		Y / N	
		Y / N	
		Y / N	
		Y / N	
		Y / N	

Source: Air Permits 2/4/95

13. Does the building have domestic water service? Yes No → WATER HOSE W/SPIGOT
Is there bottled water? Yes No

14. Does the building discharge to the storm sewer? Yes No *
Where?

15. Does the building discharge to the sanitary sewer? Yes No
Where?

16. Has an asbestos survey been conducted? Yes
What are the results? NO

Source: Technical Manual MD-10391, Issue 3 Asbestos Program Manual 9/6/95

* Runoff from bldg. roof & asphalt pavement surrounding bldg. goes to storm sewer system SBD. 8-24-08

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: X4526 Date: 12-07-95
Alternate: STEVE KING Phone: X5117

17. Does the building contain transformers or capacitors? No

Source: PCB ANNUAL DOCUMENT LOG

18. Has the building been identified as containing PCBs? No

Source: PCB ANNUAL DOCUMENT LOG

19. What chemicals are used or stored inside or outside of the building? Include compressed gasses not in large tanks.

Chemical Name	State	Amount (MAX)
ACETONE	L	1 L
HEXANE	L	500 ML
ISOPROPYL ALCOHOL	L	500 ML
ISOPROPYL ALCOHOL	L	75 ML
ISOPROPYL ALCOHOL	L	500 ML
ISOPROPYL ALCOHOL	L	500 ML

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x4526 Date: 12-07-95
Alternate: STEVE KING Phone: x5117

20. Has there been a reported spill, leak, or other release of any chemical? Yes (No)
What, how much, and what clean-up measures were followed?

Chemical	Amount	Clean-up Measures

Source: _____

21. Where do waste chemicals go?

OFF-SITE TREATMENT & DISPOSAL

22. What janitorial supplies are stored inside or outside of the building?

NONE

23. Where do excess janitorial supplies go?

—

Source: _____

24. Are pesticides or herbicides stored or used in or around the building? Yes (No)

Chemical	Amount	Chemical	Amount

Source: _____

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: X4526 Date: 12-07-95
Alternate: STEVE KING Phone: X5117

25. Does the building contain active or inactive above ground storage tanks? Yes No
For each tank, list the content, quantity, last inspection, registration number.

Registration Number	Content	Quantity	Last Inspection Date	Preventive Maintenance Performed	Inside Or Outside

Source: Emergency and Hazardous Chemical Inventory Form - Chemical Storage Tanks on EGG Mound Site Owned and Maintained by Outside Contractors 8/8/94

27. ~~Is the~~re a sump or pit or underground tank in or around the building?
Yes No Unknown
Is it double-walled? What does it contain? How many days per year is it filled?
Is there an emergency overflow tank? Have there been previous overflows?
EACH CONTAINMENT BAY HAS A 'CATCH' SUMP

Double-Walled	Contents	Days/Year in Use	Overflow Tank	Previous Overflows
Y / N			Y / N	Y / N

Source:

27. Does the building generate, store, or dispose of hazardous waste? Yes No

Materials	Amount
AVERAGE AMOUNT OF 300,000 LBS	
OF A WIDE VARIETY OF RCRA	
REGULATED WASTES	

Source: Characterization of Mounds Hazardous, Radioactive, and Mixed Wastes 08/15/90

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x 4526 Date: 12-07-95
Alternate: STEVE KING Phone: x 5117

28. Does the building have abandoned process equipment such as tanks, piping, containers, etc.? Yes No

29. Is waste material stored in or around the building for more than 90 days?
Yes No

30. Has the building been identified as a 90-day waste accumulation area?
Yes No

31. Has any area in the building been identified as a satellite accumulation area?
Yes No

32. Is mixed waste generated, stored, or disposed of from the building? Yes No
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: X4526 Date: 12-07-95
Alternate: STEVE KING Phone: X5117

33. Is TRU radioactive waste generated, stored, or disposed of from the building?
Yes (No)
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

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9.89-49

Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: X4526 Date: 12-07-95
Alternate: STEVE KING Phone: X5117

34. Is low-level radioactive waste generated, stored, or disposed of from the building? Yes No
Where are logs found?

Process	Waste	Stored	Disposed	Logs
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N
		Y / N	Y / N	Y / N

Source: _____

35. Identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, or criminal activities issued against the building.

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Building Manager's Questionnaire

Building Name: 72 Building Manager: M.P. Isper Phone: x4526 Date: 12-07-95
Alternate: STEVE KING Phone: x5117

36. Is there a waste minimization program in the building? Yes (No)
Discuss your ideas about how to minimize waste.

WASTE MIN SHOULD BE IMPLEMENTED
PRIOR TO RECEIPT AT BLDG. 72 —
NO WASTE WIN AT END OF PIPE!

37. Has a pollution prevention program been developed for the building? Yes (No)

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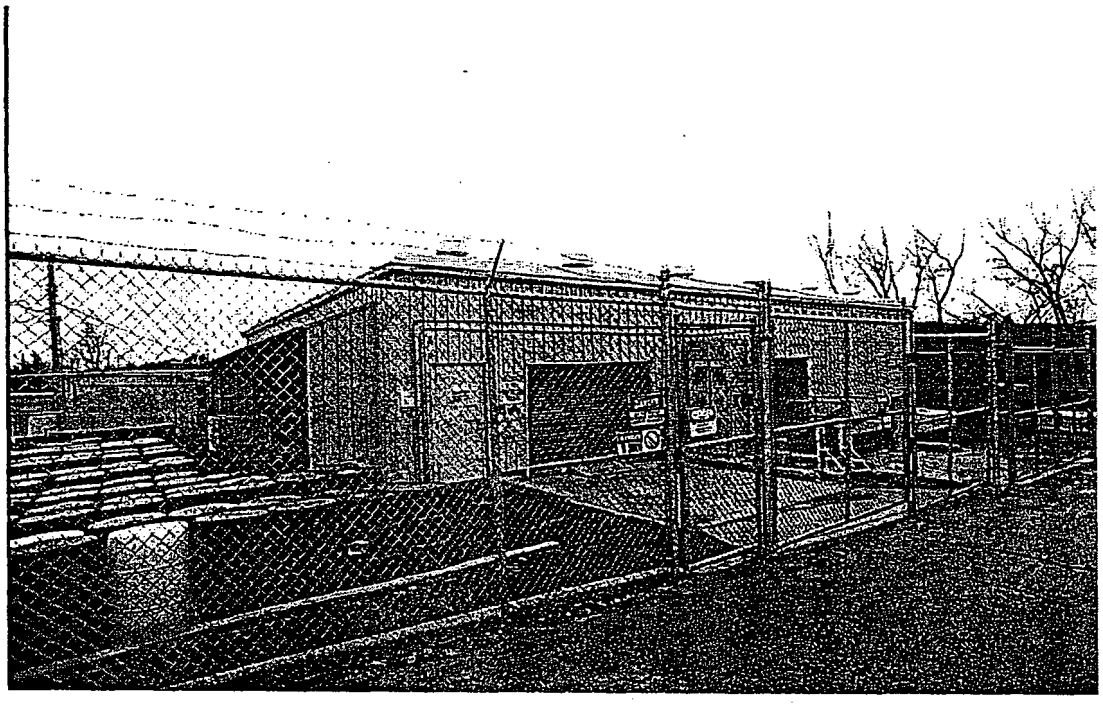
Appendix G

Radiological Information

Final Status Report
For
Building 72



Prepared by: Robert Coblentz / RJ Coblentz Date: September 29, 2004

Reviewed by: Ron Daily / Ron Daily Date: 09/30/2004

Approved by: A. Stephen Collas / Date: 10/4/04

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1.0 Historical Overview

Based upon construction drawings, Building 72 was constructed using part of the framing from an earlier "Building 72" that had been located in the plant valley near Building 87. The original Building 72 had design problems that would have resulted in potential "RCRA non-compliances" with the hazardous waste storage requirements. The "new" Building 72 was designed and constructed in a manner that was to correct these possible problems. The construction date for the relocated Building 72 is 1984. The building is a 40-foot (ft) x 60-ft pre-engineered building constructed over an 8-inch (in.) thick concrete base. The concrete slab was developed from a series of monolithic pours to form three 20-ft x 40-ft dike-surrounded areas, with a smooth crack-free, impervious surface. The concrete base of each bay is sloped to a stainless steel lined sump measuring 24 in. x 24 in. x 32 in. deep, located in the center of each bay. Containers were stored on steel grating that overlaid each 20-ft x 40-ft bay. The sidewalls of the sump are 4.5 in. thick and the base of the sump is 6 in. thick. Portable drum pumps were used to remove any wastes collected in these sumps. The storage area is separated into three bays in order to separate incompatible wastes. Bays 1, 2, and 3 stored flammable liquids, corrosive alkalis, and corrosive acids, respectively. Each bay had an operating storage design capacity of 4,455 gallons (gal.), for a total capacity of 13,365 gallons. There is an added storage area in the northwest corner of the building, designated as an explosive materials storage area. It is approximately 16-ft X 5-ft X 7-ft high, with masonry block walls, and contains a dry sump of the same dimensions as the main building sumps. Vertical steel I beams, anchored at the base, support a steel roof, which is sloped for drainage. The entire structure is electrically grounded. Explosion-proof overhead lighting and electrical outlets were installed as safety features. The east side of the building is open to the outside, but is fitted with a weather-protective canopy. To provide natural ventilation, the three remaining walls are open near the top and bottom. Six ventilators are located on the roof to increase the air circulation in the facility.

Based upon information contained in the BUILDING 72 STRUCTURAL HISTORY AND PROCESS HISTORY SUMMARY BACKGROUND DOCUMENT, "During the mid- to late 1990s, Mound's Waste Management organization conducted a program that included generator assistance and in-the-field assessments, with the purpose of remedying possible waste management issues. This program was carried out by the subgroup Regulatory Compliance Oversight, or RCO."

"During this time frame (late 1996 to early-1997), the lead on these inspections observed 'radiological controlled area' postings had been placed on the entrances to Building 72. Based upon the recollections of this former assessor the rationalization for placing the postings was the discovery of naturally occurring barium compound. The assessor also recalled that the postings were a precautionary measure by 'Radcon', due to the presence this barium compound, and the fact that it registered on the radiological technicians instruments. No memorandums were generated to record these observations. As the assessor recalls, the postings were only in place for 'a few days'."

Also of radiological significance, is that, according to September, 1984 construction drawings, the previous Building 72 site was in close proximity to a "hillside site containing radioactive contamination material". The work to dismantle the building was performed under the jurisdiction of Health Physics, and framing from the previous building was used in building the present structure.

Building 72 was constructed for the sole purpose of storing non-radioactive hazardous waste, and apparently was never used otherwise.

A complete history of Building 72 can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 72 satisfy the site release criteria. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data is compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined on the Survey Plan Form (see Enclosures).

Table 1 lists the permissible surface contamination guideline values as stated in DOE Order 5400.5. These limits are the Derived Concentration Guidelines (DCGL's) for building and structure release.

Table 1

Allowable Total Residual Surface Contamination ($dpm/100cm^2$)*				
Radionuclides*		**Average***	**Maximum***	**Removable***
Group 1	Transuranics, I-125, I129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	**100**	**300**	**20**
Group 2	Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	**1,000**	**3,000**	**200**
Group 3	U-Natural, U-235, U-238 and associated decay products, alpha emitters	**5,000**	**15,000**	**1,000**
Group 4	Beta-gamma emitters (Radionuclides with decay modes other than alpha emission or spontaneous fission) except for Sr-90 and others noted above	**5,000**	**15,000**	**1,000**
Tritium		**N/A**	**N/A**	**10,000**

* Note: Refer to DOE Order 5400.5, Radiation Protection of the Public and the Environment, for specific information on surface contamination guidelines and additional notes.

The average activity levels shown in Table 1 assumes that the residual contamination is uniformly distributed across the survey unit and is the $DCGL_w$ for this survey. The maximum activity shown in Table 1 represents the Elevated Measurement Comparison ($DCGL_{emc}$) for small (<100cm^2) areas of activity that may be observed in the survey unit while scanning. It is assumed that Pu-238 is the potential contaminant of concern and the Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta measurements.

2.1 Survey Design

The characterization survey was designed to evaluate the building internal and external surfaces. Area classification was based on operating history. Floors and interior walls were designated as Class 3. Ceilings, roof, and exterior walls were surveyed judgmentally. The building was divided into survey units as follows:

Building 72 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %
1	Floor	3	2,400	50
2	Interior Walls to 8'	3	1,631	10
3	Ceiling	Judgmental	2,400	Judgmental
4	Exterior Walls	Judgmental	1,400	Judgmental
5	Roof	Judgmental	2,520	Judgmental

Since the variability is expected to be small within the survey unit, the Type I error chosen is $\alpha = 0.05$ and the Type II error is $\beta = 0.05$. The number of data points is determined by calculating the relative shift (Δ/σ) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation (σ) of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). For this survey plan, the LBGR is set at 50% of the $DCGL_w$. The standard deviation was estimated to be 17dpm/100cm^2 based on survey data from similar building surfaces and the relative shift was calculated as 2.95. The required number of data points (n = 14) was obtained from Table 5.5, Reference 2.

Survey data points were randomly placed in the Class 3 survey units. A reference coordinate grid system was used to locate the data points. The location of each data point is determined by multiplying the north-south (X) and the east-west (Y) dimensions of the survey unit by a randomly generated number for each dimension. A computer spreadsheet program was used to determine random coordinates. The data points were then located on a scaled drawing and transferred to the survey unit.

Professional judgment (biased) surveys were performed in overhead and exterior areas to supplement the statistical survey data, but are not combined with the statistical data. Judgmental survey data is compared directly to the release criteria.

Sediment and water samples were collected from the three main collection pits. Sediment smears were collected from the fourth added collection pit, which was empty and dry. Sediment and smear samples were taken from underneath the metal platform outside the rollup door. Direct alpha and beta readings were taken at each sediment sample location.

Loose surface contamination was measured by smearing an area of 100cm^2 at each data point. Smears were counted for gross alpha/beta activity. Removable tritium contamination was measured on interior surfaces by liquid scintillation counting of coin smears.

Replicate surveys were performed in accordance with Reference 3.

The instrument selected for this survey were the Ludlum 2350-1 data logger with a 43-68 hand-held gas flow proportional (GFP) detector for both alpha/beta fixed point measurements and for alpha scan measurements. For safety reasons, ceiling and roof surveys were accomplished via one-square-meter coupon cutouts. 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 gross alpha and beta fixed point measurements from each survey unit were averaged and compared to the $DCGL_w$. All measurements were below the $DCGL_w$ The maximum

data point alpha measurement, excluding roof data points, was 85 dpm/100cm^2. The maximum data point beta measurement , excluding roof data points, was 2752 dpm/100cm^2. Five of the 14 roof data points were above the DCGL$_w$, with the max being 121 dpm/100cm^2 alpha. Isotopic acid etch sampling was performed on roof data points #7 and #12 to identify radionuclides. The radionuclide detected on the roof coupons was Polonium-210. The measured 2350-1 result was therefore compared to the 5400.5, Group 3 contamination limit of 5000 dpm/100cm^2. A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1. A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for this survey plan. The average non-judgmental alpha measurement is 20.3 dpm/100 cm^2 ±3.24 dpm/100 cm^2 and the standard deviation (σ) is 8.75. The relative shift (Δ/σ) = 5.714. The retrospective number of data points (n) per Equation 5-2, Reference 2 is 14. All measurements were below the DCGL$_w$, therefore the statistical test is not required.

The following table shows the maximum and average Fixed Point survey results.

Fixed Point Survey Results

Building 72	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
Average	0.62	.83	1.96	20.3	1786
Standard Deviation	1.21	1.36	2.88	8.75	763
Maximum	4.93	5.04	9.55	35	2752
Confidence Interval	± 0.449	± 0.504	± 1.07	± 3.24	± 282

Note: Judgmental data was excluded from statistical analyses

Fifty percent of the Class 3 Floor survey unit and ten percent of the Class 3 wall survey unit were scanned for alpha and beta activity in accordance with the survey plan. All areas were less than the DCGL$_W$.

Judgmental surveys were performed on ceilings. The highest observed activity was 28 dpm/100cm^2 alpha and 1268 dpm/100cm^2 beta (RSDS# 04-TF-0296). The average activity was 15.07 (±3.22) dpm/100cm^2 alpha and 1492 (±64.4) dpm/100cm^2 beta.

Judgmental surveys were performed on roof areas. The highest observed activity was 121 dpm/100cm^2 alpha and 1926 dpm/100cm^2 beta (RSDS# 04-TF-0296). The average activity was 83.6 (±11.6) dpm/100cm^2 alpha and 1756 (±73.3) dpm/100cm^2 beta. Acid etch sampling was performed on 2 of the 14 data points. Isotopic analysis showed the radionuclide to be Polonium-210. The roof readings were therefore compared to the DOE Order 5400.5, Table 1, Group 3 limit of 5000 dpm/100cm^2.

2.3 Sediment Sample Data

Sediment samples were obtained from 3 of the 4 collection pits. Water was pumped from these 3 pits to gain access to the sediments. The fourth collection pit was dry and empty, so smear samples only were collected. Smear samples were analyzed for gross alpha,

beta and tritium activity in accordance with the survey plan. No activity above background was detected (See RSDS # 04-TF-0145 and # 04-TF-0269).

2.4 Quality Control

Quality control measurements were taken to assess the precision of the measurement system in accordance with Reference 3. Sixteen data points were selected at random from the sample group of 56 non-judgmental data points. Replicate measurements were taken at these locations using the same instruments and performed in the same manner 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). The results of the replicate surveys are shown in the following table:

Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	2σ	Replicate	Initial	2σ	Replicate
SU1-1	31	11.14	17	2752	104.9	2275
SU1-2	12	6.93	7	2432	98.63	2190
SU1-9	19	8.72	17	2216	94.15	2070
SU1-10	15	7.75	10	2649	102.9	1960
SU2-3	0	0.00	10	855	58.48	903
SU2-8	19	8.72	10	804	56.71	988
SU2-14	35	11.83	14	2113	91.93	801
SU3-2	17	8.25	10	1551	78.77	1278
SU3-8	28	10.58	3	1372	74.08	1201
SU3-12	17	8.25	10	1431	75.66	1397
SU4J-1	85	18.44	79	1113	66.72	988
SU4J-4	39	12.49	45	969	62.26	1116
SU4J-13	46	13.56	66	876	59.19	1091
SU5J-3	104	20.40	73	1866	86.39	1500
SU5J-7	100	20.00	100	1772	84.19	1772
SU5J-9	111	21.07	90	1593	79.82	1730
Variance (S^2)	1327		1181	417157		235948
Ratio			2			2
Agreement			YES			YES

Replicate analyses were not performed on smears or sediment samples. 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 acceptable assurance 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 was not required for this survey.

Field instrumentation is source checked each day prior to use and again at the completion of survey activities for that day. A known source is placed in a source holder to ensure a reproducible geometry is achieved. Acceptance criteria is ± 20% of the initial source response following calibration. Results are documented in accordance with Mound

Radiological Control procedures. Laboratory instrumentation is source checked and documented in accordance with Mound Laboratory procedures.

2.5 Conclusion

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 72 satisfy the site release criteria established by DOE Order 5400.5. This is accomplished by comparing the survey data to the release criteria in accordance with the MARSSIM (Reference 2).

All of the DQO's for this survey plan have been met and no further surveys of building surfaces are required. Subsurface material (under-slab piping, footers, etc) and associated soil is not evaluated in this survey, but will be assessed separately when surfaces are accessible in accordance with Mound procedures.

Building 72 meets the surface release criteria established by DOE Order 5400.5. The average and maximum residual contamination in each survey unit is less than the $DCGL_w$ and the survey is accepted as the Final Status Survey in accordance with the Survey Plan. The following tables show the maximum fixed and removable activity on the inside and outside building surfaces.

Building 72 Survey Results

TYPE	RSDS#	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)
Highest Alpha Smearable Activity	04-TF-0268	Floor	4.93	20
Highest Group 1 Alpha Fixed Activity	04-TF-0268	Floor	35	100
Highest Group 3 Alpha Fixed Activity	04-TF-0296	Roof	121	5000
Highest Beta Smearable Activity	04-TF-0296	Ceiling	7.45	1000
Highest Beta Fixed Activity	04-TF-0268	Floor	2752	5000
Highest Tritium Smearable Activity	04-TF-0269	Wall	9.55	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

3.0 Attachments and Enclosures

Attachment 1 – Average Total Alpha and Beta Graph

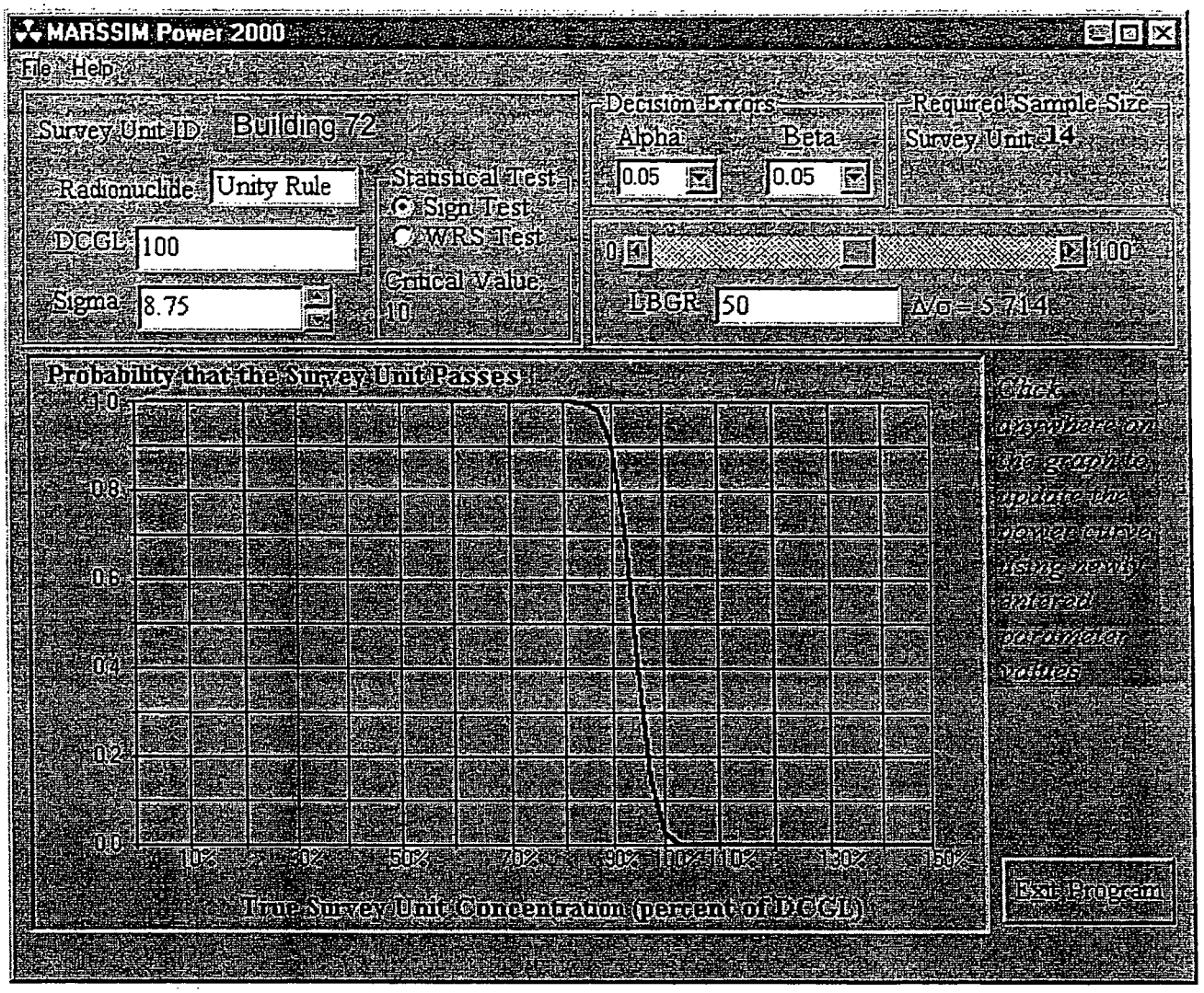
Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 72-01

4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 72 Structural History and Process History Summary Background Document, November, 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402

Retrospective Power Curve



Building 72 Survey Data Collection Sheet

		Smearable			Fixed	
Location	RSDS#	α	β	H^3	α	β
SU1-01	0268	0	0	0	31	2752
SU1-02	0268	0	0	0	12	2432
SU1-03	0268	0	0	3.9	23	2474
SU1-04	0268	0	0	5.01	19	2608
SU1-05	0268	0	0	4.82	31	2237
SU1-06	0268	0	0	1.01	23	2422
SU1-07	0268	0	0	5.5	12	2505
SU1-08	0268	1.47	2.52	2.03	31	2515
SU1-09	0268	0	0.5	6.81	19	2216
SU1-10	0268	0.95	0	0	15	2649
SU1-11	0268	1.75	1.35	8.95	35	2298
SU1-12	0268	0	0	0	27	2597
SU1-13	0268	4.93	4.09	2.1	27	2505
SU1-14	0268	0	0	1.04	19	2340

Location	RSDS#	α	β	H^3	α	β
SU2-01	0269	0	0	0	4	845
SU2-02	0269	1.74	0.37	0	15	969
SU2-03	0269	0	0.48	0	0	855
SU2-04	0269	1.4	0	0	19	1505
SU2-05	0269	3.56	5.04	0	27	1515
SU2-06	0269	1.49	0	0	23	763
SU2-07	0269	0	0	0	15	1278
SU2-08	0269	0	0.43	0	19	804
SU2-09	0269	0	1.84	0.16	15	660
SU2-10	0269	0	2.31	9.55	27	773
SU2-11	0269	0	0	2.76	8	868
SU2-12	0269	0	2.49	1.27	19	886
SU2-13	0269	0	0	0	19	1608
SU2-14	0269	0	1.79	0	35	2113

Location	RSDS#	α	β	H^3	α	β
SU3J-01	0296	0	0	0.49	10	1551
SU3J-02	0296	0	0	4.38	17	1551
SU3J-03	0296	0	0	6.12	3	1713
SU3J-04	0296	0	0	0	7	1525
SU3J-05	0296	0	0.97	1.51	14	1338
SU3J-06	0296	0	0	0	21	1483
SU3J-07	0296	0	7.45	0	14	1738
SU3J-08	0296	0	2.69	1.48	28	1372
SU3J-09	0296	0	0	0	14	1355
SU3J-10	0296	0.95	0	0	17	1483
SU3J-11	0296	0	0	0	14	1525
SU3J-12	0296	1.51	1.07	8.43	17	1431
SU3J-13	0296	0.74	2.99	0	14	1465
SU3J-14	0296	2.02	0	0.53	21	1363

Location	RSDS#	α	β	H^3	α	β
SU4J-01	0269	0	1.7	1.84	85	1113
SU4J-02	0269	3.39	0.82	0	81	1031
SU4J-03	0269	0	2.09	0	62	969
SU4J-04	0269	0	1.11	1.84	39	969
SU4J-05	0269	0	6.22	0	65	1268
SU4J-06	0269	1.48	0	7.32	35	1072
SU4J-07	0269	1.83	2.99	4.58	58	948
SU4J-08	0269	0	3.84	1.77	65	938
SU4J-09	0269	0	2.82	1.8	81	1093
SU4J-10	0269	0	0	0	62	948
SU4J-11	0269	7.48	0	1.76	69	948
SU4J-12	0269	0	3.74	0	73	897
SU4J-13	0269	1.36	1.25	0	46	876
SU4J-14	0269	0.29	1.87	0	54	1062

Location	RSDS#	α	β	H^3	α	β
SU5J -01	0296	1.54	0	5.64	83	1798
SU5J -02	0296	2.2	4.47	4.42	52	1810
SU5J -03	0296	0	0	0	104	1866
SU5J -04	0296	3.91	0.2	1.92	83	1900
SU5J -05	0296	3.72	2.53	0.2	90	1849
SU5J -06	0296	0	0	1.52	100	1874
SU5J -07	0296	3.56	3.92	0	100	1772
SU5J -08	0296	5.46	0.49	4.99	59	1696
SU5J -09	0296	0	0	2.53	111	1593
SU5J -10	0296	0	0.43	0	79	1500
SU5J -11	0296	0	0.5	0	55	1636
SU5J -12	0296	0.95	0	0	121	1653
SU5J -13	0296	3.8	3.78	5.59	79	1926
SU5J -14	0296	0	5.01	6.08	55	1917

		α	β	H^3	α	β
	Avg	0.6175	0.828929	1.961071	20.32143	1786.071
	SD	1.211603238	1.360709	2.87827	8.751948	763.0057
SU's	Max	5.46	5.04	9.55	35	2752
	#	28	28	28	28	28
	+/-	0.44878412	0.504014	1.066126	3.241766	282.6213

Survey Unit 1

	Smearable			Fixed	
	α	β	H^3	α	β
Number	14	14	14	14	14
Avg	0.65	0.6042857	2.9407143	23.14286	2467.857
SD	1.3732555	1.2415481	2.9066832	7.450938	156.9423
Max	4.93	4.09	8.95	35	2752
+/-	0.7193552	0.6503627	1.5226138	3.90304	82.21143

Survey Unit 2

Number	14	14	14	14	14
Avg	0.585	1.0535714	0.9814286	17.5	1104.286
SD	1.0773954	1.4816706	2.5865595	9.296401	428.172
Max	3.56	5.04	9.55	35	2113
+/-	0.5643742	0.7761465	1.3549227	4.869753	224.2902

Survey Unit 3

Number	14	14	14	14	14
Avg	0.3728571	1.0835714	1.6385714	15.07143	1492.357
SD	0.671639	2.09994	2.7047874	6.145221	122.9863
Max	2.02	7.45	8.43	28	1738
+/-	0.351826	1.1000158	1.4168543	3.219063	64.42417

Survey Unit 4

Number	14	14	14	14	14
Avg	1.1307143	2.0178571	1.4935714	62.5	1009.429
SD	2.0942468	1.7548972	2.1406311	15.2656	104.4581
Max	7.48	6.22	7.32	85	1268
+/-	1.0970334	0.9192714	1.1213312	7.996609	54.7185

Survey Unit 5

Number	14	14	14	14	14
Avg	1.7957143	1.5235714	2.3492857	83.64286	1756.429
SD	1.9418774	1.9484495	2.474956	22.23513	139.8564
Max	5.46	5.01	6.08	121	1926
+/-	1.0172176	1.0206603	1.2964612	11.64747	73.26124

Graph Data Alpha

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 4	Survey Unit 5
AVG	23.142857	17.5	15.07	62.50	83.64
MAX	35	35	28	85	121

Graph Data Beta

	Survey Unit 1	Survey Unit 2	Survey Unit 3	Survey Unit 4	Survey Unit 5
AVG	2467.86	1104.29	1492.36	1009.43	1756.43
MAX	2752	2113	1738	1268	1926

Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
	Location #	intial	2σ	replicate	intial	2σ	replicate
1	SU1-1	31	11.14	17	2752	104.92	2275
2	SU1-2	12	6.93	7	2432	95.63	2190
3	SU1-9	19	8.72	17	2216	94.15	2070
4	SU1-10	15	7.75	10	2649	102.94	1960
5	SU2-3	0	0.00	10	855	58.46	903
6	SU2-8	19	8.72	10	804	56.71	988
7	SU2-14	35	11.83	14	2113	91.93	801
8	SU3J-2	17	8.25	10	1551	78.77	1278
9	SU3J-8	28	10.58	3	1372	74.08	1201
10	SU3J-12	17	8.25	10	1431	75.66	1397
11	SU4J-1	85	18.44	79	1113	66.72	988
12	SU4J-4	39	12.49	45	969	62.26	1116
13	SU4J-13	46	13.56	66	878	59.19	1091
14	SU5J-3	104	20.40	73	1866	86.39	1500
15	SU5J-7	100	20.00	100	1772	84.19	1772
16	SU5J-9	111	21.07	90	1593	79.82	1730
	Variance (S2) =	1327		1181	417157		235948
	Ratio			2			2
	Agreement			YES			YES

QC Measurements

	Location	RSDS#	α	β
1	SU1-1	04-TF-0287	17	2275
2	SU1-2	04-TF-0287	7	2190
3	SU1-9	04-TF-0287	17	2070
4	SU1-10	04-TF-0287	10	1960
5	SU2-3	04-TF-0287	10	903
6	SU2-8	04-TF-0287	10	988
7	SU2-14	04-TF-0287	14	801
8	SU3-2	04-TF-0287	10	1278
9	SU3-8	04-TF-0287	3	1201
10	SU3-12	04-TF-0287	10	1397
11	SU4J-1	04-TF-0287	79	988
12	SU4J-4	04-TF-0287	45	1116
13	SU4J-13	04-TF-0287	66	1091
14	SU5J-3	04-TF-0287	73	1500
15	SU5J-7	04-TF-0287	100	1772
16	SU5J-9	04-TF-0287	90	1730

SU#	Number
1	1
1	2
1	9
1	10
2	3
2	8
2	14
3	2
3	8
3	12
4	1
4	4
4	13
5	3
5	7
5	9

Instrument Data

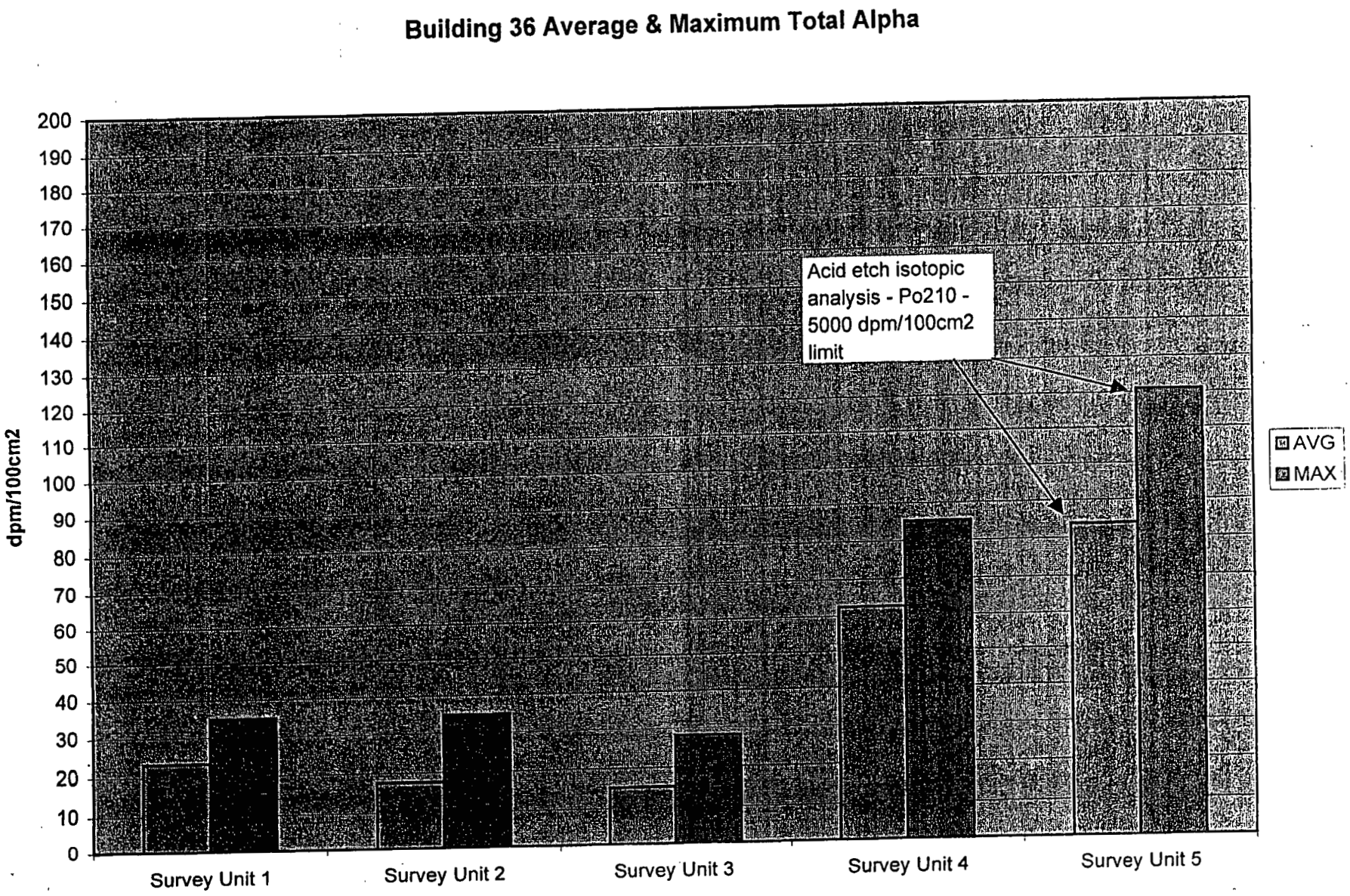
	Inst	SN	CDD	RSDS	α Bkg (cpm)	β Bkg (cpm)
1	L2350	5855/5864	6/9/05	0268	1.2	195
2	L2350	5855/5864	6/9/05	0269	2.4	190
3	L2360	5857/5859	9/9/04	0296	1.4	180
4	L2350	5855/5864	6/9/05	0269	2.4	190
5	L2360	5857/5859	9/9/04	0296	1.4	180

Acid Etch Sample Results

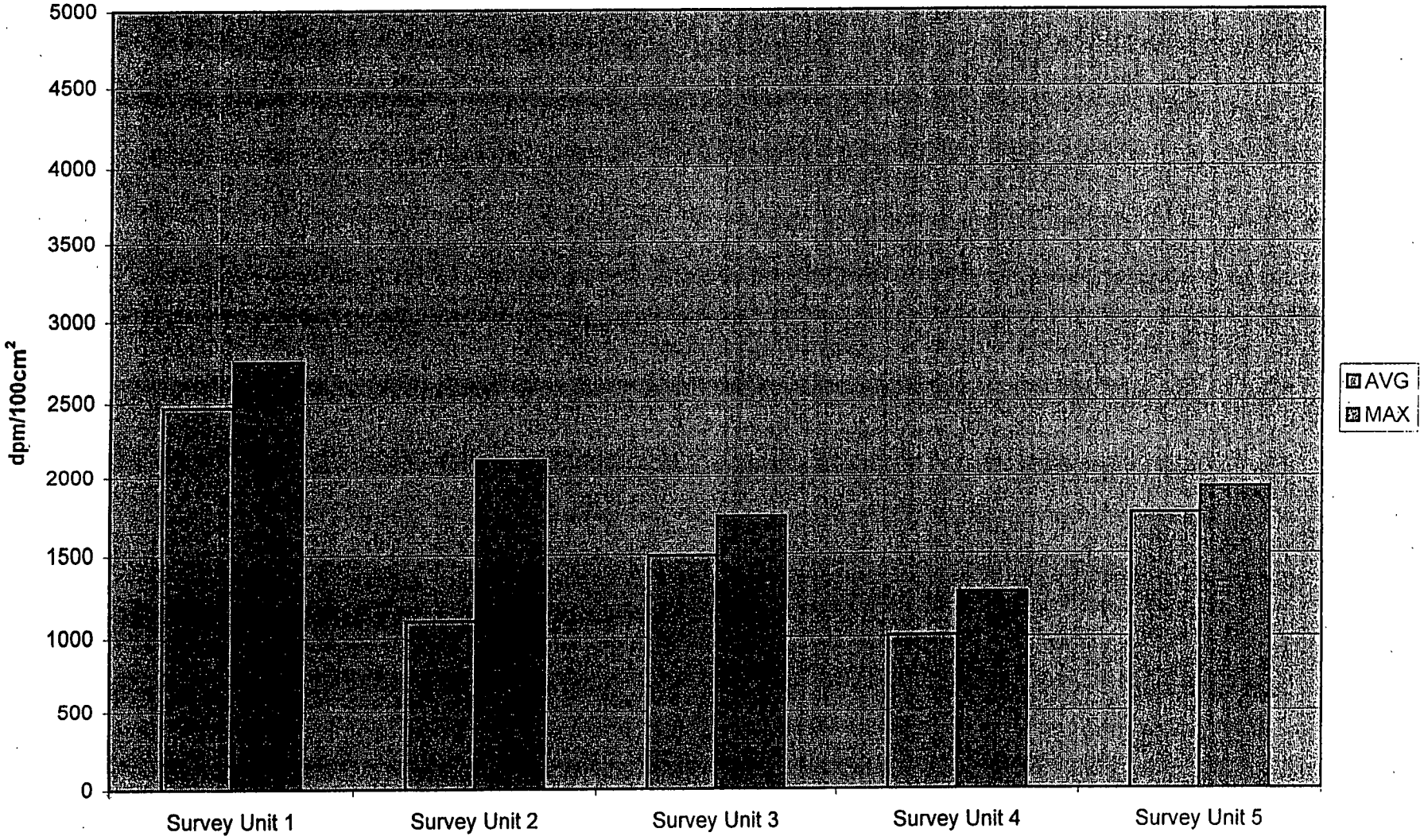
Isotope	dpm/sample	ncertaint	LDL
Pu238	<LDL	<LDL	0.82
Pu239/24	<LDL	<LDL	0.35
Th232	<LDL	<LDL	0.55
Th230	<LDL	<LDL	0.31
Th228	<LDL	<LDL	0.31
Th227	<LDL	<LDL	0.31
U238	<LDL	<LDL	0.66
U235	<LDL	<LDL	1.18
U233/234	<LDL	<LDL	0.66
Po210	36.41	4	1.66

Acid Etch Sample Results

Isotope	pm/sampl	Uncertainty	LDL
Pu238	<LDL	<LDL	1.52
Pu239/24	<LDL	<LDL	1.82
Th232	<LDL	<LDL	0.42
Th230	<LDL	<LDL	0.8
Th228	<LDL	<LDL	0.85
Th227	<LDL	<LDL	0.42
U238	<LDL	<LDL	0.59
U235	<LDL	<LDL	0.31
U233/234	<LDL	<LDL	0.31
Po210	31.29	3.52	1.16


Building 36 Average & Maximum Total Alpha
dpm/100cm2
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Survey Unit 1
Survey Unit 2
Survey Unit 3
Survey Unit 4
Survey Unit 5
Acid etch isotopic analysis - Po210 - 5000 dpm/100cm2 limit
AVG
MAX

Building 36 Average and Maximum Total Beta Activity



SURVEY PLAN FORM

SPF NUMBER	72-01	DATE OF REQUEST	July 27, 2004
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 72		
PURPOSE	The purpose of this SPF is to characterize Building 72 to support decisions on final disposition.		
SURVEY UNIT	(See Attachment 1)	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

☒ SEDIMENT SAMPLE: See specific sediment sampling instructions on page 2.

☐ Rubbelized Material:

☐ OTHER:

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2350	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan surface at a rate of 1" per second at a distance of not more than ¼" from surface
		PROBE TYPE	43-37 Floor Probe or 43-68 Hand Probe		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2350	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 2 minute counts at specified locations not more than ¼" from surface
		PROBE TYPE	43-68 Hand Probe		
SURFACE SCAN	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2360	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	To be used I.A.W. MD 80036, Op 30030 & 30031 for attic and exterior areas, due to accessibility and safety concerns.
		PROBE TYPE	43-89; 43-93		
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE	L-2360	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	To be used I.A.W. MD 80036, Op 30030 & 30031 for attic and exterior areas, due to accessibility and safety concerns.
		PROBE TYPE	43-89; 43-93		

OTHER SURVEY TYPES OR COMMENTS

All surveys shall be performed and documented in accordance with Mound Radiological Control procedures.

Rad Con shall document all discrepancies from the above sampling and surveying instructions on the Radiological Survey Data Sheet (RSDS).

Perform sediment sampling and surface scan surveys prior to performing static measurements.

Ensure the surfaces of interest in the survey unit are dry and free of loose debris or other material that may obscure alpha measurement.

SPF NUMBER	72-01	DATE OF REQUEST	July 26, 2004

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

1. Obtain assistance from the responsible building custodian for access to upper walls, ceilings, roof, etc. Exercise extreme caution when performing surveys from ladders or scaffolds. Follow appropriate site safety procedures when accessing areas requiring fall protection measures.
2. Ensure ventilation units are de-energized prior to attempting to collect a sample. Obtain approval and assistance from the responsible building custodian to dismantle any equipment for sample collection.

Sediment Samples

1. Collect approximately 250ml of debris/water from each accessible ventilation unit opening, floor drain, sump and any other area where debris has accumulated.
2. If insufficient material is present at these sample locations, obtain a representative smear of the location.
3. Document sample information and description of material on Attachment 1.
4. Label sample container with sample number, date and time of collection, and location in accordance with Mound procedures.
5. Perform a static alpha and beta measurement at each sediment sample location.
6. Show sample location and static measurement results on the RSDS map.
7. Submit sediment/water samples to laboratory for gamma spectroscopy analysis. Submit smears for gross alpha and beta analysis.
8. Additional intrusive samples may be collected in areas of elevated activity as determined by the MARSSIM Engineer.

Surface Scan Measurements using a Ludlum 2350 with 43-37 alpha Floor probe

1. Not used for this survey plan.

Surface Scan Measurements using a Ludlum 2350 with 43-68 alpha Hand probe

1. Scan approximately 50% of floor areas by scanning inside the grid areas formed by the grating support framing, in a checkerboard-like fashion.
2. Scan at least 10% of the surface of interior walls using the professional judgment of the surveyor.
3. Using the audible output of instrument, stop and pause for approximately ten (10) seconds if one pop (click) is heard. If one pop (click) is heard during pause, perform an integrated count for two (2) minutes. Otherwise, if no pop heard during pause, continue scan.
4. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

Data Point Location

1. Locate the data points in each survey unit using the coordinates shown in Attachment 3.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS Map.

Continued Next Page

Specific Survey and Sampling Instructions (continued)

Static Measurements Using L 2350 with 43-68 (alpha/beta) probe

1. Perform an integrated alpha and beta measurement at each data point in each Survey Unit.
2. Perform at least 14 integrated alpha and beta measurements on ceilings, crawl spaces, and horizontal structural surfaces where, in the judgement of the surveyor, a potential exists for residual contamination.
3. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (No "<" values). Record instrument background at survey location.

Loose Surface Contamination

1. Obtain a smear of 100cm^2 at each survey point identified above.
2. Count each smear for alpha, beta, and H^3. H^3 analysis is not required for building external surfaces.
3. Record location and results on RSDS map in accordance with Mound Rad Con procedures.

Quality Control

1. QC measurements will be performed by re-surveying 16 data points. Data points selected for resurvey should include the highest and lowest readings in the data set.
2. Sediment samples or smears with measured activity above the MDA may 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.

APPROVAL SIGNATURES				
MARSSIM Engineer	R. Coblentz	RM Coblentz	DATE	July 27, 2004
Technical Reviewer	R.Case		DATE	7/27/04
Rad Con Manager	A.S. Collas	A S Collas	DATE	07/27/04
SP CLOSE-OUT SIGNATURES				
MARSSIM Engineer	R. Coblentz /	RM Coblentz	DATE	09/29/04
Technical Reviewer	A Collas /	A S Collas	DATE	10/4/04
Rad Con Manager	R. Daily		DATE	9/30/2004
COMMENTS				

AC 10/4/04

Building 72 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %	Floor	Walls
1	All	3	2,400	50	X	
2	Interior Walls to 7ft.	3	1,826	10		X
3	Ceiling	J	2,400	J		
4	Exterior Walls to 7ft.	J	1,600	J		X
5	Roof	J	2,520	J		

Sample Data Collection Sheet
Attachment 2

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
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									
72-01-									

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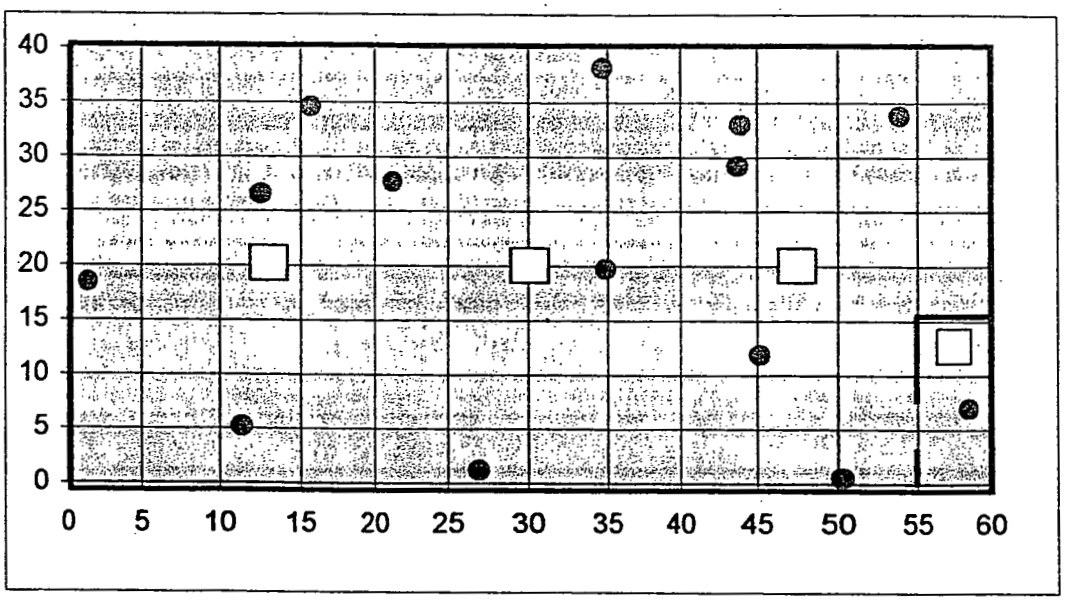
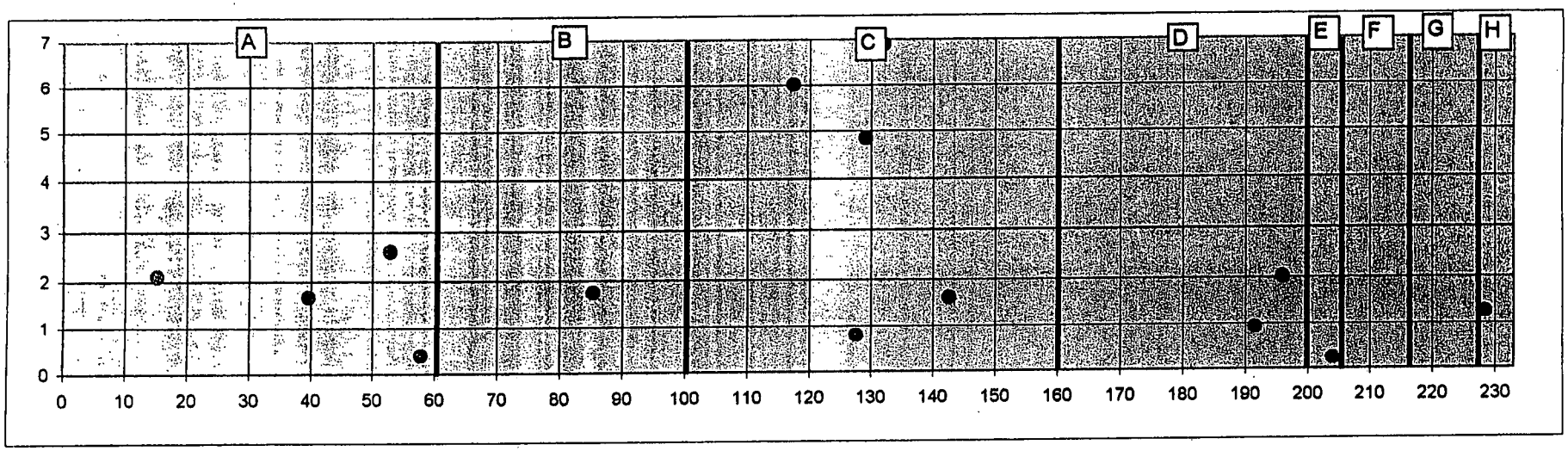
Building 72 Survey Unit 1



NORTH

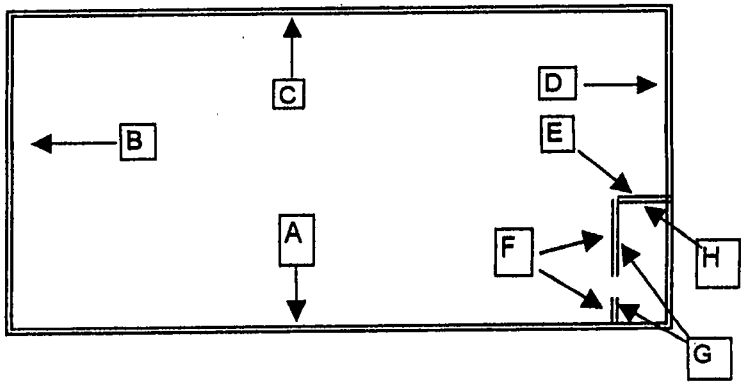
	Survey Unit 1		Area	L	L'
	X (feet)	Y (feet)			
	60.0	40.0	2400	14.06963	12.1843
1	1.4	18.4			
2	11.4	5.2			
3	12.6	26.5			
4	15.7	34.6			
5	21.4	27.6			
6	27.0	1.3			
7	34.7	38.2			
8	34.9	19.8			
9	43.8	29.2			
10	44.0	33.0			
11	45.2	11.9			
12	50.3	0.5			
13	53.8	33.8			
14	58.5	7.0			

Building 72 Survey Unit 2



	Survey Unit 2	
	Y	Z
	233.0	7.0
1	15.2	2.1
2	39.6	1.7
3	52.8	2.6
4	57.7	0.4
5	85.3	1.8
6	117.4	6.0
7	127.6	0.8
8	129.1	4.9
9	131.9	6.9
10	142.5	1.6
11	191.5	0.9
12	196.0	2.0
13	204.0	0.2
14	228.4	1.3

Area	L	L'
1631	9.70405	8.403708



Not to scale

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 72	SURVEY NO. 04-TF-0145
PURPOSE: Scoping Survey 72 Bldg.	RWP NO. N/A
	DATE: 4/29/04
	TIME: 1630

MAP / DRAWING

COPY

See Attached for Results

100% of all accessible areas on top of beams scanned -plus, 1 squared meter around each smear location.

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
(#) = mrem/hr neutron
(#) = swipe number
[#] = air sample number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Ludlum 2360	5833/5847	3-2-05
↓ ↓	5836/5848	2-5-05
	N	
	A	

[redacted]	HP# 6178/1244	Date: 5-3-04
[redacted]		
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed/Approved by: ([redacted]	HP# 9492	Date: 5-4-04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0145

RADIOLOGICAL SURVEY DATA SHEET

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-5	See			Pit #4
6-50		Attached		floor

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

COMMENTS: All smears field checked with 2360 before submitting to count lab.

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 needed, mark N/A.

ML-9620A (4-98)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR011
Batch Ended: 4/30/04 3:42

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: HARVEY 04-TF-0145 [50] JC

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	2.05		5.28	3.06	
A2	2	0.00	2.07		0.00	1.70	
A3	3	0.00	1.96		0.15	1.70	
A4	4	1.58	2.01		3.55	2.65	
B1	5	0.00	2.06		5.06	3.30	
B2	6	0.00	2.02		1.46	2.03	
B3	7	0.00	1.86		3.29	2.69	
B4	8	0.00	1.86		0.00	1.14	
C1	9	0.00	2.04		0.00	1.24	
C2	10	0.00	2.08		3.02	2.77	
C3	11	0.00	1.98		3.56	2.68	
C4	12	0.00	1.94		3.84	2.86	
D1	13	5.66	3.65		0.00	1.23	
D2	14	0.00	2.45		1.60	2.08	
D3	15	1.35	1.93		0.66	2.03	
D4	16	0.00	2.06		0.00	1.58	
A1	17	0.00	2.03		2.79	2.49	
A2	18	0.00	2.09		2.32	2.40	
A3	19	0.00	1.95		0.00	1.20	
A4	20	0.00	1.98		0.14	1.67	
B1	21	3.48	2.83		2.42	2.85	
B2	22	0.00	2.03		2.63	2.35	
B3	23	0.00	1.85		2.09	2.41	
B4	24	0.00	1.92		3.69	2.78	
C1	25	0.00	2.12		5.17	3.27	
C2	26	0.00	2.06		0.55	2.14	
C3	27	0.00	1.96		1.16	2.07	
C4	28	0.00	1.90		0.00	1.65	
D1	29	1.45	2.13		0.00	1.73	
D2	30	0.00	2.39		0.00	1.20	
D3	31	0.00	1.92		0.00	1.66	
D4	32	0.00	2.06		0.00	1.58	
A1	33	1.63	2.02		1.40	2.16	
A2	34	0.00	2.06		0.00	1.20	

J.C. 29 H

~~Page 1 of 2~~ 8/3/04

J.C. 29 H

DQ 3 of 10

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR011
Batch Ended: 4/30/04 3:42

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: HARVEY 04-TF-0145 [50] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A3	35	0.00	1.96		0.15	1.70	
A4	36	0.00	2.00		2.50	2.37	
B1	37	0.00	2.01		0.40	2.33	
B2	38	0.00	2.00		0.00	1.17	
B3	39	0.00	1.86		3.29	2.69	
B4	40	0.00	1.91		2.55	2.54	
C1	41	0.00	2.08		1.47	2.47	
C2	42	0.00	2.05		0.00	1.75	
C3	43	0.00	1.95		0.00	1.69	
C4	44	0.00	1.90		0.00	1.65	
D1	45	1.45	2.13		0.00	1.73	
D2	46	0.00	2.39		0.00	1.20	
D3	47	0.00	1.93		0.80	2.03	
D4	48	0.00	2.05		0.00	1.12	
A1	49	0.00	2.01		0.30	1.76	
A2	50	0.00	2.09		2.32	2.40	

JC 5/4/04

JC 5/4/04

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~~Page 2 of 2~~ JC 5/3/04

J. Collins

Pg 4 of 10

29 Apr 2004 17:04 ALPHA/BETA - 1.09 ~~Page #1~~
Protocol #: 5 410462 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.16
Region B:	2.0 -	18.6	0	0.0	6.50
Region C:	40.0 -	2000	0	0.0	9.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
HARVEY 04-TF 0145 (50) AC
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.DAT
Count Data Filename: C:\DATA\SDATA5.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.16	3	B	627.84		0.00	9.20
0	2.00	826.34	0		665.97	1504.53	110.17	5.30
1	2.00	0.00	0		480.44	0.00	0.00	1.80
2	2.00	0.00	0		606.06	0.00	0.00	0.00
3	2.00	0.59	0		564.72	1.18	8.50	0.00
4	2.00	0.00	0		532.13	0.00	0.00	3.80
5	2.00	1.87	0		610.08	3.57	8.72	0.00
6	2.00	0.00	8		562.51	0.00	0.00	0.00
7	2.00	0.00	0		560.66	0.00	0.00	0.00
8	2.00	0.84	0		562.63	1.66	8.63	0.30
9	2.00	0.00	0		563.44	0.00	0.00	0.00
10	2.00	0.00	8		481.94	0.00	0.00	0.00
11	2.00	0.00	0		579.68	0.00	0.00	1.30
12	2.00	0.00	11		552.16	0.00	0.00	3.30
13	2.00	0.00	0		559.61	0.00	0.00	0.00
14	2.00	0.00	0		560.45	0.00	0.00	0.30
15	2.00	0.00	0		542.17	0.00	0.00	0.00
16	2.00	1.34	0		562.60	2.65	8.86	0.16
17	2.00	0.00	10		506.62	0.00	0.00	0.30
18	2.00	0.00	0		537.77	0.00	0.00	0.00
19	2.00	0.00	0		515.66	0.00	0.00	0.00
20	2.00	0.00	0		557.02	0.00	0.00	0.00
21	2.00	0.00	11		498.72	0.00	0.00	2.80
22	2.00	0.00	0		562.80	0.00	0.00	0.80
23	2.00	0.00	0		473.08	0.00	0.00	3.80
24	2.00	5.84	0		556.52	11.66	10.75	0.00
25	2.00	0.84	0		526.87	1.72	8.92	0.80
26	2.00	2.84	0		611.79	5.39	9.10	0.00
27	2.00	0.00	0		547.44	0.00	0.00	0.00
28	2.00	2.34	0		556.91	4.67	9.34	0.30
29	2.00	0.00	0		529.93	0.00	0.00	0.00
30	2.00	0.00	0		548.02	0.00	0.00	0.00
31	2.00	0.00	0		557.18	0.00	0.00	0.80
32	2.00	0.61	0		535.88	1.24	8.74	0.00
33	2.00	3.84	0		584.19	7.47	9.72	1.30
34	2.00	0.00	0		564.69	0.00	0.00	0.00

JC 29H

29 Apr 2004 19:04 ALPHA/BETA - 1.09 5/3/04 ~~Page #2~~
Protocol #: 5 410462 User : 2138

S#	TIME	CPMA	LUM FLAG	tSIE	DPM1	2Sigma	CPMC
35	2.00	2.34	0	552.74	4.68	9.38	0.80
36	2.00	1.84	0	549.85	3.69	9.18	0.00
37	2.00	0.00	0	583.31	0.00	0.00	0.00
38	2.00	3.34	0	721.14	5.92	8.68	0.30
39	2.00	0.00	0	539.31	0.00	0.00	0.00
40	2.00	0.00	0	484.21	0.00	0.00	0.00
41	2.00	0.34	0	542.56	0.68	8.55	0.00
42	2.00	0.00	0	580.16	0.00	0.00	0.00
43	2.00	2.84	0	588.32	5.51	9.29	0.30
44	2.00	0.00	0	488.93	0.00	0.00	0.00
45	2.00	2.84	0	548.89	5.71	9.62	2.80
46	2.00	0.34	0	594.84	0.65	8.16	0.00
47	2.00	6.34	0	565.09	12.56	10.85	0.00
48	2.00	0.84	0	569.17	1.65	8.58	0.00
49	2.00	0.34	0	497.36	0.71	8.93	0.00
50	2.00	1.34	0	520.66	2.76	9.21	0.00

J.C. 5/4

Building 72 Scoping Alpha/Beta Survey

RSDS# 04-TF-0145 RCT: J.M.C. RCT: DGH

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5836	7244	5848	1	4/29/04	105	60	0	5	60	46
2	5836	7244	5848	2	4/29/04	91	60	-70	3	60	26
3	5836	7244	5848	3	4/29/04	91	60	-70	3	60	26
4	5836	7244	5848	4	4/29/04	86	60	-95	6	60	56
5	5836	7244	5848	5	4/29/04	84	60	-105	2	60	16
BETA BACKGROUND FOR 4-29-2004 WAS---------->								105			
ALPHA BACKGROUND FOR 4-29-2004 WAS---------->								0.4			

Building 72 Scoping Alpha/Beta Survey

RSDS# 04-TF-0145 RCT: JMC RCT: 29X

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5836	7244	5848	6	5/3/04	146	60	220	3	60	20
2	5836	7244	5848	7	5/3/04	154	60	260	2	60	10
BETA BACKGROUND FOR 5-3-2004 WAS---------->								102			
ALPHA BACKGROUND FOR 5-3-2004 WAS---------->								1.0			

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
4-29-04	WATER	HARVEY	3
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
BOSS	DAN HARVEY 608-8235		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	4-29-04	04-TF-0145	

ANALYSES REQUESTED (check):

- [x] ^3H
- [ ] Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- [x] Gross Alpha
- [ ] Air Filter – Isotopic Analysis
- [ ] Characterization per MD-80036, Operation #10015
- [ ] Isotopic Analysis: Pu____ U____ Th____ Am____ Other____
- [ ] Other _____

ADDITIONAL INFORMATION:

NOTE: Attach additional information (e.g. RSDS, screening results, collection data, and gamma spec. results) if applicable

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS ^3H	RESULTS GROSS α
040 2893	72 Pit	1	4.74 mCi/L	<0.60 dpm/ml
94	↓	2	4.08 mCi/L	<0.60 dpm/ml
95	↓	3	1.12 mCi/L	<0.60 dpm/ml
			N A	

COMMENTS:

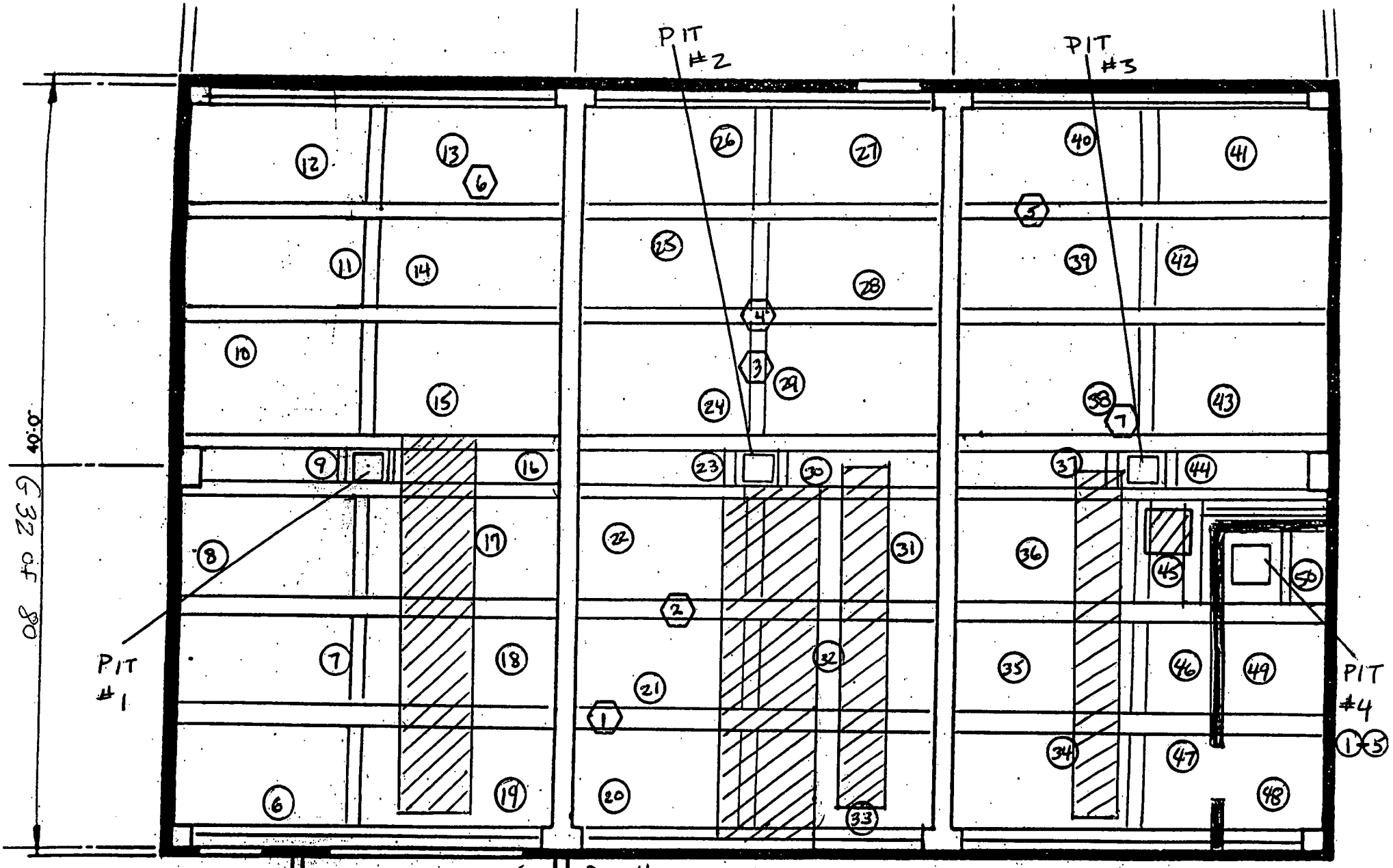
DJH

9 of 10

ANALYZED BY: Martha Anderson

DATE: 04/29/04

ML-5222 (1-01)



04-TF-0145

BUILDING 72 FLOOR SURFACE AREA

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLDG 72	SURVEY NO. 04-TF-0268
PURPOSE: FINAL STATUS SURVEY UNIT #1	RWP NO. N/A
	DATE: 8-31-04
	TIME: 16.00

MAP / DRAWING

See attach sheet

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

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350-1	5855/5864	6/9/05
2360	5749/5799	10/8/04
	N	
	A	

[redacted]	HP# 5478/7472	Date: 9-1-04
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed [redacted]	HP# 7707	Date: 9-2-04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04-TF-0268

RADIOLOGICAL SURVEY DATA SHEET

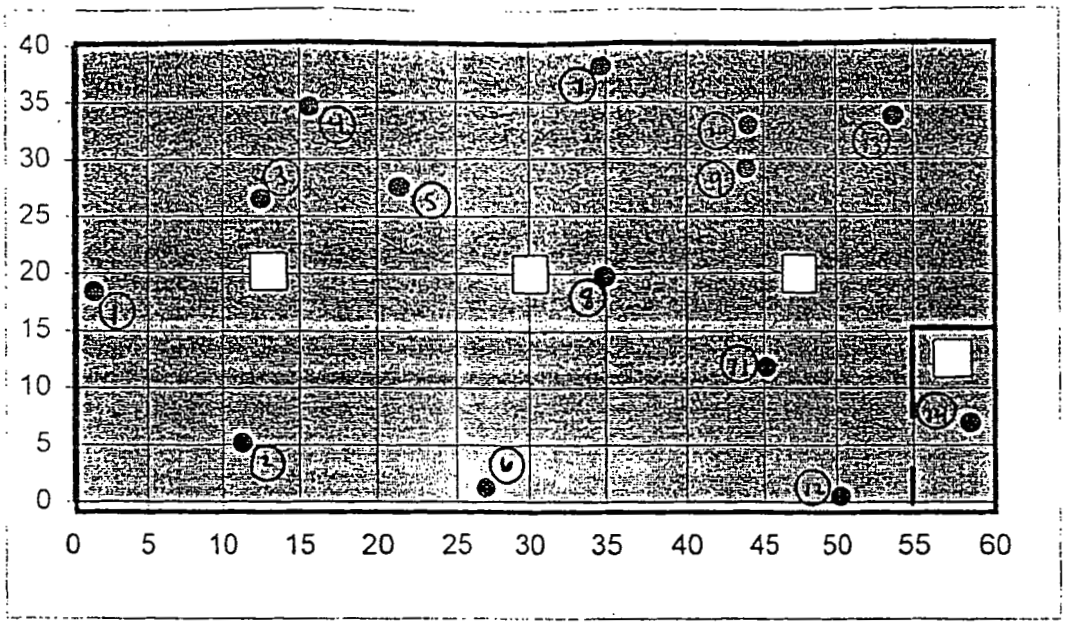
Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See attach			FLOOR
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
			N	
			A	

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

COMMENTS: SAMPLES FIELD CHECK <1000 DPM

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 needed, mark N/A.

ML-9620A (4-98)



NORTH

	Survey Unit 1				
	X (feet)	Y (feet)	Area	L	L'
	60.0	40.0	2400	14.06963	12.1843
1	1.4	18.4			
2	11.4	5.2			
3	12.6	26.5			
4	15.7	34.6			
5	21.4	27.6			
6	27.0	1.3			
7	34.7	38.2			
8	34.9	19.8			
9	43.8	29.2			
10	44.0	33.0			
11	45.2	11.9			
12	50.3	0.5			
13	53.8	33.8			
14	58.5	7.0			

BLDG. 72 final status survey unit # 1

RSDS# 04-TF-0268 *RCT:* 5478[redacted] *RCT:* 7472[redacted]

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	SRCBKG	0	5478	5864	1		8/31/04	13:22	6	300	9	
ALPHA	SRC CHECK	0	5478	5864	1		8/31/04	13:25	2070	60	15950	
ALPHA	SRC CHECK	0	5478	5864	1		8/31/04	13:27	2035	60	15680	
ALPHA	SRC CHECK	0	5478	5864	1		8/31/04	13:28	1980	60	15257	
ALPHA	SRC CHECK	0	5478	5864	1		8/31/04	13:29	2027	60	15619	
ALPHA	SU101	0	5478	5864	1	1	8/31/04	14:40	8	120	31	
ALPHA	SU102	0	5478	5864	1	2	8/31/04	14:45	3	120	12	
ALPHA	SU103	0	5478	5864	1	3	8/31/04	14:50	6	120	23	
ALPHA	SU104	0	5478	5864	1	4	8/31/04	14:54	5	120	19	
ALPHA	SU105	0	5478	5864	1	5	8/31/04	14:58	8	120	31	
ALPHA	SU106	0	5478	5864	1	6	8/31/04	15:02	6	120	23	
ALPHA	SU107	0	5478	5864	1	7	8/31/04	15:07	3	120	12	
ALPHA	SU108	0	5478	5864	1	8	8/31/04	15:10	8	120	31	
ALPHA	SU109	0	5478	5864	1	9	8/31/04	15:14	5	120	19	
ALPHA	SU110	0	5478	5864	1	10	8/31/04	15:18	4	120	15	
ALPHA	SU111	0	5478	5864	1	11	8/31/04	15:22	9	120	35	
ALPHA	SU112	0	5478	5864	1	12	8/31/04	15:26	7	120	27	
ALPHA	SU113	0	5478	5864	1	13	8/31/04	15:31	7	120	27	
ALPHA	SU114	0	5478	5864	1	14	8/31/04	15:35	5	120	19	
BETA	SRCBKG	0	5478	5864	2		8/31/04	13:36	977	300	2014	
BETA	SRC CHECK	0	5478	5864	2		8/31/04	13:40	2430	60	25046	
BETA	SRC CHECK	0	5478	5864	2		8/31/04	13:41	2483	60	25593	
BETA	SRC CHECK	0	5478	5864	2		8/31/04	13:43	2330	60	24016	
BETA	SRC CHECK	0	5478	5864	2		8/31/04	13:44	2467	60	25428	
BETA	SU101	0	5478	5864	2	1	8/31/04	14:41	267	60	2752	
BETA	SU102	0	5478	5864	2	2	8/31/04	14:46	236	60	2432	
BETA	SU103	0	5478	5864	2	3	8/31/04	14:51	240	60	2474	
BETA	SU104	0	5478	5864	2	4	8/31/04	14:55	253	60	2608	
BETA	SU105	0	5478	5864	2	5	8/31/04	14:59	217	60	2237	
BETA	SU106	0	5478	5864	2	6	8/31/04	15:03	235	60	2422	
BETA	SU107	0	5478	5864	2	7	8/31/04	15:08	243	60	2505	
BETA	SU108	0	5478	5864	2	8	8/31/04	15:11	244	60	2515	
BETA	SU109	0	5478	5864	2	9	8/31/04	15:15	215	60	2216	
BETA	SU110	0	5478	5864	2	10	8/31/04	15:19	257	60	2649	
BETA	SU111	0	5478	5864	2	11	8/31/04	15:23	223	60	2298	
BETA	SU112	0	5478	5864	2	12	8/31/04	15:27	252	60	2597	
BETA	SU113	0	5478	5864	2	13	8/31/04	15:32	243	60	2505	
BETA	SU114	0	5478	5864	2	14	8/31/04	15:36	227	60	2340	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR003
Batch Ended: 9/1/04 9:18

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0268 TAYLOR A/B (14) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.34	
A2	2	0.00	2.20		0.00	1.30	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.04		0.00	1.78	
B1	5	0.00	1.94		0.00	1.98	
B2	6	0.00	2.02		0.00	1.26	
B3	7	0.00	1.92		0.00	1.32	
B4	8	1.47	1.93		2.52	2.56	
C1	9	0.00	2.37		0.50	2.73	
C2	10	0.95	2.16		0.00	1.96	
C3	11	1.75	2.12		1.35	2.65	
C4	12	0.00	2.07		0.00	2.23	
D1	13	4.93	3.78		4.09	3.53	
D2	14	0.00	2.17		0.00	1.30	

JC JC

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AP

01 Sep 2004 09:42 ALPHA/BETA - 1.09
Protocol #: 4 405828 User : 2138

Time: 2.00
Data Mode: DPM Nuclide: SM6LS02 Quench Set: SM6LS02
Background Subtract: 1st Vial

	LL	UL	LCR	2SZ	BKG
Region A:	0.5 -	18.6	0	0.0	6.46
Region B:	2.0 -	18.6	0	0.0	6.04
Region C:	40.0 -	2000	0	0.0	13.80

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
04-TF-026B TAYLOR (14) AG
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT4.DAT
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.46	6.04	6	B	558.98		0.00	13.80
0	2.00	810.27	747.72	0		617.93	1512.89	137.57	0.00
1	2.00	0.00	0.00	8		614.71	0.00	0.00	0.00
2	2.00	0.00	0.00	11		566.41	0.00	0.00	0.00
3	2.00	2.04	1.18	12		589.24	3.90	8.50	0.00
4	2.00	2.54	2.76	6		554.25	5.01	8.99	0.00
5	2.00	2.41	1.99	6		541.76	4.82	9.04	0.00
6	2.00	0.54	0.00	0		603.59	1.01	7.72	0.00
7	2.00	2.90	2.82	0		601.16	5.50	8.78	0.00
8	2.00	1.04	1.46	7		565.59	2.03	8.22	0.00
9	2.00	3.54	3.70	14		582.94	6.81	9.96	0.00
10	2.00	0.00	0.00	0		573.33	0.00	0.00	0.00
11	2.00	4.72	4.14	4		599.43	8.95	9.52	0.00
12	2.00	0.00	0.00	8		551.80	0.00	0.00	0.00
13	2.00	1.09	0.77	0		582.62	2.10	8.12	0.00
14	2.00	0.54	0.96	0		576.09	1.04	7.91	0.00

JC.

AP

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 72 - interior walls	SURVEY NO. 04-TF-0269
PURPOSE: Final Status Survey Unit-2 & 4	RWP NO. N/A
	DATE: 9/1/04
	TIME: 1630

MAP / DRAWING

See Attached

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

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

INSTRUMENTS USED

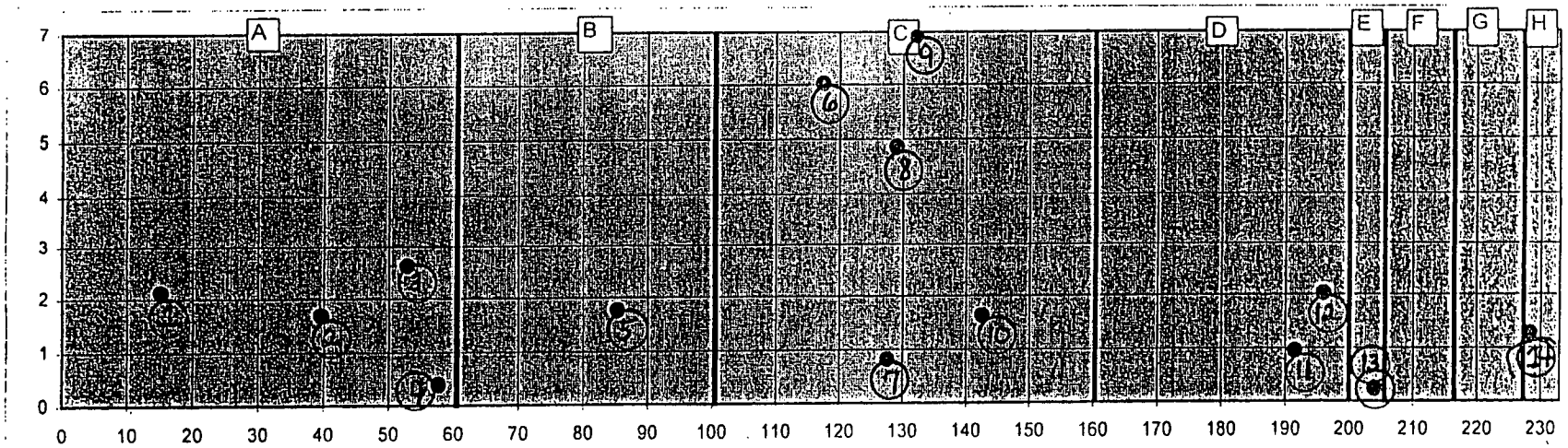
Instrument	Serial Number	Cal. Due Date
2350-1	5855/~~5842~~	6-9-05
2360	5749/5864/5799	10-8-04
	A	
	N	

[redacted]	HP# 1244/1472/5478	Date: 9-2-04
[redacted]		
Counted by: (Signature) See	HP#	Date:
Counted by: (Print Name) Attached		
Reviewed [redacted]	HP# 7707	Date: 9-7-04
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98) Computer Generated

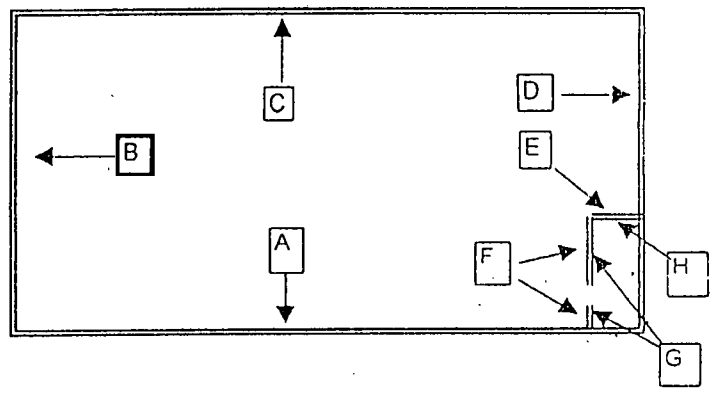
04-TF-0269

Building 72 Survey Unit 2



	Survey Unit 2	
	Y	Z
	233.0	7.0
1	15.2	2.1
2	39.6	1.7
3	52.8	2.6
4	57.7	0.4
5	85.3	1.8
6	117.4	6.0
7	127.6	0.8
8	129.1	4.9
9	131.9	6.9
10	142.5	1.6
11	191.5	0.9
12	196.0	2.0
13	204.0	0.2
14	228.4	1.3

Area	L	L'
1631	9.70405	8.403708



Not to scale

12 of 9.14.04SR

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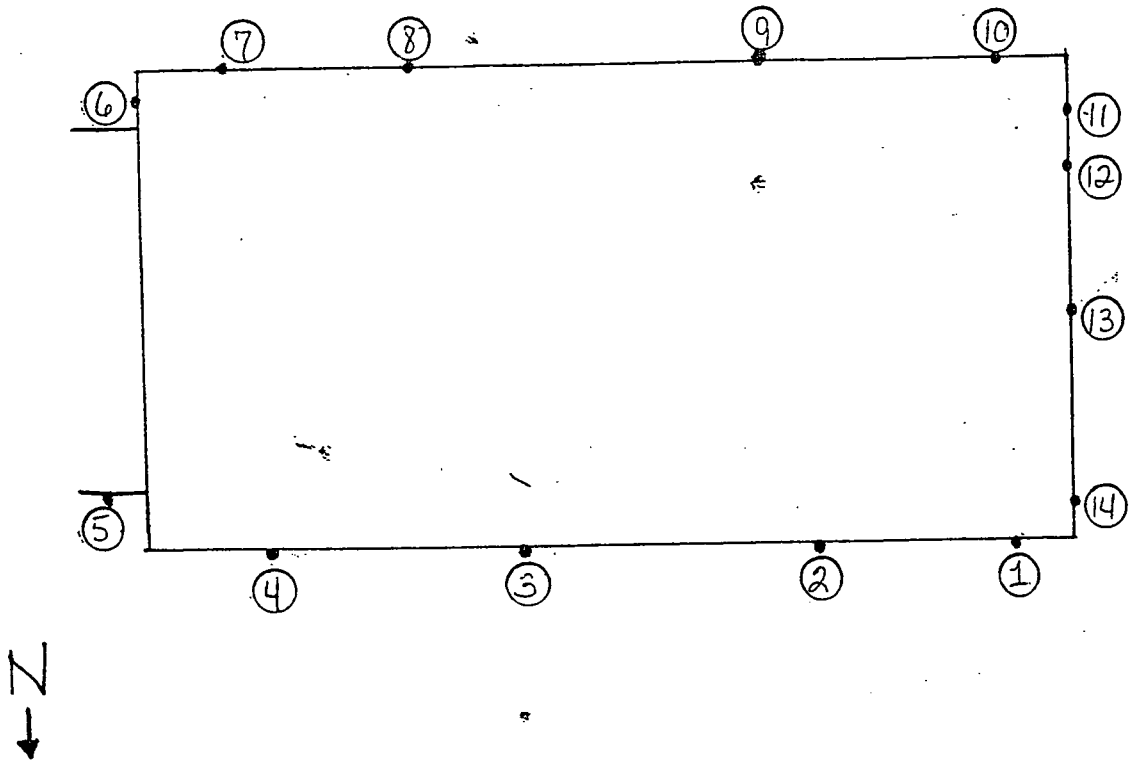
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 72-exterior walls	SURVEY NO. 04-TF-0269-A
PURPOSE: Final Status Survey Unit-4	RWP NO. N/A
	DATE: 9/2/04
	TIME: 1430

MAP / DRAWING



LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
— · — · — = radiological boundary
△# = mrem/hr neutron
= air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
	N	
	A	

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

ML-9620 (2-98) Computer Generated

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See Attached			Interior walls
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
* 13	Not Used			N/A
14	Not Used			N/A
15	See Attached			interior walls
16				
17				exterior walls
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
		NEF		

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

COMMENTS: NEF = No Further Entries. All smears field checked prior to submitting to count lab.
* #13 + #14 were not used due to misplotting.

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

ML-9620 (2-98)

Bldg.72 final status survey units 2 (int. walls) & 4J (ext. walls)

RSDS# 04-TF-0269 RCT: 5478 [redacted] RCT: 747 [redacted]

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5478	5864	1		9/1/04	9:26	12	300	18
ALPHA	SRC CHECK	5855	5478	5864	1		9/1/04	9:28	1914	60	14748
ALPHA	SRC CHECK	5855	5478	5864	1		9/1/04	9:29	1987	60	15311
ALPHA	SRC CHECK	5855	5478	5864	1		9/1/04	9:30	1949	60	15018
ALPHA	SRC CHECK	5855	5478	5864	1		9/1/04	9:32	2018	60	15549
ALPHA	SU2 01	5855	5478	5864	1	1	9/1/04	13:12	1	120	4
ALPHA	SU2 02	5855	5478	5864	1	2	9/1/04	13:16	4	120	15
ALPHA	SU2 03	5855	5478	5864	1	3	9/1/04	13:21	0	120	0
ALPHA	SU2 04	5855	5478	5864	1	4	9/1/04	13:25	5	120	19
ALPHA	SU2 05	5855	5478	5864	1	5	9/1/04	13:30	7	120	27
ALPHA	SU2 06	5855	5478	5864	1	6	9/1/04	13:34	6	120	23
ALPHA	SU2 07	5855	5478	5864	1	7	9/1/04	13:38	4	120	15
ALPHA	SU2 08	5855	5478	5864	1	8	9/1/04	13:42	5	120	19
ALPHA	SU2 09	5855	5478	5864	1	9	9/1/04	13:45	4	120	15
ALPHA	SU2 10	5855	5478	5864	1	10	9/1/04	13:49	7	120	27
ALPHA	SU2 11	5855	5478	5864	1	11	9/1/04	13:53	2	120	8
ALPHA	SU2 12	5855	5478	5864	1	12	9/1/04	13:56	5	120	19
ALPHA	SU2 13	5855	5478	5864	1	13	9/2/04	9:27	5	120	19
ALPHA	SU2 14	5855	5478	5864	1	14	9/2/04	9:33	9	120	35
ALPHA	SRC BKG	5855	5478	5864	1		9/2/04	8:17	5	300	8
ALPHA	SRC CHECK	5855	5478	5864	1		9/2/04	8:20	2004	60	15442
ALPHA	SRC CHECK	5855	5478	5864	1		9/2/04	8:21	2038	60	15703
ALPHA	SRC CHECK	5855	5478	5864	1		9/2/04	8:23	1909	60	14710
ALPHA	SRC CHECK	5855	5478	5864	1		9/2/04	8:24	1868	60	14394
ALPHA	SU4J 01	5855	5478	5864	1	1	9/2/04	9:49	22	120	85
ALPHA	SU4J 02	5855	5478	5864	1	2	9/2/04	9:52	21	120	81
ALPHA	SU4J 03	5855	5478	5864	1	3	9/2/04	10:01	16	120	62
ALPHA	SU4J 04	5855	5478	5864	1	4	9/2/04	10:06	10	120	39
ALPHA	SU4J 05	5855	5478	5864	1	5	9/2/04	10:11	17	120	65
ALPHA	SU4J 06	5855	5478	5864	1	6	9/2/04	10:22	9	120	35
ALPHA	SU4J 07	5855	5478	5864	1	7	9/2/04	10:26	15	120	58
ALPHA	SU4J 08	5855	5478	5864	1	8	9/2/04	10:31	17	120	65
ALPHA	SU4J 09	5855	5478	5864	1	9	9/2/04	10:37	21	120	81
ALPHA	SU4J 10	5855	5478	5864	1	10	9/2/04	13:12	16	120	62
ALPHA	SU4J 11	5855	5478	5864	1	11	9/2/04	13:16	18	120	69
ALPHA	SU4J 12	5855	5478	5864	1	12	9/2/04	13:20	19	120	73
ALPHA	SU4J 13	5855	5478	5864	1	13	9/2/04	13:25	12	120	46
ALPHA	SU4J 14	5855	5478	5864	1	14	9/2/04	13:29	14	120	54

Bldg.72 final status survey units 2 (int. walls) & 4J (ext. walls)

RSDS# 04-TF-0269 RCT: Taylor RCT: Hollebaugh

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.22	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	SRC BKG	5855	5478	5864	2		9/1/04	9:38	949	300	1956	
BETA	SRC CHECK	5855	5478	5864	2		9/1/04	9:39	2420	60	24943	
BETA	SRC CHECK	5855	5478	5864	2		9/1/04	9:41	2458	60	25335	
BETA	SRC CHECK	5855	5478	5864	2		9/1/04	9:42	2407	60	24809	
BETA	SRC CHECK	5855	5478	5864	2		9/1/04	9:43	2424	60	24985	
BETA	SU2 01	5855	5478	5864	2	1	9/1/04	13:13	82	60	845	
BETA	SU2 02	5855	5478	5864	2	2	9/1/04	13:18	94	60	969	
BETA	SU2 03	5855	5478	5864	2	3	9/1/04	13:23	83	60	855	
BETA	SU2 04	5855	5478	5864	2	4	9/1/04	13:27	146	60	1505	
BETA	SU2 05	5855	5478	5864	2	5	9/1/04	13:31	147	60	1515	
BETA	SU2 06	5855	5478	5864	2	6	9/1/04	13:35	76	60	783	
BETA	SU2 07	5855	5478	5864	2	7	9/1/04	13:39	124	60	1278	
BETA	SU2 08	5855	5478	5864	2	8	9/1/04	13:43	78	60	804	
BETA	SU2 09	5855	5478	5864	2	9	9/1/04	13:47	64	60	660	
BETA	SU2 10	5855	5478	5864	2	10	9/1/04	13:50	75	60	773	
BETA	SU2 11	5855	5478	5864	2	11	9/1/04	13:54	84	60	866	
BETA	SU2 12	5855	5478	5864	2	12	9/1/04	13:57	86	60	886	
BETA	SU2 13	5855	5478	5864	2	13	9/2/04	9:28	156	60	1608	
BETA	SU2 14	5855	5478	5864	2	14	9/2/04	9:34	205	60	2113	
BETA	SRC BKG	5855	5478	5864	2		9/2/04	8:30	934	300	1925	
BETA	SRC CHECK	5855	5478	5864	2		9/2/04	8:32	2560	60	26386	
BETA	SRC CHECK	5855	5478	5864	2		9/2/04	8:34	2576	60	26551	
BETA	SRC CHECK	5855	5478	5864	2		9/2/04	8:36	2387	60	24603	
BETA	SRC CHECK	5855	5478	5864	2		9/2/04	8:37	2457	60	25325	
BETA	SU4J 01	5855	5478	5864	2	1	9/2/04	9:50	108	60	1113	
BETA	SU4J 02	5855	5478	5864	2	2	9/2/04	9:53	100	60	1031	
BETA	SU4J 03	5855	5478	5864	2	3	9/2/04	10:02	94	60	969	
BETA	SU4J 04	5855	5478	5864	2	4	9/2/04	10:07	94	60	969	
BETA	SU4J 05	5855	5478	5864	2	5	9/2/04	10:12	123	60	1268	
BETA	SU4J 06	5855	5478	5864	2	6	9/2/04	10:23	104	60	1072	
BETA	SU4J 07	5855	5478	5864	2	7	9/2/04	10:27	92	60	948	
BETA	SU4J 08	5855	5478	5864	2	8	9/2/04	10:32	91	60	938	
BETA	SU4J 09	5855	5478	5864	2	9	9/2/04	10:38	106	60	1093	
BETA	SU4J 10	5855	5478	5864	2	10	9/2/04	13:13	92	60	948	
BETA	SU4J 11	5855	5478	5864	2	11	9/2/04	13:18	92	60	948	
BETA	SU4J 12	5855	5478	5864	2	12	9/2/04	13:21	87	60	897	
BETA	SU4J 13	5855	5478	5864	2	13	9/2/04	13:26	85	60	876	
BETA	SU4J 14	5855	5478	5864	2	14	9/2/04	13:30	103	60	1062	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR013
Batch Ended: 9/1/04 16:18

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0269 RENFRO A/B (14) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.16		0.00	1.33	
A2	2	1.74	2.21		0.37	1.81	
A3	3	0.00	2.18		0.48	1.76	
A4	4	1.40	2.03		0.00	1.29	
B1	5	3.56	2.78		5.04	3.20	
B2	6	1.49	2.02		0.00	1.26	
B3	7	0.00	1.92		0.00	1.32	
B4	8	0.00	1.90		0.43	2.00	
C1	9	0.00	2.39		1.84	3.04	
C2	10	0.00	2.21		2.31	3.03	
C3	11	0.00	2.08		0.00	1.40	
C4	12	0.00	2.10		2.49	2.86	
~~D1~~	~~13~~	~~5.34~~	~~3.75~~		~~0.00~~	~~2.09~~	
~~D2~~	~~14~~	~~0.00~~	~~2.20~~		~~0.01~~	~~1.80~~	

GC 9/2/04

9-2-04

9-7-04

9-14-04

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9-2-04

~~Page 6 of 9~~ 9/7/04

Page L of 19/7/01
9-2-04
~~Page #1~~

01 Sep 2004 16:40 ALPHA/BETA - 1.09
Protocol #: 6 PW H3 #410462 User : 2138

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.31
Region B:	2.0 -	18.6	0	0.0	6.98
Region C:	40.0 -	2000	0	0.0	9.30

Quench Indicator: tSIE/AEC
~~Ext Std~~ Terminator: Count
04-TF-0269 RENFRO (14) AG
~~Luminescence~~ Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT6.DAT
Count Data Filename: C:\DATA\SDATA6.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	7.31	1	B	572.78		0.00	9.30
0	2.00	728.57	0		632.72	1360.68	102.68	1.70
1	2.00	0.00	0		566.96	0.00	0.00	1.20
2	2.00	0.00	0		586.81	0.00	0.00	0.00
3	2.00	0.00	0		588.41	0.00	0.00	0.00
4	2.00	0.00	0		538.53	0.00	0.00	0.00
5	2.00	0.00	9		538.14	0.00	0.00	0.70
6	2.00	0.00	0		601.96	0.00	0.00	0.00
7	2.00	0.00	0		568.16	0.00	0.00	0.00
8	2.00	0.00	0		547.06	0.00	0.00	0.00
9	2.00	0.08	0		573.08	0.16	8.28	0.70
10	2.00	4.69	0		535.37	9.55	10.58	0.70
11	2.00	1.35	0		528.97	2.76	9.22	0.00
12	2.00	0.69	0		643.57	1.27	8.05	0.00
~~13~~	~~2.00~~	~~0.19~~	~~0~~		~~608.19~~	~~0.35~~	~~8.08~~	~~0.00~~
~~14~~	~~2.00~~	~~0.00~~	~~0~~		~~642.56~~	~~0.00~~	~~0.00~~	~~0.20~~

gc 9/2/04

Pg ~~7~~ 8 of ~~10~~ 12 9.7.04 9.14.04

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR005
Batch Ended: 9/2/04 10:14

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0269A TAYLOR (15-30) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags	
A1	15	0.00	2.16		0.00	1.33		SU2 INTERIOR WALLS
A2	16	0.00	2.23		1.79	2.20		
A3	17	0.00	2.20		1.70	2.15		
A4	18	3.39	2.87		0.82	2.16		
B1	19	0.00	1.99		2.09	2.54		SU4 EXTERIOR WALLS
B2	20	0.00	2.09		1.11	2.39		
B3	21	0.00	2.02		6.22	3.51		
B4	22	1.48	1.89		0.00	1.65		
C1	23	1.83	2.41		2.99	3.32		
C2	24	0.00	2.23		3.64	3.31		
C3	25	0.00	2.14		2.82	2.95		
C4	26	0.00	2.05		0.00	1.35		
D1	27	7.48	4.33		0.00	2.09		
D2	28	0.00	2.30		3.74	2.81		
D3	29	1.36	1.96		1.25	2.48		
D4	30	0.29	2.17		1.87	2.75		

JC JC

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9/14/05

JC 9/2/04 ~~Page 1 of 1~~ ~~page 8 of 9~~ 9/7/04

AP

02 Sep 2004 10:58 ALPHA/BETA - 1.09
Protocol #: 5 PW H3 403727 User :- 2324

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5	- 18.6	0	0.0	7.55
Region B:	2.0	- 18.6	0	0.0	7.29
Region C:	40.0	- 2000	0	0.0	10.85

Quench Indicator: tSIE/AEC
Ext ~~Std Terminator~~: Count
TAYLOR 04-TF-0269A 15-30 JC
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT5.dat
Count Data Filename: C:\DATA\SDATA5.DAT

	S#	TIME	CPMA	CPMB	CPMC	tSIE	LUM	FLAG	DPM1	2SIGMA
	-1	10.00	7.55	7.29	10.85	593.21	6	B		0.00
	0	2.00	666.51	642.04	3.65	615.56	0		1286.92	117.95
U2	14	MISSING TUBE(S)								
Nterior WALLS	15	2.00	0.00	0.00	0.00	615.93	0		0.00	0.00
	16	2.00	0.00	0.00	0.00	646.00	0		0.00	0.00
	17	2.00	0.00	0.00	3.15	649.36	0		0.00	0.00
	18	2.00	0.95	0.91	2.15	618.24	0		1.84	8.64
SU 4	19	2.00	0.00	0.00	0.00	650.60	0		0.00	0.00
EXTERIOR	20	2.00	0.00	0.00	0.00	667.35	0		0.00	0.00
WALLS	21	2.00	0.95	1.21	0.00	613.12	0		1.84	8.69
	22	2.00	0.00	0.00	0.00	652.43	0		0.00	0.00
	23	2.00	3.86	4.12	0.00	632.97	0		7.32	9.68
	24	2.00	2.45	1.62	0.00	650.29	0		4.58	8.98
	25	2.00	0.95	0.84	0.65	657.05	0		1.77	8.32
	26	2.00	0.95	0.71	0.15	638.05	0		1.80	8.47
	27	2.00	0.00	0.00	0.00	643.92	0		0.00	0.00
	28	2.00	0.95	1.21	0.00	659.03	0		1.76	8.30
	29	2.00	0.00	0.00	1.15	613.60	0		0.00	0.00
	30	2.00	0.00	0.00	0.00	648.77	0		0.00	0.00

J.C

J Corbin

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
9.2.04	dirt/soil	J. Collins	3
PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:		MAIL STOP:
Boss	Bob Coblentz		
CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	9.2.04	04-TF-0269.	

ANALYSES REQUESTED (check):

- ☐ ^3H
- ☐ Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- ☐ Gross Alpha
- ☐ Air Filter – Isotopic Analysis
- ☐ Characterization per MD-80036, Operation #10015
- ☒ Isotopic Analysis: Pu ✓ U ✓ Th ✓ Am____ Other____
- ☐ Other _____

ADDITIONAL INFORMATION:

⇐ ✗ BIOLOGICAL SAMPLES

NOTE: Attach additional information (e.g. RSDS, screening results, collection data, and gamma spec. results) if applicable

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0405099	72/well 1	1	Hoppy Please Call Bob
0405100	↓ 2	2	
0405101	↓ 3	3	

COMMENTS:

ANALYZED BY: L. C. Hughes

DATE: 9-13-04

ML-5222 (1-01)

Laboratory ID#: 040599-0405101
Project/function: BOSS
Submitted: Sep 2, 2004
Submitted by: J. Collins
Point of Contact: B. Coblentz
RSDS#: 04-TF-0269
Date: Sep 13, 2004

Lab ID 0405099
Sample Location Bldg 72 Well #1

Isotope	pCi/g	Uncertainty +/-	LDL
Pu-238	0.13	0.02	0.01
Pu-239/240	<LDL	<LDL	0.01
Th-227	<LDL	<LDL	0.01
Th-228	<LDL	<LDL	0.02
Th-230	0.09	0.02	0.01
Th-232	0.02	0.01	0.01
U-233/234	<LDL	<LDL	0.03
U-235	<LDL	<LDL	0.03
U-238	<LDL	<LDL	0.03

Lab ID 0405100
Sample Location Bldg 72 Well #2

Isotope	pCi/g	Uncertainty +/-	LDL
Pu-238	0.11	0.02	0.01
Pu-239/240	<LDL	<LDL	0.02
Th-232	<LDL	<LDL	0.01
Th-227	<LDL	<LDL	0.01
Th-228	<LDL	<LDL	0.02
Th-230	0.04	0.01	0.01
U-233/234	<LDL	<LDL	0.05
U-235	<LDL	<LDL	0.13
U-238	<LDL	<LDL	0.05

Lab ID 0405101
Sample Location Bldg 72 Well #3

Isotope	pCi/g	Uncertainty +/-	LDL
Pu-238	0.05	0.01	0.02
Pu-239/240	<LDL	<LDL	0.02
Th-232	<LDL	<LDL	0.01
Th-227	0.02	0.01	0.01
Th-228	<LDL	<LDL	0.01
Th-230	<LDL	<LDL	0.03
U-233/234	<LDL	<LDL	0.04
U-235	<LDL	<LDL	0.11
U-238	<LDL	<LDL	0.04

fmc 9.13.04

[redacted]

1585 — HP # — 9-13-04 — Date

1585 — HP # — 9-13-04 — Date

Data Verification

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 72 - Ceiling Scan	SURVEY NO. 04-TF-0284
PURPOSE: Building 72 Unit 3 Ceiling Scan	RWP NO. N/A
	DATE: 9.18.04
	TIME: 10:00

MAP / DRAWING

3' x 18"
14 Total Coupons

100% Pause and Scan Survey on 14 Total Coupons
See Attached for Intergrated Counts location and identification

See RSDS 04-TF-0296 for Continued Survey information

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

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708-5731	8.17.05
2350	5857	9.15.05
NEG		

Completed by: (Signature) [redacted]	HP# 7224	Date: 9.18.04
Completed by: (Print Name) [redacted]		
Counted by: (Signature) See attached	HP#	Date:
Counted by: (Print Name)		
Reviewed [redacted]	HP# 7707	Date: 9/27/04
Reviewed/Approved by: (Print Name) [redacted]		

Survey No. 04-TF-0284

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See attached	See attached		Coupon 2
2	↓	↓	↓	Coupon 8
3				Coupon 12
NFE				

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
N/A				

COMMENTS: 2360 used to field check swipes

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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR001
Batch Ended: 9/20/04 9:13

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0284 RENFRO (3) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
A1	1	0.00	2.19		0.96	2.23	
A2	2	0.00	2.20		0.00	1.30	
A3	3	1.60	2.17		0.00	1.27	

SR SR

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 9.21.04 SR

3075

AD

20 Sep 2004 09:27 ALPHA/BETA - 1.09 Page ~~#1~~ 9/21/04
Protocol #: 4 Pw-H3 #403728 User : 2138

Time: 2.00
Data Mode: DPM Nuclide: SMGLO2 Quench Set: SMGLO2
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	7.69
Region B:	2.0 -	18.6	0	0.0	7.35
Region C:	40.0 -	2000	0	0.0	12.96

Quench Indicator: tSIE/AEC
~~Ext Std~~ Terminator: Count
04-T-0284 RENFRO (3) AG
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\prot1.dat
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	CPMC	LUM	tSIE	DPM1	2Sigma	FLAG
-1	10.00	7.69	7.35	12.96	5	577.94		0.00	B
0	2.00	751.97	713.42	0.00	0	625.34	1410.46	111.88	
1	2.00	100.21	92.23	0.00	0	652.89	183.57	29.25	
2	2.00	17.57	15.32	0.00	2	595.03	33.85	14.25	
3	2.00	7.31	7.65	0.00	7	617.06	13.81	10.90	
4	2.00	4.94	4.52	0.00	4	522.18	10.19	10.99	
5	2.00	4.31	3.29	0.00	4	606.16	8.22	9.94	

AR

AP

72 Building Ceiling coupons Scan Survey Unit 3

RSDS# 04-TF-0284 *RCT:* SR *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7224	5859	1		9/18/04	6:04	3	300	4
ALPHA	SRC CHECK	5857	7224	5859	1		9/18/04	6:07	2134	60	14747
ALPHA	SRC CHECK	5857	7224	5859	1		9/18/04	6:10	2021	60	13966
ALPHA	SRC CHECK	5857	7224	5859	1		9/18/04	6:11	2020	60	13959
ALPHA	SRC CHECK	5857	7224	5859	1		9/18/04	6:13	2092	60	14456
ALPHA	U3 01	5857	7224	5859	1	1	9/18/04	10:26	5	120	17
ALPHA	U3 02	5857	7224	5859	1	2	9/18/04	10:33	1	120	3
ALPHA	U3 03	5857	7224	5859	1	3	9/18/04	10:35	3	120	10
BETA	SRC BKG	5857	7224	5859	2		9/18/04	6:19	884	300	1506
BETA	SRC CHECK	5857	7224	5859	2		9/18/04	6:21	2788	60	23754
BETA	SRC CHECK	5857	7224	5859	2		9/18/04	6:22	2874	60	24487
BETA	SRC CHECK	5857	7224	5859	2		9/18/04	6:23	2649	60	22570
BETA	SRC CHECK	5857	7224	5859	2		9/18/04	6:25	2677	60	22808
BETA	U3 01	5857	7224	5859	2	4	9/18/04	10:37	9	60	77
BETA	U3 02	5857	7224	5859	2	5	9/18/04	10:39	14	60	119
BETA	U3 03	5857	7224	5859	2	6	9/18/04	10:49	23	60	196

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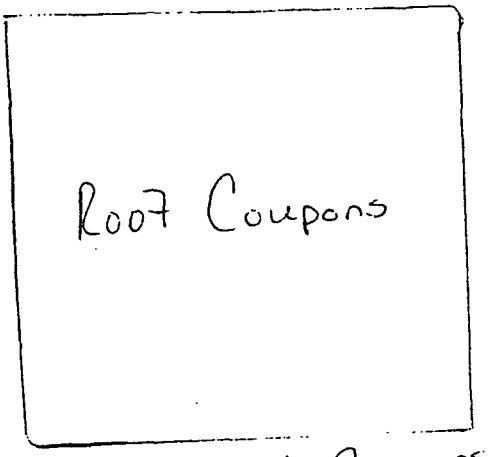
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 72 - Roof - Unit 5 SCAN and QC	SURVEY NO. 04 - TF - 0287
PURPOSE: Building 72 Roof Scan Unit 5 9-27-04 SC and QC Final Status	RWP NO. N/A
	DATE: 9.20.04
	TIME: 12:00

MAP / DRAWING



14 Total Coupons

100% Pause and Scan Survey
See Attached for Intergrated Counts

QC Final Status Survey
See Attached for Location / identification and Intergrated Counts

See RSDS 04-TF-0296 for Continued Survey Information

LEGEND:
= mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact
K = factor of 1000
—·—·— = radiological boundary
△# = mrem/hr neutron
= air sample number
(#) = swipe number
(#/α) or /β = direct contamination measurement in dpm/100 cm²

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708-5731	8.17.05
2350	5857	9.15.05

Completed by: (Signature) [redacted]	HP# 7224	Date: 9.20.04
Completed by: (Print Name) [redacted]		
Counted by: (Signature) See attached	HP#	Date:
Counted by: (Print Name)		
Reviewed [redacted]	HP# 7707	Date: 9/27/04
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98) Computer Generated

Survey No. 04 - TF - 0287

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See attached	see	attached	Coupon 1
2	↓	↓	↓	2
3				3
4				5
5				7
6				9
7				10

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
N/A				

COMMENTS: 2360 used to Field Check Smears

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)

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR001
Batch Ended: 9/21/04 8:11

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: 04-TF-0287 RENFRO A/B (7) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity σ	Alpha Activity flags	Beta Activity DPM	Beta Activity σ	Beta Activity flags
C1	1	0.00	2.32		0.00	1.46	
C2	2	3.04	3.08		4.57	3.57	
C3	3	9.99	4.65		0.00	2.31	
C4	4	3.53	2.88		0.00	1.36	
D1	5	2.99	3.09		1.41	2.90	
D2	6	10.51	4.95		9.80	4.16	
D3	7	0.00	1.98		5.59	3.49	

AP

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AP

21 Sep 2004 08:35 ALPHA/BETA - 1.09 Page ~~#1~~ 9-21-04SK
Protocol #: 3 PW H3 405827 User : 2138

Time: 2.00
Data Mode: DPM Nuclide: SM6LS02 Quench Set: SM6LS02
Background Subtract: 1st Vial

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	8.13
Region B:	2.0 -	18.6	0	0.0	6.92
Region C:	40.0 -	2000	0	0.0	10.92

Quench Indicator: tSIE/AEC
~~Ext Std Terminator~~: Count
04-TF-0287 RENFRO (7) AG
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PRDT1.DAT
Count Data Filename: C:\DATA\SDATA3.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	8.13	6.92	12	B	638.57		0.000	10.92
0	2.00	782.80	720.30	1		646.57	1379.43	100.337	0.58
1	2.00	4.36	3.53	12		548.86	8.37	10.213	2.58
2	2.00	0.00	0.00	13		553.42	0.00	0.000	3.08
3	2.00	2.87	3.34	9		582.04	5.34	9.369	7.58
4	2.00	0.00	0.00	9		549.71	0.00	0.000	1.58
5	2.00	2.37	3.40	5		551.49	4.53	9.437	8.58
6	2.00	4.97	4.02	4		555.24	9.48	10.372	2.08
7	2.00	0.00	0.00	7		557.98	0.00	0.000	1.58

AR

72-Building Survey Unit 5 Roof Scan @ QC

RSDS# 04-TF-0287 *RCT:* S R *RCT:* _____

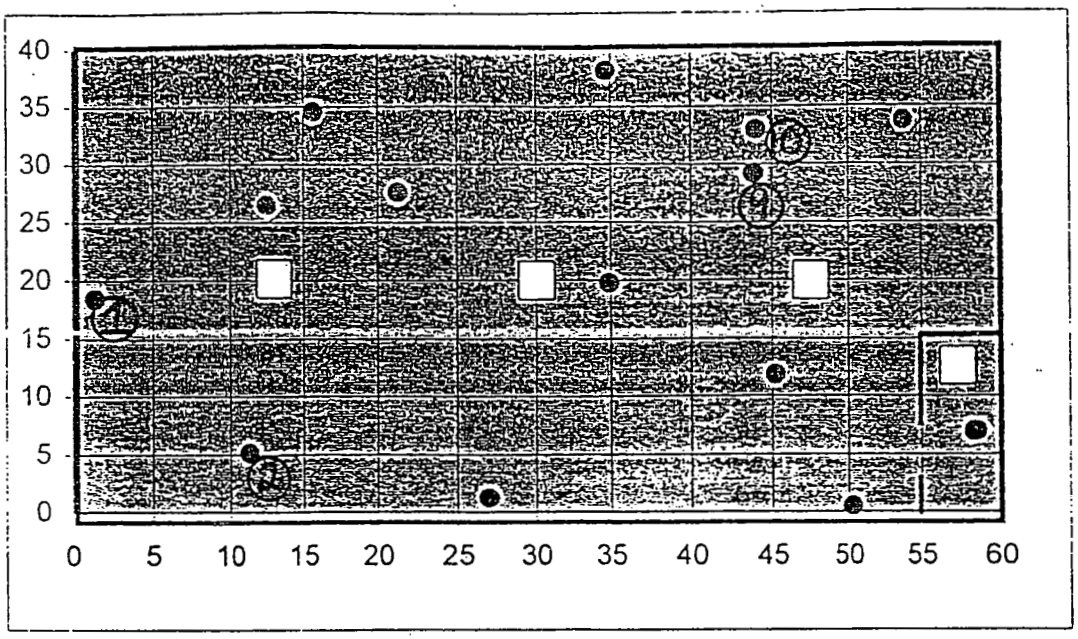
Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7224	5859	1		9/20/04	8:49	3	300	4
ALPHA	SRC CHECK	5857	7224	5859	1		9/20/04	9:15	2102	60	14526
ALPHA	SRC CHECK	5857	7224	5859	1		9/20/04	9:17	1951	60	13482
ALPHA	SRC CHECK	5857	7224	5859	1		9/20/04	9:18	2046	60	14139
ALPHA	SRC CHECK	5857	7224	5859	1		9/20/04	9:20	2056	60	14208
ALPHA	U5 02	5857	7224	5859	1	1	9/20/04	12:13	26	120	90
ALPHA	U5 07	5857	7224	5859	1	2	9/20/04	12:28	20	120	69
ALPHA	U5 09	5857	7224	5859	1	3	9/20/04	12:35	25	120	86
ALPHA	U5 10	5857	7224	5859	1	4	9/20/04	12:41	26	120	90
ALPHA	U5 05	5857	7224	5859	1	5	9/20/04	12:48	19	120	66
ALPHA	U5 01	5857	7224	5859	1	6	9/20/04	12:57	21	120	73
ALPHA	U5 03	5857	7224	5859	1	7	9/20/04	13:05	22	120	76
ALPHA	QC U3 2	5857	7224	5859	1	8	9/20/04	13:20	3	120	10
ALPHA	QC U3 8	5857	7224	5859	1	9	9/20/04	13:23	1	120	3
ALPHA	QC U3 12J	5857	7224	5859	1	10	9/20/04	13:27	3	120	10
ALPHA	QC U5 3	5857	7224	5859	1	11	9/20/04	13:30	21	120	73
ALPHA	QC U5 7	5857	7224	5859	1	12	9/20/04	13:34	29	120	100
ALPHA	QC U5 9J	5857	7224	5859	1	13	9/20/04	13:38	26	120	90
ALPHA	QC U2 14	5857	7224	5859	1	14	9/20/04	13:42	4	120	14
ALPHA	QC U2 3	5857	7224	5859	1	15	9/20/04	13:46	3	120	10
ALPHA	QC U2 8J	5857	7224	5859	1	16	9/20/04	13:50	3	120	10
ALPHA	QC U1 1	5857	7224	5859	1	17	9/20/04	13:54	5	120	17
ALPHA	QC U1 2	5857	7224	5859	1	18	9/20/04	13:58	2	120	7
ALPHA	QC U1 9J	5857	7224	5859	1	19	9/20/04	14:02	5	120	17
ALPHA	QC U1 10J	5857	7224	5859	1	20	9/20/04	14:06	3	120	10
ALPHA	QC U4 1	5857	7224	5859	1	21	9/20/04	14:11	23	120	79
ALPHA	QC U4 13	5857	7224	5859	1	22	9/20/04	14:15	19	120	66
ALPHA	QC U4 4J	5857	7224	5859	1	23	9/20/04	14:20	13	120	45

72-Building Survey Unit 5 Roof Scan @ QC

RSDS# 04-TF-0287 *RCT:* S R *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SRC BKG	5857	7224	5859	2		9/20/04	9:26	876	300	1493
BETA	SRC CHECK	5857	7224	5859	2		9/20/04	9:34	3016	60	25697
BETA	SRC CHECK	5857	7224	5859	2		9/20/04	9:35	2979	60	25381
BETA	SRC CHECK	5857	7224	5859	2		9/20/04	9:37	2913	60	24819
BETA	SRC CHECK	5857	7224	5859	2		9/20/04	9:38	2818	60	24010
BETA	U5 02	5857	7224	5859	2	1	9/20/04	12:14	195	60	1661
BETA	U5 07	5857	7224	5859	2	2	9/20/04	12:29	188	60	1602
BETA	U5 09	5857	7224	5859	2	3	9/20/04	12:36	234	60	1994
BETA	U5 10	5857	7224	5859	2	4	9/20/04	12:42	176	60	1500
BETA	U5 05	5857	7224	5859	2	5	9/20/04	12:49	196	60	1670
BETA	U5 01	5857	7224	5859	2	6	9/20/04	12:59	186	60	1585
BETA	U5 03	5857	7224	5859	2	7	9/20/04	13:06	193	60	1644
BETA	QC U3 2	5857	7224	5859	2	8	9/20/04	13:21	150	60	1278
BETA	QC U3 8	5857	7224	5859	2	9	9/20/04	13:25	141	60	1201
BETA	QC U3 12J	5857	7224	5859	2	10	9/20/04	13:27	164	60	1397
BETA	QC U5 3	5857	7224	5859	2	11	9/20/04	13:31	176	60	1500
BETA	QC U5 7	5857	7224	5859	2	12	9/20/04	13:35	208	60	1772
BETA	QC U5 9J	5857	7224	5859	2	13	9/20/04	13:39	203	60	1730
BETA	QC U2 14	5857	7224	5859	2	14	9/20/04	13:43	94	60	801
BETA	QC U2 3	5857	7224	5859	2	15	9/20/04	13:47	106	60	903
BETA	QC U2 8J	5857	7224	5859	2	16	9/20/04	13:51	116	60	988
BETA	QC U1 1	5857	7224	5859	2	17	9/20/04	13:56	267	60	2275
BETA	QC U1 2	5857	7224	5859	2	18	9/20/04	13:59	257	60	2190
BETA	QC U1 9J	5857	7224	5859	2	19	9/20/04	14:03	243	60	2070
BETA	QC U1 10J	5857	7224	5859	2	20	9/20/04	14:07	230	60	1960
BETA	QC U4 1	5857	7224	5859	2	21	9/20/04	14:12	116	60	988
BETA	QC U4 13	5857	7224	5859	2	22	9/20/04	14:16	128	60	1091
BETA	QC U4 4J	5857	7224	5859	2	23	9/20/04	14:21	131	60	1116

Building 72 Survey Unit 1 (floor) 04-11-0287



NORTH

	Survey Unit 1	
	X (feet)	Y (feet)
	60.0	40.0
1	1.4	18.4
2	11.4	5.2
3	12.6	26.5
4	15.7	34.6
5	21.4	27.6
6	27.0	1.3
7	34.7	38.2
8	34.9	19.8
9	43.8	29.2
10	44.0	33.0
11	45.2	11.9
12	50.3	0.5
13	53.8	33.8
14	58.5	7.0

Area	L	L'
2400	14.06963	12.1843

Location #1 → highest
#2 → lowest
#9 & #10 → judgemental

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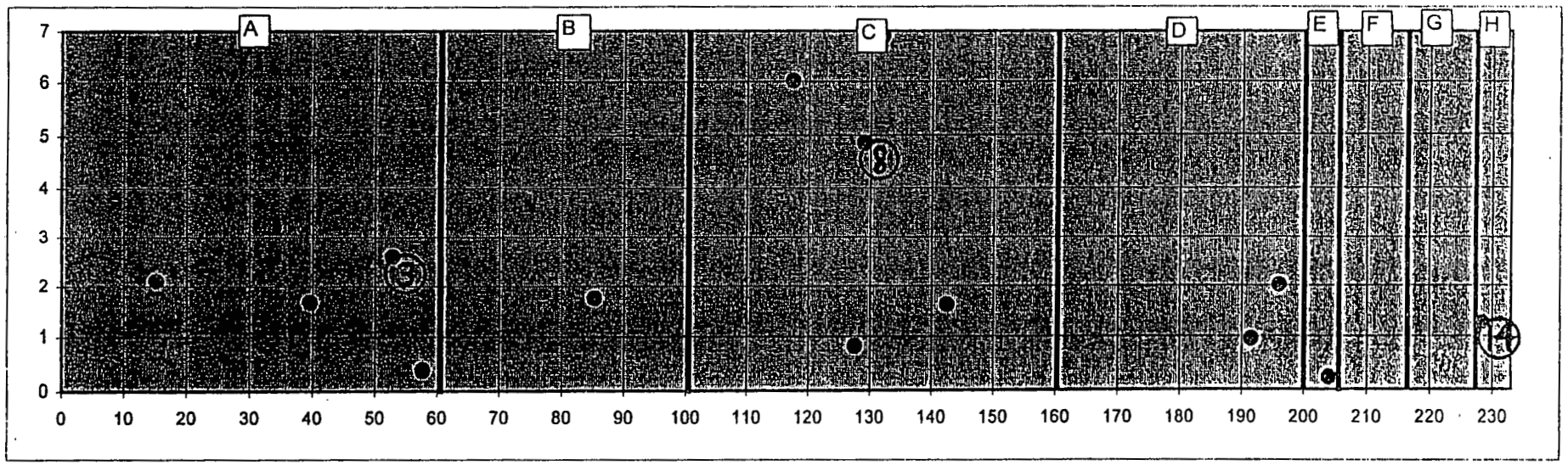
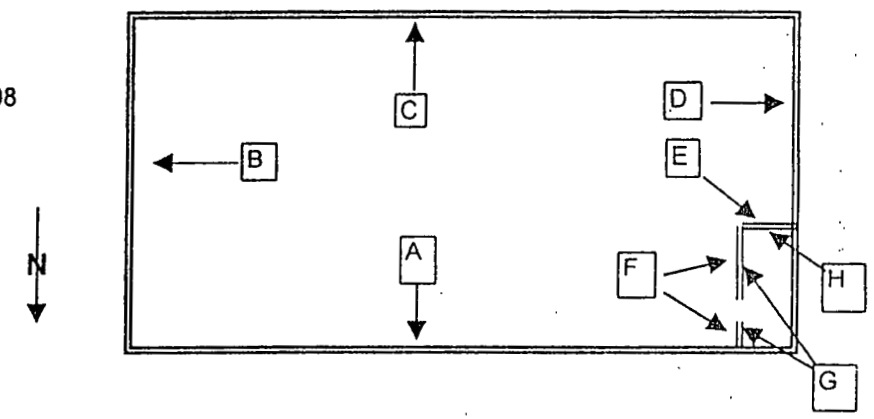
Building 72 Survey Unit 2 (interior walls) 04-TF-0287



Location #14 → highest
#3 → lowest
#8 → judgemental

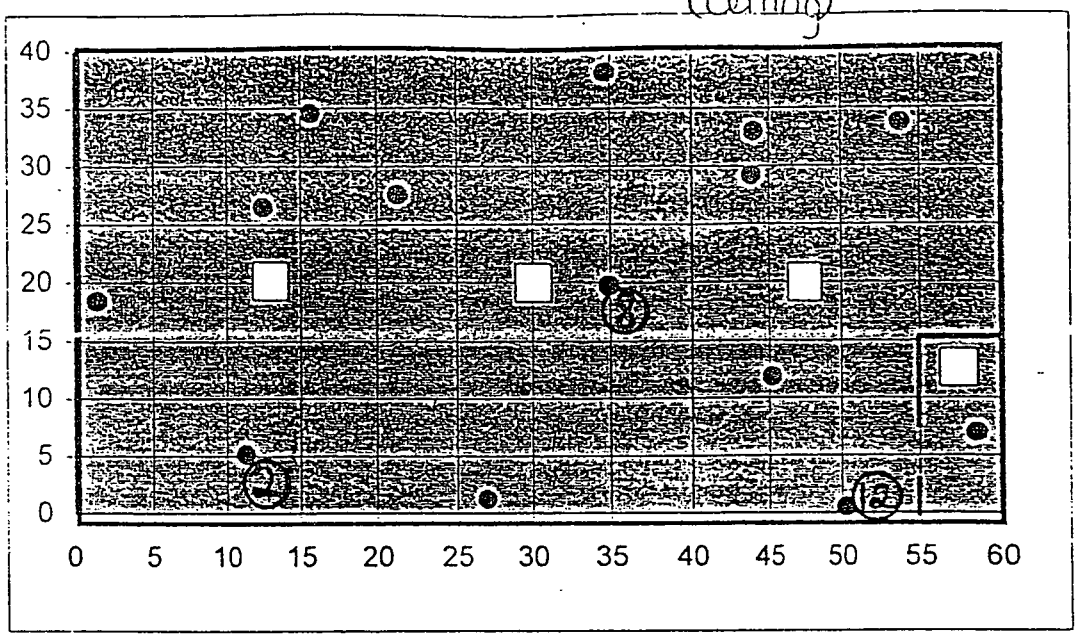
	Survey Unit 2	
	Y	Z
	233.0	7.0
1	15.2	2.1
2	39.6	1.7
3	52.8	2.6
4	57.7	0.4
5	85.3	1.8
6	117.4	6.0
7	127.6	0.8
8	129.1	4.9
9	131.9	6.9
10	142.5	1.6
11	191.5	0.9
12	196.0	2.0
13	204.0	0.2
14	228.4	1.3

Area	L	L'
1631	9.70405	8.403708



Not to scale

Building 72 Survey Unit 3 (ceiling) 04-1F-0987

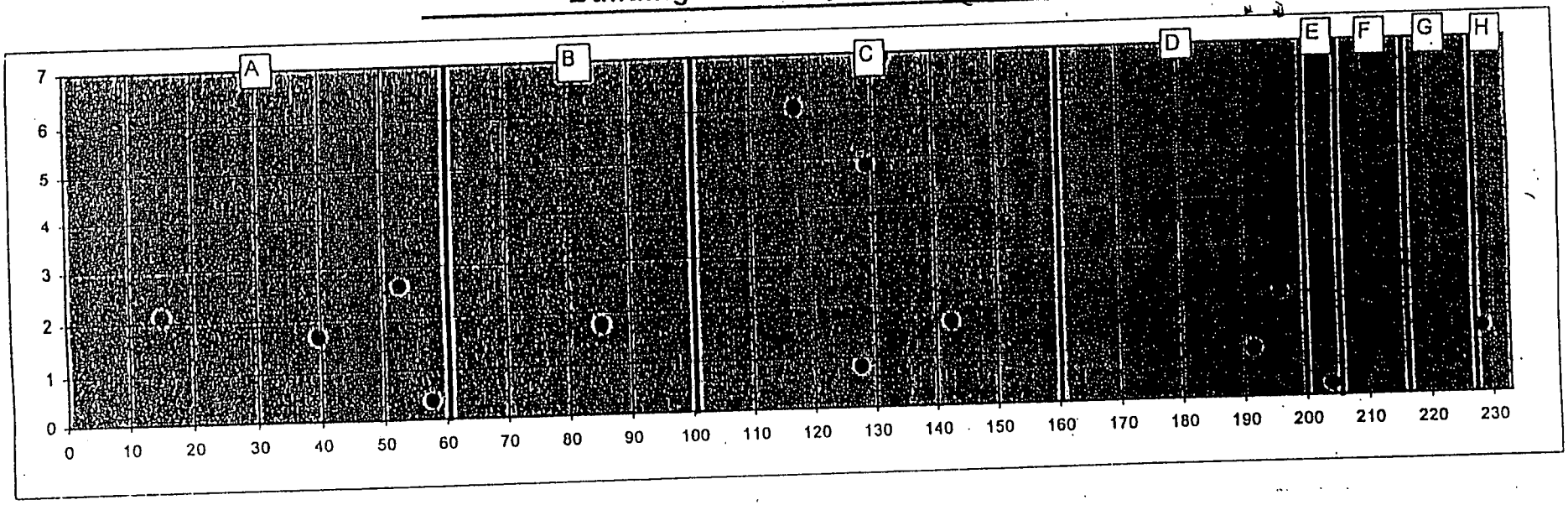


NORTH

Survey Unit 1					
	X (feet)	Y (feet)	Area	L	L'
	60.0	40.0	2400	14.06963	12.1843
1	1.4	18.4			
2	11.4	5.2			
3	12.6	26.5			
4	15.7	34.6			
5	21.4	27.6			
6	27.0	1.3			
7	34.7	38.2			
8	34.9	19.8			
9	43.8	29.2			
10	44.0	33.0			
11	45.2	11.9			
12	50.3	0.5			
13	53.8	33.8			
14	58.5	7.0			

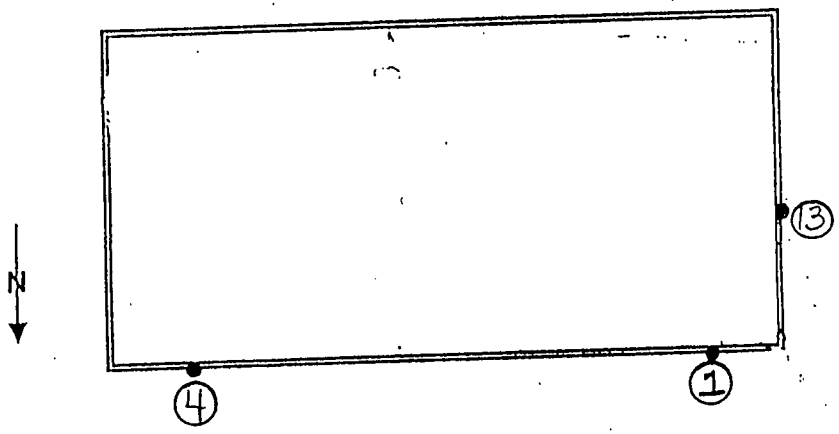
Location #2 → highest
#8 → lowest
#12 → judgemental

Building 72 Survey Unit 4 (exterior walls) 94-TF-0287



Survey Unit 2		
	Y	Z
	233.0	7.0
1	15.2	2.1
2	39.6	1.7
3	52.8	2.6
4	57.7	0.4
5	85.3	1.8
6	117.4	6.0
7	127.6	0.8
8	129.1	4.9
9	131.9	6.9
10	142.5	1.6
11	191.5	0.9
12	196.0	2.0
13	204.0	0.2
14	228.4	1.3

Area	L	L'
1631	9.70405	8.403708



Location # 1 → highest
13 → lowest
4 → judgemental

Not to scale

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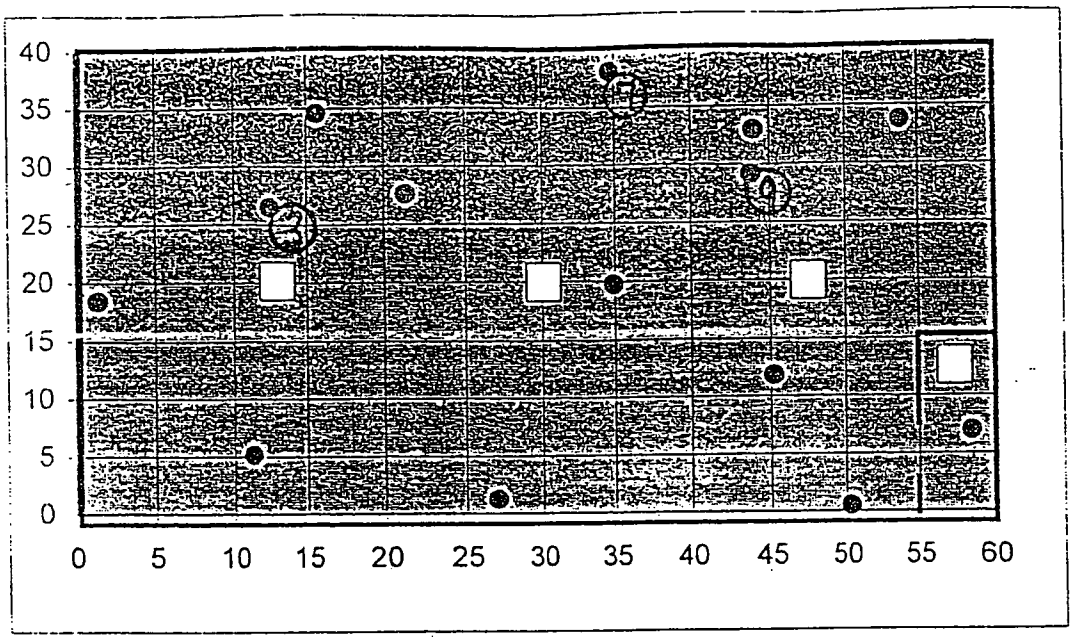
Building 72 Survey Unit 5 (roof) 04-15-04 87



NORTH

Survey Unit 1					
	X (feet)	Y (feet)	Area	L	L'
	60.0	40.0	2400	14.06963	12.1843
1	1.4	18.4			
2	11.4	5.2			
3	12.6	26.5			
4	15.7	34.6			
5	21.4	27.6			
6	27.0	1.3			
7	34.7	38.2			
8	34.9	19.8			
9	43.8	29.2			
10	44.0	33.0			
11	45.2	11.9			
12	50.3	0.5			
13	53.8	33.8			
14	58.5	7.0			

Location #3 → highest
#7 → lowest
#9 → judgemental

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BLD 72 FLOOR AREA	SURVEY NO. 04-TF 0286
PURPOSE: MARSSIM SURVEY UNIT 1	RWP NO. N/A
	DATE: 9/15/04
	TIME: 1430

MAP / DRAWING

SEE ATTACHED SHEETS FOR LOCATIONS AND RESULTS

→ AREAS SCANNED

SCO# INTEGRATED COUNTS

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

△# = mrem/hr neutron

air sample number

(#) = swipe number

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

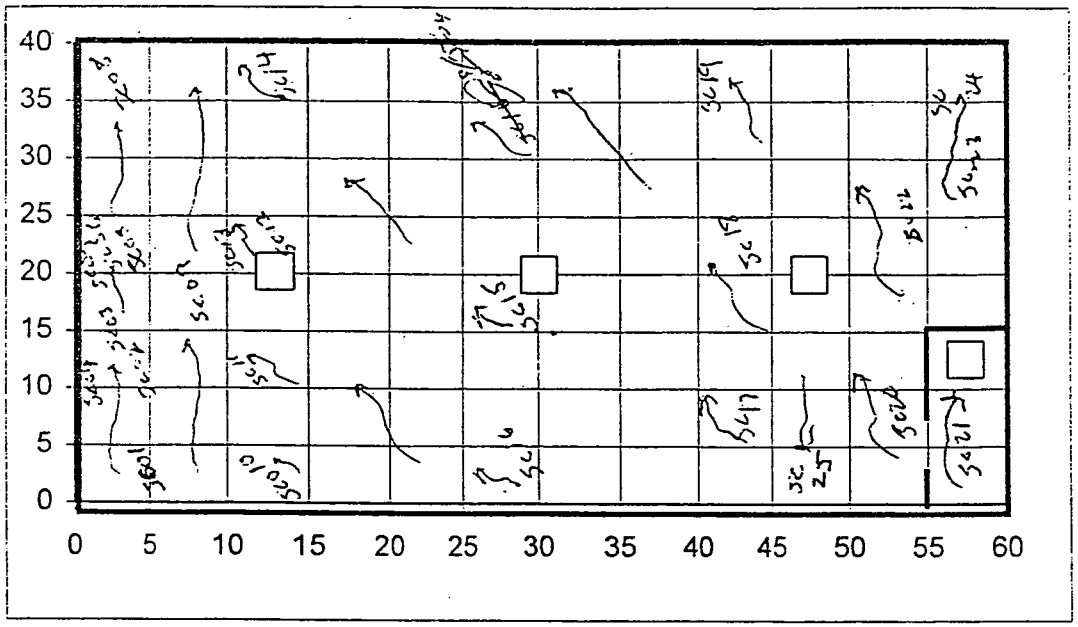
INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
Ludl 2350	5855/5864	6/9/05
	N/A	

Completed by: [redacted]	P# 7759	Date: 9/15/04
Completed by: [redacted]		
Counted by: (Signature) SEE	HP#	Date:
Counted by: (Print Name) ATTACHED		
Reviewed [redacted]	HP# 7707	Date: 9-23-04
Reviewed/Approved by: (Print Name [redacted]		

ML-9620 (2-98) Computer Generated

Building 72 Survey Unit 1



NORTH

RSDS # 04-TF-0286

Page 2 of 4

Bldg. 72 SU 1 floor scan integrated counts

RSDS# _____ RCT: [redacted]/7472 RCT: [redacted]159

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	7223	5864	1		9/14/04	10:57	1	300	2
ALPHA	SRCCHECK	5855	7223	5864	1		9/14/04	10:59	2007	60	15465
ALPHA	SRCCHECK	5855	7223	5864	1		9/14/04	11:00	1955	60	15064
ALPHA	SRCCHECK	5855	7223	5864	1		9/14/04	11:02	1928	60	14856
ALPHA	SRCCHECK	5855	7223	5864	1		9/14/04	11:03	1962	60	15118
ALPHA	SU1 SC01	5855	7223	5864	1	1	9/14/04	12:36	8	120	31
ALPHA	SU1 SC02	5855	7223	5864	1	2	9/14/04	12:57	4	120	15
ALPHA	SU1 SC03	5855	7223	5864	1	3	9/14/04	13:07	3	120	12
ALPHA	SU1 SC04	5855	7223	5864	1	4	9/14/04	13:17	7	120	27
ALPHA	SU1 SC05	5855	7223	5864	1	5	9/14/04	13:30	6	120	23
ALPHA	SU1 SC06	5855	7223	5864	1	6	9/14/04	13:38	6	120	23
ALPHA	SU1 SC07	5855	7223	5864	1	7	9/14/04	13:45	4	120	15
ALPHA	SU1 SC09	5855	7223	5864	1	8	9/14/04	14:02	10	120	39
ALPHA	SU1 SC10	5855	7223	5864	1	9	9/14/04	14:36	7	120	27
~~ALPHA~~	~~SRC BKG~~	~~5855~~	~~7223~~	~~5864~~	~~1~~		~~9/14/04~~	~~14:56~~	~~11~~	~~300~~	~~17~~
ALPHA	SRC BKG	5855	7223	5864	1		9/15/04	6:45	3	300	5
ALPHA	SRC CHECK	5855	7223	5864	1		9/15/04	6:48	1972	60	15195
ALPHA	SRC CHECK	5855	7223	5864	1		9/15/04	6:49	1992	60	15349
ALPHA	SRC CHECK	5855	7223	5864	1		9/15/04	6:51	1988	60	15318
ALPHA	SRC CHECK	5855	7223	5864	1		9/15/04	6:52	1951	60	15033
ALPHA	SU1 SC10	5855	7223	5864	1	1	9/15/04	7:41	5	120	19
ALPHA	SU1 SC11	5855	7223	5864	1	2	9/15/04	7:53	6	120	23
ALPHA	SU1 SC13	5855	7223	5864	1	3	9/15/04	8:06	6	120	23
ALPHA	SU1 SC13	5855	7223	5864	1	4	9/15/04	8:12	3	120	12
ALPHA	SU1 SC14	5855	7223	5864	1	5	9/15/04	8:22	5	120	19
ALPHA	SU1 SC15	5855	7223	5864	1	6	9/15/04	8:39	5	120	19
ALPHA	SU1 SC16	5855	7223	5864	1	7	9/15/04	8:43	3	120	12
ALPHA	SU1 SC17	5855	7223	5864	1	8	9/15/04	8:48	2	120	8
ALPHA	SU1 SC18	5855	7223	5864	1	9	9/15/04	8:59	6	120	23
ALPHA	SU1 SC19	5855	7223	5864	1	10	9/15/04	9:11	7	120	27
ALPHA	SU1 SC20	5855	7223	5864	1	11	9/15/04	9:16	4	120	15
ALPHA	SU1 SC21	5855	7223	5864	1	12	9/15/04	9:23	2	120	8
ALPHA	SU1 SC22	5855	7223	5864	1	13	9/15/04	9:34	7	120	27
ALPHA	SU1 SC23	5855	7223	5864	1	14	9/15/04	10:22	4	120	15
ALPHA	SU1 SC24	5855	7223	5864	1	15	9/15/04	12:59	2	120	8
ALPHA	SU1 SC25	5855	7223	5864	1	16	9/15/04	13:04	4	120	15
BETA	SRC BKG	5855	7223	5864	2		9/14/04	11:09	879	300	1812

RSDS 04-TF-0286

Bldg. 72 SU 1 floor scan integrated counts

RSDS# _____ RCT: [redacted] 7459 RCT: [redacted] 7472

Alpha	43-68 BKG:	0	EFF:	0.206	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.154	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	SRCCHECK	5855	7223	5864	2		9/14/04	11:10	2803	60	28891
BETA	SRCCHECK	5855	7223	5864	2		9/14/04	11:11	2820	60	29066
BETA	SRCCHECK	5855	7223	5864	2		9/14/04	11:13	2684	60	27664
BETA	SRCCHECK	5855	7223	5864	2		9/14/04	11:14	2793	60	28788
BETA	SU1 SC01	5855	7223	5864	2	1	9/14/04	12:37	238	60	2453
BETA	SU1 SC02	5855	7223	5864	2	2	9/14/04	12:58	265	60	2731
BETA	SU1 SC03	5855	7223	5864	2	3	9/14/04	13:08	250	60	2577
BETA	SU1 SC04	5855	7223	5864	2	4	9/14/04	13:18	256	60	2639
BETA	SU1 SC05	5855	7223	5864	2	5	9/14/04	13:31	233	60	2402
BETA	SU1 SC06	5855	7223	5864	2	6	9/14/04	13:39	253	60	2608
BETA	SU1 SC07	5855	7223	5864	2	7	9/14/04	13:47	244	60	2515
BETA	SU1 SC09	5855	7223	5864	2	8	9/14/04	14:03	248	60	2556
BETA	SU1 SC10	5855	7223	5864	2	9	9/14/04	14:37	277	60	2855
BETA	SRC BKG	5855	7223	5864	2		9/15/04	6:59	947	300	1952
BETA	SRC CHECK	5855	7223	5864	2		9/15/04	7:01	2758	60	28427
BETA	SRC CHECK	5855	7223	5864	2		9/15/04	7:02	2862	60	29499
BETA	SRC CHECK	5855	7223	5864	2		9/15/04	7:04	2706	60	27891
BETA	SRC CHECK	5855	7223	5864	2		9/15/04	7:05	2624	60	27046
BETA	SU1 SC10	5855	7223	5864	2	1	9/15/04	7:42	221	60	2278
BETA	SU1 SC11	5855	7223	5864	2	2	9/15/04	7:55	249	60	2566
BETA	SU1 SC13	5855	7223	5864	2	3	9/15/04	8:07	262	60	2700
BETA	SU1 SC13	5855	7223	5864	2	4	9/15/04	8:13	244	60	2515
BETA	SU1 SC14	5855	7223	5864	2	5	9/15/04	8:24	237	60	2443
BETA	SU1 SC16	5855	7223	5864	2	6	9/15/04	8:40	252	60	2597
BETA	SU1 SC16	5855	7223	5864	2	7	9/15/04	8:44	243	60	2505
BETA	SU1 SC17	5855	7223	5864	2	8	9/15/04	8:49	235	60	2422
BETA	SU1 SC18	5855	7223	5864	2	9	9/15/04	9:00	250	60	2577
BETA	SU1 SC19	5855	7223	5864	2	10	9/15/04	9:12	257	60	2649
BETA	SU1 SC20	5855	7223	5864	2	11	9/15/04	9:17	243	60	2505
BETA	SU1 SC21	5855	7223	5864	2	12	9/15/04	9:25	275	60	2834
BETA	SU1 SC22	5855	7223	5864	2	13	9/15/04	9:35	251	60	2587
BETA	SU1 SC23	5855	7223	5864	2	14	9/15/04	10:23	280	60	2886
BETA	SU1 SC24	5855	7223	5864	2	15	9/15/04	13:00	245	60	2525
BETA	SU1 SC25	5855	7223	5864	2	16	9/15/04	13:05	251	60	2587

RSDS 04-TF.0286

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 72 Ceiling - Roof	SURVEY NO. 04-TF-0296
PURPOSE: Final Status Building 72 Unit 3 Ceiling Unit 5 Roof	RWP NO. NA
	DATE: 9-23-04
	TIME: 13:40

MAP / DRAWING

See RSDS for further (04-TF-0284) ceiling information

See RSDS (04-TF-0287) for further Roof information

Unit 3 - Unit 5
Coupons 14 total
Top Side / Bottom Side

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

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360-89	5708-5731	8-17-05
2350	5857	9-15-05
~~NFE~~		

Completed by: (Signatu [redacted]	HP# 7224	Date 9-23-04
Completed by: (Print Name) [redacted]		
Counted by: (Signature) See attached	HP#	Date:
Counted by: (Print Name)		
Reviewed/A [redacted]	HP# 7707	Date 9-29-04
Reviewed/Approved by: (Print Name) [redacted]		

Survey No.
04-TF-0296

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments
1	SEE ATTACHED			U3 coupon 1
2				U3 coupon 2
3				U3 coupon 3
4				U3 coupon 4
5				U3 coupon 5
6				U3 coupon 6
7				U3 coupon 7
8				U3 coupon 8
9				U3 coupon 9
10				U3 coupon 10
11				U3 coupon 11
12				U3 coupon 12
13				U3 coupon 13
14				U3 coupon 14
15				U5 coupon 1
16				U5 coupon 2
17				U5 coupon 3
18				U5 coupon 4
19				U5 coupon 5
20				U5 coupon 6
21				U5 coupon 7
22				U5 coupon 8
23				U5 coupon 9
24				U5 coupon 10
25				U5 coupon 11
26				U5 coupon 12
27				U5 coupon 13
28				U5 coupon 14
~~NFE~~				

Removable Contamination				
Swipes (dpm/100cm^2)				
Sample #	β/γ	Alpha	Tritium	Comments

COMMENTS: 2360 used to field check smears

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.

72-Building Characterization Survey Unit 3 @ Unit 5

RSDS# 04-TF-0296 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7224	5859	1		9/23/04	8:37	7	300	10
ALPHA	SRCCHECK	5857	7224	5859	1		9/23/04	8:41	2135	60	14754
ALPHA	SRCCHECK	5857	7224	5859	1		9/23/04	8:42	2203	60	15223
ALPHA	SRCCHECK	5857	7224	5859	1		9/23/04	8:44	2042	60	14111
ALPHA	SRCCHECK	5857	7224	5859	1		9/23/04	8:45	1921	60	13275
ALPHA	U3 01	5857	7224	5859	1	1	9/23/04	10:00	3	120	10
ALPHA	U3 02	5857	7224	5859	1	2	9/23/04	10:04	5	120	17
ALPHA	U3 03	5857	7224	5859	1	3	9/23/04	10:07	1	120	3
ALPHA	U3 04	5857	7224	5859	1	4	9/23/04	10:11	2	120	7
ALPHA	U3 05	5857	7224	5859	1	5	9/23/04	10:15	4	120	14
ALPHA	U3 06	5857	7224	5859	1	6	9/23/04	10:19	6	120	21
ALPHA	U3 07	5857	7224	5859	1	7	9/23/04	10:22	4	120	14
ALPHA	U3 08	5857	7224	5859	1	8	9/23/04	10:26	8	120	28
ALPHA	U3 09	5857	7224	5859	1	9	9/23/04	10:30	4	120	14
ALPHA	U3 10	5857	7224	5859	1	10	9/23/04	10:33	5	120	17
ALPHA	U3 11	5857	7224	5859	1	11	9/23/04	10:38	4	120	14
ALPHA	U3 12	5857	7224	5859	1	12	9/23/04	10:42	5	120	17
ALPHA	U3 13	5857	7224	5859	1	13	9/23/04	10:46	4	120	14
ALPHA	U3 14	5857	7224	5859	1	14	9/23/04	10:49	6	120	21
ALPHA	U5 01	5857	7224	5859	1	15	9/23/04	12:23	24	120	83
ALPHA	U5 02	5857	7224	5859	1	16	9/23/04	12:27	15	120	52
ALPHA	U5 03	5857	7224	5859	1	17	9/23/04	12:31	30	120	104
ALPHA	U5 04	5857	7224	5859	1	18	9/23/04	12:42	24	120	83
ALPHA	U5 05	5857	7224	5859	1	19	9/23/04	12:45	26	120	90
ALPHA	U5 06	5857	7224	5859	1	20	9/23/04	12:49	29	120	100
ALPHA	U5 07	5857	7224	5859	1	21	9/23/04	12:52	29	120	100
ALPHA	U5 08	5857	7224	5859	1	22	9/23/04	12:56	17	120	59
ALPHA	U5 09	5857	7224	5859	1	23	9/23/04	12:59	32	120	111
ALPHA	U5 10	5857	7224	5859	1	24	9/23/04	13:03	23	120	79
ALPHA	U5 11	5857	7224	5859	1	25	9/23/04	13:07	16	120	55
ALPHA	U5 12	5857	7224	5859	1	26	9/23/04	13:10	35	120	121
ALPHA	U5 13	5857	7224	5859	1	27	9/23/04	13:14	23	120	79
ALPHA	U5 14	5857	7224	5859	1	28	9/23/04	13:17	16	120	55
BETA	SRC BKG	5857	7224	5859	2	0	9/23/04	8:53	901	300	1535
BETA	SRCCHECK	5857	7224	5859	2	0	9/23/04	8:59	2857	60	24342
BETA	SRCCHECK	5857	7224	5859	2	0	9/23/04	9:03	2929	60	24955
BETA	SRCCHECK	5857	7224	5859	2	0	9/23/04	9:04	2773	60	23626
BETA	SRCCHECK	5857	7224	5859	2	0	9/23/04	9:06	2777	60	23660

72-Building Characterization Survey Unit 3 @ Unit 5

RSDS# 04-TF-0296 RCT: SL RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U3 01	5857	7224	5859	2	1	9/23/04	10:01	182	60	1551	
BETA	U3 02	5857	7224	5859	2	2	9/23/04	10:05	182	60	1551	
BETA	U3 03	5857	7224	5859	2	3	9/23/04	10:09	201	60	1713	
BETA	U3 04	5857	7224	5859	2	4	9/23/04	10:12	179	60	1525	
BETA	U3 05	5857	7224	5859	2	5	9/23/04	10:16	157	60	1338	
BETA	U3 06	5857	7224	5859	2	6	9/23/04	10:20	174	60	1483	
BETA	U3 07	5857	7224	5859	2	7	9/23/04	10:23	204	60	1738	
BETA	U3 08	5857	7224	5859	2	8	9/23/04	10:27	161	60	1372	
BETA	U3 09	5857	7224	5859	2	9	9/23/04	10:31	159	60	1355	
BETA	U3 10	5857	7224	5859	2	10	9/23/04	10:34	174	60	1483	
BETA	U3 11	5857	7224	5859	2	11	9/23/04	10:39	179	60	1525	
BETA	U3 12	5857	7224	5859	2	12	9/23/04	10:43	168	60	1431	
BETA	U3 13	5857	7224	5859	2	13	9/23/04	10:47	172	60	1465	
BETA	U3 14	5857	7224	5859	2	14	9/23/04	10:50	160	60	1363	
BETA	U5 01	5857	7224	5859	2	15	9/23/04	12:24	211	60	1798	
BETA	U5 02	5857	7224	5859	2	16	9/23/04	12:28	189	60	1610	
BETA	U5 03	5857	7224	5859	2	17	9/23/04	12:32	219	60	1866	
BETA	U5 04	5857	7224	5859	2	18	9/23/04	12:43	223	60	1900	
BETA	U5 05	5857	7224	5859	2	19	9/23/04	12:46	217	60	1849	
BETA	U5 06	5857	7224	5859	2	20	9/23/04	12:50	220	60	1874	
BETA	U5 07	5857	7224	5859	2	21	9/23/04	12:54	208	60	1772	
BETA	U5 08	5857	7224	5859	2	22	9/23/04	12:57	199	60	1696	
BETA	U5 09	5857	7224	5859	2	23	9/23/04	13:01	187	60	1593	
BETA	U5 10	5857	7224	5859	2	24	9/23/04	13:04	176	60	1500	
BETA	U5 11	5857	7224	5859	2	25	9/23/04	13:08	192	60	1636	
BETA	U5 12	5857	7224	5859	2	26	9/23/04	13:11	194	60	1653	
BETA	U5 13	5857	7224	5859	2	27	9/23/04	13:15	226	60	1926	
BETA	U5 14	5857	7224	5859	2	28	9/23/04	13:18	225	60	1917	

Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Aqua
Data file name: SMEAR007
Batch Ended: 9/23/04 15:09

Crosstalk correction performed.

Recalibration Date: 03/18/05
Serial Number: 26966-1

Batch ID: RENFRO 04-TF-0296 [28] JC

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	2.17		0.00	1.83	
A2	2	0.00	2.20		0.00	1.30	
A3	3	0.00	2.16		0.00	1.27	
A4	4	0.00	2.04		0.00	1.78	
B1	5	0.00	1.97		0.97	2.28	
B2	6	0.00	2.05		0.00	1.72	
B3	7	0.00	2.04		7.45	3.72	
B4	8	0.00	1.93		2.69	2.56	
C1	9	0.00	2.34		0.00	1.97	
C2	10	0.95	2.15		0.00	1.45	
C3	11	0.00	2.10		0.00	1.90	
C4	12	1.51	2.09		1.07	2.57	
D1	13	0.74	2.23		2.99	3.23	
D2	14	2.02	2.17		0.00	1.30	
D3	15	1.54	1.94		0.00	1.48	
D4	16	2.20	3.03		4.47	3.35	
A1	17	0.00	2.16		0.00	1.33	
A2	18	3.91	3.10		0.20	1.81	
A3	19	3.72	3.08		2.53	2.47	
A4	20	0.00	2.04		0.00	1.78	
B1	21	3.56	2.76		3.92	2.99	
B2	22	5.46	3.51		0.49	2.39	
B3	23	0.00	1.93		0.00	1.80	
B4	24	0.00	1.90		0.43	2.00	
C1	25	0.00	2.37		0.50	2.73	
C2	26	0.95	2.15		0.00	1.45	
C3	27	3.80	2.98		3.78	3.23	
C4	28	0.00	2.12		5.01	3.37	

SR SR

Time: 2.00
Data Mode: DPM Nuclide: SM6LS02 Quench Set: SM6LS02
Background Subtract: 1st Vial

	LL	UL	LCR	2SZ	BKG
Region A:	0.5 -	18.6	0	0.0	6.74
Region B:	2.0 -	18.6	0	0.0	6.53
Region C:	40.0 -	2000	0	0.0	10.25

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
04-TF-0296 RENFRO (2B) A6
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: c:\data\PROT4.DAT
Count Data Filename: c:\data\SDATA4.DAT
Spectrum Data Drive & Path: c:\data

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2Sigma	CPMC
-1	10.00	6.74	6.53	4	B	552.28		0.00	10.25
0	2.00	786.62	723.99	0		612.00	1476.35	134.86	3.25
1	2.00	0.26	0.00	7		618.55	0.49	7.64	1.75
2	2.00	2.26	1.74	6		577.13	4.38	8.83	1.25
3	2.00	3.26	2.47	5		612.19	6.12	8.97	0.00
4	2.00	0.00	0.00	0		590.56	0.00	0.00	0.00
5	2.00	0.76	0.47	7		551.54	1.51	8.36	0.00
6	2.00	0.00	0.00	13		605.18	0.00	0.00	3.75
7	2.00	0.00	0.00	0		592.92	0.00	0.00	0.00
8	2.00	0.76	0.00	7		572.75	1.48	8.20	0.00
9	2.00	0.00	0.00	0		607.30	0.00	0.00	0.00
10	2.00	0.00	0.00	0		582.07	0.00	0.00	0.00
11	2.00	0.00	0.00	0		607.75	0.00	0.00	0.75
12	2.00	4.31	3.60	0		565.71	8.43	9.78	1.25
13	2.00	0.00	0.00	0		498.57	0.00	0.00	0.00
14	2.00	0.26	0.00	7		517.72	0.53	8.38	0.00
15	2.00	2.76	2.85	0		518.92	5.64	9.54	0.00
16	2.00	2.19	1.91	0		532.38	4.42	9.17	7.16
17	2.00	0.00	0.00	0		591.76	0.00	0.00	0.00
18	2.00	0.93	0.53	0		509.61	1.92	8.78	0.00
19	2.00	0.10	0.00	0		569.87	0.20	7.91	0.00
20	2.00	0.76	0.00	0		544.57	1.52	8.41	2.75
21	2.00	0.00	0.00	0		506.70	0.00	0.00	4.75
22	2.00	2.52	2.03	0		552.84	4.99	9.14	3.97
23	2.00	1.24	0.95	0		518.09	2.53	8.85	4.75
24	2.00	0.00	0.00	0		545.75	0.00	0.00	2.75
25	2.00	0.00	0.00	0		503.89	0.00	0.00	5.23
26	2.00	0.00	0.00	0		535.58	0.00	0.00	0.00
27	2.00	2.74	2.45	0		517.99	5.59	9.54	1.75
28	2.00	3.02	3.23	0		534.92	6.08	9.51	2.75

JR

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
9/27/04	metal Coupon	Bob Gblentz	2
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
Boss	Bob Gblentz 608-8206		—
CHARGE NUMBER.	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	9/27/04		

ANALYSES REQUESTED (check):

- ☐ ^3H
- ☐ Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- ☐ Gross Alpha
- ☐ Air Filter – Isotopic Analysis
- ☑ Characterization per MD-80036, Operation #10015
- ☐ Isotopic Analysis: Pu____ U____ Th____ Am____ Other____
- ☐ Other _____

ADDITIONAL INFORMATION:

NOTE: Attach additional information (e.g. RSDS, screening results, collection data, and gamma spec. results) if applicable

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
04055469	Bldg 72 Roof #7	7	
04055470	Bldg 72 Roof #12	12	

COMMENTS:

04-TF-0296
7224 SR

ANALYZED BY: L. C. Hopkins

DATE: 9-29-04

ML-5222 (1-01)

Laboratory ID#: 0405469 - 0405470

Project/function: R/SW Demo

Submitted: Sep 27, 2004

Submitted by: B. Coblentz

Point of Contact: B. Coblentz 608-8206

RSDS#: N/A

Date: Sep 29, 2004

Page 0 of 0

04-TF-0296

Lab ID	0405569
Sample Location	Bldg 72 Roof #7

Isotope	pCi/Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.62
Pu-239/240	<LDL	<LDL	0.35
Th-227	<LDL	<LDL	0.55
Th-228	<LDL	<LDL	0.31
Th-230	<LDL	<LDL	0.31
Th-232	<LDL	<LDL	0.31
U-233/234	<LDL	<LDL	0.66
U-235	<LDL	<LDL	1.18
U-238	<LDL	<LDL	0.66
Po-210	36.41	4.00	1.66

Lab ID	0405570
Sample Location	Bldg 72 Roof #12

Isotope	pCi/Sample	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.79
Pu-239/240	<LDL	<LDL	0.33
Th-227	<LDL	<LDL	0.64
Th-228	<LDL	<LDL	0.30
Th-230	<LDL	<LDL	0.30
Th-232	<LDL	<LDL	0.54
U-233/234	<LDL	<LDL	0.71
U-235	<LDL	<LDL	0.40
U-238	<LDL	<LDL	0.84
Po-210	31.29	3.52	1.16

[redacted]

1585 9-29-04

HP # Date

1585 9-29-04

HP # Date

Appendix H

Radon Information

Radon level is not applicable for open air demolitions.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 8/23/04 5:08PM
Subject: Bldg 72 rev.

Don -

For Building 72 and associated structures asbestos and lead paint concerns, the following is provided for your use:

Asbestos

The two previous site-wide asbestos characterization surveys (PEI Associates 1989 and Barge-Waggoner-Sumner-Cannon 1993) did not address Building 72. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the building during August of 2004 in order to identify any existing or potential asbestos hazards. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. Two materials, gaskets in small and large explosion-proof light fixtures, were assumed to exist and to be asbestos-containing. A summary report and inventory are attached.

These materials will be isolated and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor or other properly trained and certified personnel, in the Summer or Autumn of 2004. The asbestos material will be removed in accordance with NESHAP requirements and placed into an approved waste container for disposal by the Mound Waste Management Group.

Lead

No previous lead surveys or sampling data were found for Building 72. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the referenced building during August of 2004 in order to identify any existing or potential lead paint hazards. The paint coatings present were observed to be largely intact and no potential hazards observed. Untested paint should be assumed to contain lead until such time that testing proves otherwise.

Since the building is scheduled for imminent demolition, painted surfaces will be tested for lead content as planned work indicates the need for such testing in order to avoid worker exposure to lead. This restriction will be incorporated into work plans for which disturbance of paint is a possibility.

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

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Davis, Steve

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Date: August 18, 2004

From: Christopher Ahlquist
BOSS Project Safety & Health

To: Greg Balint
BOSS Project Engineering

Re: Building 72: Asbestos-Containing Materials

During August of 2004, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc. (CH2M), completed a survey of Building 72 at the Mound site in Miamisburg, Ohio for purpose of identifying asbestos-containing materials contained therein. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by Ohio Department of Health regulations. During the course of the survey, Mr. Ahlquist conducted a thorough inspection of all accessible spaces in order to identify any materials suspect for containing asbestos and prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. Two (2) distinct types of materials, large and small explosion-proof light fixture gaskets, were assumed to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations.

Sample Method

During CH2M's review of previous surveys it was noted that previous bulk samples were collected utilizing sampling methods and protocol specified in the EPA's Asbestos Hazard Emergency Response Act (AHERA). Each sample was collected and placed in a clean, sealable hard-shell container and labeled with a unique sample identification number. Pertinent information was recorded on a Bulk Sample Data Sheet including sample identification number, date of inspection, name of inspector, building name, a brief description and location of the sample, and the type of material sampled (e.g., preformed-block pipe insulation, aircell-paper pipe insulation, etc.).

Analysis of Samples

The reviewed samples were submitted to accredited laboratories and analyzed for asbestos content by PLM and dispersion staining (Method Reference: 40 CFR Part 763, Volume 47, No. 103, May 27, 1982 pg. 23376). This analytical method, which the EPA currently recommends for the determination of asbestos in bulk samples of suspect materials, can be used for qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos. The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percentage) within the range of 0 to 100. The result of the bulk sample analysis is reported in a standard

written laboratory report. This report includes the client name, the project number, the laboratory identification number, the sample number assigned to the bulk sample upon receipt at the laboratory, and the field number assigned to the bulk sample upon collection at the site. If the bulk sample contains more than one distinct layer of material, each layer is analyzed separately. The composition of the bulk sample is reported in percentages of asbestos (i.e., cellulose, fiberglass, or other) components. The results of the sample analyses can be found on the laboratory reports.

The analyzing laboratories utilized were accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is the agency sponsored by the National Institute of Standards and Technology providing EPA accreditation of laboratories analyzing bulk samples for asbestos content.

Conclusions

Two (2) types of materials were identified through assumption to be asbestos-containing (>1%) per EPA and OSHA definition. These materials were the large and small explosion-proof light fixture gaskets located in the main room area. There were six (6) of the large light fixtures and three (3) of the small ones located near the ceiling. Since the building is scheduled for demolition, these materials will have to be removed prior to demolition. Notification of the EPA and the Ohio Department of Health of this removal activity is not required due to the quantity involved. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 72
AUGUST 18, 2004

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
Main Room, ceiling level	Explosion-proof light fixture gasket, large	1*	Misc.	6 units
Main Room, ceiling level	Explosion-proof light fixture gasket, small	2*	Misc.	3 units

Notes:

Misc. = miscellaneous material

* = fixture not accessible to sample - material assumed to contain asbestos.

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 8/23/04 5:08PM
Subject: Bldg 72 rev.

Don -

For Building 72 and associated structures asbestos and lead paint concerns, the following is provided for your use:

Asbestos

The two previous site-wide asbestos characterization surveys (PEI Associates 1989 and Barge-Waggoner-Sumner-Cannon 1993) did not address Building 72. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the building during August of 2004 in order to identify any existing or potential asbestos hazards. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. Two materials, gaskets in small and large explosion-proof light fixtures, were assumed to exist and to be asbestos-containing. A summary report and inventory are attached.

These materials will be isolated and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor or other properly trained and certified personnel, in the Summer or Autumn of 2004. The asbestos material will be removed in accordance with NESHAP requirements and placed into an approved waste container for disposal by the Mound Waste Management Group.

Lead

No previous lead surveys or sampling data were found for Building 72. Mr. Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, performed a walk-through survey of the accessible areas of the referenced building during August of 2004 in order to identify any existing or potential lead paint hazards. The paint coatings present were observed to be largely intact and no potential hazards observed. Untested paint should be assumed to contain lead until such time that testing proves otherwise.

Since the building is scheduled for imminent demolition, painted surfaces will be tested for lead content as planned work indicates the need for such testing in order to avoid worker exposure to lead. This restriction will be incorporated into work plans for which disturbance of paint is a possibility.

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

Let me know if I can be of further assistance,

Chris Ahlquist

CC: Davis, Steve

Appendix K

Chemical Information

A list of chemicals known to have been in Building 72 is provided.

Chemicals and Products Used Or Stored In Building 72		
1-(O-Chlorophenyl)Thiourea	2,6-Dinitrotoluene	Aldicarb
1,1,1,2-Tetrachloroethane	2-Acetylaminefluorene	Aldrin
1,1,1-Trichloroethane	2-Chloroethyl Vinyl Ether	Allyl Alcohol
1,1,2,2-Tetrachloroethane	2-Cyclohexyl-4,6-Dinitrophenol	Allyl Chloride
1,1,2-Trichloro-1,2,2-Trifluoroethane	2-Ethoxyethanol	Alpha, Alpha-Dimethylphenethylamine
1,1,2-Trichloroethane	2-Hexanone	Alpha,Alpha-Dimethylbenzylhydroperoxide
1,1-Dichloroethylene	2-Methyllactonitrile	Alpha-Naphthylamine
1,1-Dimethylhydrazine	2-Methylnaphthalene	Alpha-Naphthylthiourea
1,2,3-Trichloropropane	2-Nitropropane	Aluminum Phosphide
1,2,4,5-Tetrachlorobenzene	2-Picoline	Amitrole
1,2,4-Trichlorobenzene	3,3'-Dichlorobenzidine	Ammonium Picrate
1,2-Dibromo-3-Chloropropane	3,3'-Dimethoxybenzidine	Ammonium Vanadate
1,2-Dichloroethane	3,3'-Dimethylbenzidine	Aniline
1,2-Dichloroethylene	3-Chloropropionitrile	Anthracene
1,2-Dimethylhydrazine	3-Methylcholanthrene	Antimony
1,2-Diphenylhydrazine	4,4-Methylenebis(2-Chloroaniline)	Antimony Compounds, N.O.S.
1,2-Propyleneimine	4,6-Dinitro-O-Cresol	Aramite
1,3,5-Trinitrobenzene	4,6-Dinitro-O-Cresol Salts	Arsenic
1,3-Dichloropropene	4-Aminobiphenyl	Arsenic Acid
1,3-Pentadiene	4-Aminopyridine	Arsenic Pentoxide
1,3-Propane Sultone	4-Bromophenol Phenyl Ether	Arsenic Trioxide
1,4-Dichloro-2-Butene	4-Chloro-O-Toluidine, Hydrochloride	Auramine
1,4-Dichlorobenzene	4-Chlorophenyl Phenyl Ether	Azaserine
1,4-Diethyleneoxide	4-Nitroquinoline-1-Oxide	Barium
1,4-Naphthoquinone	5-(Aminomethyl)-3-Isoxazolol	Barium Compounds, N.O.S.
1-Acetyl-2-Thiourea	5-Nitro-O-Toluidine	Barium Cyanide
2,2'-Bioxirane	7,12-Dimethylbenz[A]Anthracene	Benz[A]Anthracene
2,3,4,6-Tetrachlorophenol	7H-Dibenzo[C,G]Carbazole	Benz[C]Acridine
2,3,7,8-Tetrachlorodibenzo-P-Dioxin	Acenaphthalene	Benzal Chloride
2,4,5-Trichlorophenol	Acenaphthylene	Benzene
2,4,5-Trichlorophenoxy	Acetaldehyde	Benzenearsonic Acid
2,4,5-Trichlorophenoxyacetic Acid	Acetone	Benzenesulfonyl Chloride
2,4,5-Trichlorophenoxypropionic Acid	Acetonitrile	Benzidine
2,4,6-Trichlorophenol	Acetophenone	Benzo[A]Pyrene
2,4-Dichlorophenol	Acetyl Chloride	Benzo[B]Fluoranthene
2,4-Dichlorophenoxyacetic Acid	Acrolein	Benzo[Ghi]Perylene
2,4-Dimethylphenol	Acrylamide	Benzo[J]Fluoranthene
2,4-Dinitrophenol	Acrylic Acid	Benzo[K]Fluoranthene
2,4-Dinitrotoluene	Acrylonitrile	Benzotrichloride

Chemicals and Products Used Or Stored In Building 72		
2,6-Dichlorophenol	Aflatoxins	Benzyl Alcohol
Benzyl Chloride	Bromoacetone	Cresylic Acid
Beryllium	Bromodichloromethane	Crotonaldehyde
Beryllium Compounds, N.O.S.	Bromoform	Cumene
Beta-Chloronaphthalene	Brucine	Cyanides (Soluble Salts and Complexes), N.O.S.
Beta-Hexachlorocyclohexane	Butyl Benzyl Phthalate	Cyanogen
Beta-Naphthylamine	Cacodylic Acid	Cyanogen Bromide
Bromoacetone	Cadmium	Cyanogen Chloride
Bromodichloromethane	Cadmium Compounds, N.O.S.	Cycasin
Bromoform	Calcium Chromate	Cyclohexane
Brucine	Calcium Cyanide	Cyclohexanone
Butyl Benzyl Phthalate	Carbon Disulfide	Cyclophosphamide
Cacodylic Acid	Carbon Oxyfluoride	Daunomycin
Cadmium	Carbon Tetrachloride	Diallate
Cadmium Compounds, N.O.S.	Chloral	Dibenz[A,H]Acridine
Calcium Chromate	Chlorambucil	Dibenz[A,H]Anthracene
Calcium Cyanide	Chlordane, Alpha and Gamma Isomers	Dibenz[A,J]Acridine
Carbon Disulfide	Chlorinated Benzenes, N.O.S.	Dibenzo[A,E]Pyrene
Carbon Oxyfluoride	Chlorinated Ethane, N.O.S.	Dibenzo[A,H]Pyrene
Carbon Tetrachloride	Chlorinated Fluorocarbons, N.O.S.	Dibenzo[A,I]Pyrene
Chloral	Chlorinated Naphthalene, N.O.S.	Dibenzofuran
Chlorambucil	Chlorinated Phenol, N.O.S.	Dibromochloromethane
Chlordane, Alpha and Gamma Isomers	Chlornaphazine	Dibutyl Phthalate
Chlorinated Benzenes, N.O.S.	Chloroacetaldhyde	Dichlorobenzene, N.O.S.
Benzenearsonic Acid	Chloroalkyl Ethers, N.O.S.	Dichlorodifluoromethane
Benzenesulfonyl Chloride	Chlorobenzene	Dichlorodiphenyldichloroethane
Benzidine	Chlorobenzilate	Dichlorodiphenyldichloroethylene
Benzo[A]Pyrene	Chloroform	Dichlorodiphenyltrichloroethane
Benzo[B]Fluoranthene	Chloromethyl Methyl Ether	Dichloroethyl Ether
Benzo[Ghi]Perylene	Chloroprene	Dichloroethylene, N.O.S.
Benzo[J]Fluoranthene	Chromium	Dichloroisopropyl Ether
Benzo[K]Fluoranthene	Chromium Compounds, N.O.S.	Dichloromethoxy Ethane
Benzotrichloride	Chrysene	Dichloromethyl Ether
Benzyl Alcohol	Cis-1,3-Dichloropropene	Dichlorophenylarsine
Benzyl Chloride	Citrus Red No. 2	Dichloropropane, N.O.S.
Beryllium	Cobalt	Dichloropropanol, N.O.S.
Beryllium Compounds, N.O.S.	Copper	Dichloropropene, N.O.S.
Beta-Chloronaphthalene	Copper Cyanide	Dieldrin
Beta-Hexachlorocyclohexane	Creosote	Diethyl Phthalate

Chemicals and Products Used Or Stored In Building 72		
Beta-Naphthylamine	Cresol (Cresylic Acid)	Diethylarsine
Diethylhexyl Phthalate	Ethylbenzene	Iron Dextran
Diethyl-P-Nitrophenyl Phosphate	Ethylene Dibromide	Isobutanol
Diethylstilbestrol	Ethylene Dichloride	Isobutyl Alcohol
Dihydrosafrole	Ethylene Glycol Monoethyl Ether	Isodrin
Diisopropylfluorophosphate (DFP)	Ethylene Oxide	Isophorone
Dimethoate	Ethylenebisdithiocarbamic Acid, Salts and Esters	Isosafrole
Dimethyl Phthalate	Ethyleneimine	Kepone
Dimethyl Sulfate	Ethylenethiourea	Lasiocarpine
Dimethylamine	Ethylidine Dichloride	Lead
Dimethylcarbamoyl Chloride	Famphur	Lead Acetate
Dinitrobenzene, N.O.S.	Fluoranthene	Lead Compounds, N.O.S.
Dinitrotoulene (2,4)	Fluorene	Lead Phosphate
Di-N-Octyl Phthalate	Fluorine	Lead Subacetate
Dinoseb	Fluoroacetamide	Lindane
Di-N-Propylnitrosamine	Fluoroacetic Acid, Sodium Salt	Maleic Anhydride
Diphenylamine	Formaldehyde	Maleic Hydrazide
Dipropylamine	Formic Acid	Malononitrile
Disulfoton	Furan	M-Cresol
Dithiobiuret	Furfural	M-Dichlorobenzene
Electroplating Solutions/Sludges	Glycidylaldehyde	M-Dinitrobenzene
Endosulfan	Halomethanes, N.O.S.	Melphalan
Endosulfan I	Heptachlor Epoxide (Alpha, Beta, and Gamma Isomers)	Mercury
Endosulfan II	Heptachlorodibenzofurans	Mercury Compounds, N.O.S.
Endosulfan Sulfate	Heptachlorodibenzo-P-Dioxins	Mercury Fulminate
Endothall	Hexachlorobenzene	Methacrylonitrile
Endrin	Hexachlorobutadiene	Methanol
Endrin Aldehyde	Hexachlorocyclohexane	Methapyrilene
Endrin Metabolites	Hexachlorocyclopentadiene	Methomyl
Epichlorohydrin	Hexachlorodibenzofurans	Methoxychlor
Epinephrine	Hexachlorodibenzo-P-Dioxins	Methyl Bromide
Ethyl Acetate	Hexachloroethane	Methyl Chloride
Ethyl Acrylate	Hexachlorophene	Methyl Chloroform
Ethyl Benzene	Hexachloropropene	Methyl Ethyl Ketone (MEK)
Ethyl Carbamate (Urethane)	Hexaethyl Tetraphosphate	Methyl Ethyl Ketone Peroxide
Ethyl Chloride	Hydrazine	Methyl Hydrazine
Ethyl Cyanide	Hydrogen Cyanide	Methyl Iodide
Ethyl Ether	Hydrogen Fluoride	Methyl Isobutyl Ketone
Ethyl Methacrylate	Hydrogen Sulfide	Methyl Isocyanate

Chemicals and Products Used Or Stored In Building 72		
Ethyl Methanesulfonate	Indeno[1,2,3-Cd]Pyrene	Methyl Methacrylate
Methyl Methanesulfonate	N-Nitrosonornicotine	Phosgene
Methyl Parathion	N-Nitrosopiperidine	Phosphine
Methylchlorocarbonate	N-Nitrosopyrrolidine	Phosphorus Sulfide
Methylene Bromide	N-Nitrososarcosine	Phthalic Acid Ester, N.O.S.
Methylene Chloride	N-Propylamine	Phthalic Anhydride
Methylthiouracil	O,O,O-Triethylphosphorothioate	P-Nitroaniline
Mitomycin C	O,O-Diethyl O-Pyrazinyl Phosphorothioate	P-Nitrophenol
M-Nitroaniline	O,O-Diethyl S-Methyl Dithiophosphate	Poly Vinyl Chloride
Mustard Gas	O-Chlorophenol	Polychlorinated Biphenyls, N.O.S.
N,N-Diethylhydrazine	O-Cresol	Polychlorinated Dibenzofurans
Naphthalene	Octamethylpyrophosphoramide	Polychlorinated Dibenzo-P-Dioxins
N-Butyl Alcohol	O-Dichlorobenzene	Potassium Cyanide
Nickel	O-Nitroaniline	Potassium Silver Cyanide
Nickel Carbonyl	O-Nitrophenol	P-Phenylenediamine
Nickel Compounds, N.O.S.	Ortho-Dichlorobenzene	Pronamide
Nickel Cyanide	Osmium Tetroxide	Propargyl Alcohol
Nicotine	O-Toluidine	Propylene Dichloride
Nicotine Salts	O-Toluidine Hydrochloride	Propylthiouracil
Nitric Oxide	Paraldehyde	P-Toluidine
Nitrobenzene	Parathion	Pyrene
Nitrogen Dioxide	P-Benzoquinone	Pyridine
Nitrogen Mustard	P-Chloroaniline	Reserpine
Nitrogen Mustard, Hydrochloride Salt	P-Chloro-M-Cresol	Resorcinol
Nitrogen Mustard, N-Oxide	P-Cresol	Saccharin
Nitrogen Mustard, N-Oxide, Hydrochloride Salt	P-Dichlorobenzene	Saccharin Salts
Nitroglycerin	P-Dimethylaminoazobenzene	Safrole
Nitrosamines, N.O.S.	Pentachlorobenzene	Selenium
N-Methyl-N`-Nitro-N-Nitrosoguanidine	Pentachlorobenzofurans	Selenium Compounds, N.O.S.
N-Nitrosodiethanolamine	Pentachlorodibenzo-P-Dioxins	Selenium Dioxide
N-Nitrosodiethylamine	Pentachloroethane	Selenium Sulfide
N-Nitrosodimethylamine	Pentachloronitrobenzene (PCNB)	Selenourea
N-Nitrosodi-N-Butylamine	Pentachlorophenol	Silver and Compounds, N.O.S.
N-Nitrosodiphenylamine	Phenacetin	Silver Cyanide
N-Nitrosomethylethylamine	Phenanthrene	Silvex
N-Nitrosomethylvinylamine	Phenol	Sodium Azide
N-Nitrosomorpholine	Phenylenediamine	Sodium Cyanide
N-Nitroso-N-Ethylurea	Phenylmercury Acetate	Streptozotocin
N-Nitroso-N-Methylurea	Phenylthiourea	Strychnine

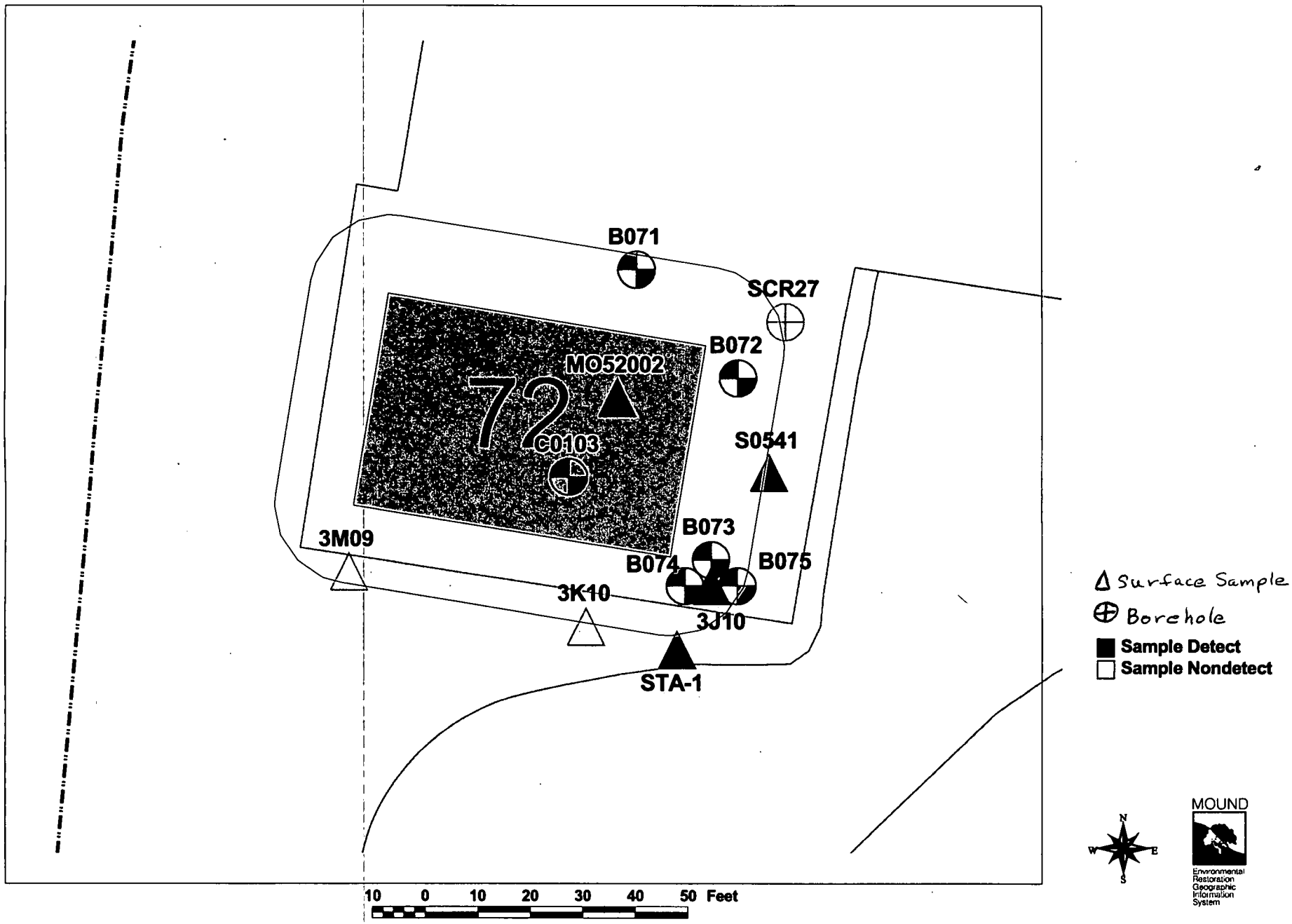
Chemicals and Products Used Or Stored In Building 72		
N-Nitroso-N-Methylurethane	Phorate	Strychnine Salts
Styrene	Thallium(I) Sulfate	Trichlorofluoro-Methane
Sulfide	Thioacetamide	Trichloromethanethiol
Tetrachlorodibenzofurans	Thiofanox	Trichloromonofluoromethane
Tetrachlorodibenzo-P-Dioxins	Thiomethanol	Trichloropropane, N.O.S.
Tetrachloroethane, N.O.S.	Thiophenol	Tris(1-Aziridinyl)Phosphine Sulfide
Tetrachloroethylene	Thiosemicarbazide	Tris(2,3-Dibromopropyl) Phosphate
Tetraethyl Lead	Thiourea	Trypan Blue
Tetraethyl Pyrophosphate	Thiram	Uracil Mustard
Tetraethyldithiopyrophosphate	Tin	Vanadium
Tetrahydrofuran	Toluene	Vanadium Pentoxide
Tetranitromethane	Toluene Diisocyanate	Vinyl Acetate
Thallic Oxide	Toluene-2,4-Diamine	Vinyl Chloride
Thallium	Toluene-2,6-Diamine	Warfarin
Thallium Compounds, N.O.S.	Toluene-3,4-Diamine	Warfarin Salts
Thallium Selenite	Toluenediamine	Xylene
Thallium(I) Acetate	Toxaphene	Zinc
Thallium(I) Carbonate	Trans-1,3-Dichloropropene	Zinc Cyanide
Thallium(I) Chloride	Trans-1,4-Dichloro-2-Butene	Zinc Phosphide
Thallium(I) Nitrate	Trichloroethylene	

Appendix L

Soil Sampling, Vicinity

Elevated historic sample results at locations 3J10 and C0103 will be removed and verified as part of the PRS 41 Removal Action activities. No additional soil evaluation or removal (beyond that already specified in the PRS 41 Action memorandum) is planned for this area.

Historic Sample Locations within 15 feet of Building 72



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Building 72 Detects

Location_ name	Sample_id	Collection_ date	Value_name	Measured_ value	Value_ units	Detection_ limit	Chem_class	Start_ depth	End_ depth	Lab	Data_	Project_code	Media	Comments
MO52002	MO520024	19870730	2-Butanone	98.00000	UG/KG		ORVOA	0.0	0.0	B		DOEES	Sediment	0
MO52002	MO520024	19870730	2-Methylnaphthalene	8.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	4-Methylphenol	30.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
B071	000097	20021120	Actinium-227	0.30000	PCI/G	0.27000	RAD	0.0	4.0			PRS4164417	Soil	222
MO52002	MO520024	19870730	Anthracene	36.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Benzo(a)anthracene	130.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Benzo(a)pyrene	36.00000	UG/KG	360.00000	ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Bis(2-ethylhexyl)phthalate	3100.00000	UG/KG		ORSVO	0.0	0.0	B		DOEES	Sediment	0
MO52002	MO520024	19870730	Butyl Benzyl Phthalate	270.00000	UG/KG		ORSVO	0.0	0.0	JB		DOEES	Sediment	0
B075	000093	20021120	Cesium-137	0.02000	PCI/G	0.02000	RAD	0.0	4.0			PRS4164417	Soil	0
MO52002	MO520024	19870730	Chrysene	200.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Dibenzofuran	12.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Diethyl Phthalate	27.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Di-n-butyl Phthalate	130.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Di-n-octyl Phthalate	190.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Fluoranthene	320.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Indeno(1,2,3-cd)pyrene	89.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	0
MO52002	MO520024	19870730	Phenanthrene	270.00000	UG/KG		ORSVO	0.0	0.0	J		DOEES	Sediment	
C0103	1624	19830401	Plutonium-238	0.26000	PCI/G	0.01000	RAD	1.5	1.5			RSS	Soil	2
C0103	1625	19830401	Plutonium-238	0.50000	PCI/G	0.01000	RAD	3.0	3.0			RSS	Soil	2
S0541	2688	19831001	Plutonium-238	0.64000	PCI/G	0.01000	RAD	0.0	0.0			RSS	Soil	2
MO52002	MO520024	19870730	Pyrene	430.00000	UG/KG		ORSVO	0.0	0.0			DOEES	Sediment	0
B073	000094	20021120	Radium-226	0.86000	PCI/G	0.72000	RAD	0.0	4.0			PRS4164417	Soil	11
B075	000093	20021120	Radium-226	0.97000	PCI/G	0.48000	RAD	0.0	4.0			PRS4164417	Soil	11
B074	000091	20021120	Radium-226	1.31000	PCI/G	1.03000	RAD	0.0	4.0			PRS4164417	Soil	11
B072	000095	20021120	Radium-226	1.42000	PCI/G	0.98000	RAD	0.0	4.0			PRS4164417	Soil	11
B075	000093	20021120	Thorium-232	0.47000	PCI/G	0.05000	RAD	0.0	4.0			PRS4164417	Soil	1
B073	000094	20021120	Thorium-232	0.66000	PCI/G	0.12000	RAD	0.0	4.0			PRS4164417	Soil	1
B072	000095	20021120	Thorium-232	0.68000	PCI/G	0.27000	RAD	0.0	4.0			PRS4164417	Soil	1
B071	000097	20021120	Thorium-232	0.74000	PCI/G	0.22000	RAD	0.0	4.0			PRS4164417	Soil	1
B074	000091	20021120	Thorium-232	0.87000	PCI/G	0.26000	RAD	0.0	4.0			PRS4164417	Soil	1
B074	000092	20021120	Thorium-232	0.87000	PCI/G	0.16000	RAD	0.0	4.0			PRS4164417	Soil	1
3J10	3J10	19940815	Thorium-232	2.10000	PCI/G		RAD	0.0	1.5			2680	Soil	122234
C0103	1624	19830401	Thorium-232	3.95000	PCI/G	2.00000	RAD	1.5	1.5			RSS	Soil	12223447
MO52002	MO520024	19870730	Toluene	6.00000	UG/KG		ORVOA	0.0	0.0	JB		DOEES	Sediment	0
MO52002	MO520024	19870730	Trichloromethane	5.00000	UG/KG		ORVOA	0.0	0.0	JB		DOEES	Sediment	0

(Blank)	No criteria checked
0	Value is less than criteria checked in file "Final RBGVs Constr Worker-Site Employee_Rev7.xls"
1	Value is greater than 10-6 Risk-Based Guideline Value
2	Value is greater than the OU9 Soil Background Value
3	Value is greater than the Screening Value (10-6 RBGV + background or as agreed)
4	Value is greater than the Cleanup Objective (10-5 RBGV + background or as agreed)
5	Value is greater than the MCL
6	Value is greater than the Guide Value based on the Hazard Index = 1
7	Value is greater than the Hot Spot Criteria (3x10-5 + background or as agreed)
8	Value is greater than the Guide Value based on the Hazard Index = 1 + background
9	Value is greater than the Guide Value based on the Hazard Index = .1 + background

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

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Building 72 Non-Detects

Location_ name	Sample_id	Collection_ date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_cla ss	Start_ depth	End_ depth	Lab_	Data_	Project_code	Media
MO52002	MO520024	19870730	1,1,1-Trichloroethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,1,2,2-Tetrachloroethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,1,2-Trichloroethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,1-Dichloroethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,1-Dichloroethene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,2,4-Trichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,2-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,2-Dichloroethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,2-Dichloroethene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,2-Dichloropropane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,3-cis-Dichloropropene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,3-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,3-trans-Dichloropropene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1,4-Dichlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	1-chloro-4-phenoxybenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,2'-oxybis(1-chloropropane)	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4,5-Trichlorophenol	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4,6-Trichlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4-Dichlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4-Dimethylphenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4-Dinitrophenol	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,4-Dinitrotoluene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2,6-Dinitrotoluene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Chloronaphthalene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Chlorophenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Hexanone	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Methylphenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Nitroaniline	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	2-Nitrophenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	3,3'-Dichlorobenzidine	720.0000	UG/KG	720.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	3-Nitroaniline	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4,6-Dinitro-o-Cresol	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4-Bromophenyl-phenyl Ether	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4-Chloro-3-methylphenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4-Chloroaniline	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4-Methyl-2-pentanone	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment

Location_ name	Sample_id	Collection_ date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_cla ss	Start_ depth	End_ depth	Lab_	Data_	Project_code	Media
MO52002	MO520024	19870730	4-Nitroaniline	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	4-Nitrophenol	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Acenaphthene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Acenaphthylene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Acetone	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
B075	000093	20021120	Actinium-227	0.2600	PCI/G	0.2600	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Actinium-227	0.2900	PCI/G	0.2900	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Actinium-227	0.2900	PCI/G	0.2900	RAD	0.00	4.00	U		PRS4164417	Soil
B073	000094	20021120	Actinium-227	0.3100	PCI/G	0.3100	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Actinium-227	0.5600	PCI/G	0.5600	RAD	0.00	4.00	U		PRS4164417	Soil
B075	000093	20021120	Americium-241	0.0500	PCI/G	0.0500	RAD	0.00	4.00	U		PRS4164417	Soil
B073	000094	20021120	Americium-241	0.0800	PCI/G	0.0800	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Americium-241	0.0800	PCI/G	0.0800	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Americium-241	0.0900	PCI/G	0.0900	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Americium-241	0.1000	PCI/G	0.1000	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Americium-241	0.1100	PCI/G	0.1100	RAD	0.00	4.00	U		PRS4164417	Soil
MO52002	MO520024	19870730	Benzene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Benzo(b)fluoranthene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Benzo(g,h,i)perylene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Benzo(k)fluoranthene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Benzoic Acid	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Benzyl Alcohol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Bis(2-chloroethoxy)methane	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Bis(2-chloroethyl)ether	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Bromodichloromethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Bromoform	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Bromomethane	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Carbon Disulfide	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Carbon Tetrachloride	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
B073	000094	20021120	Cesium-137	0.0400	PCI/G	0.0400	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Cesium-137	0.0500	PCI/G	0.0500	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Cesium-137	0.0500	PCI/G	0.0500	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Cesium-137	0.0600	PCI/G	0.0600	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Cesium-137	0.0700	PCI/G	0.0700	RAD	0.00	4.00	U		PRS4164417	Soil
MO52002	MO520024	19870730	Chlorobenzene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Chloroethane	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Chloromethane	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
B075	000093	20021120	Cobalt-60	0.0200	PCI/G	0.0200	RAD	0.00	4.00	U		PRS4164417	Soil

Location_ name	Sample_id	Collection_ date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_cla ss	Start_ depth	End_ depth	Lab_	Data_	Project_code	Media
B073	000094	20021120	Cobalt-60	0.0300	PCI/G	0.0300	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Cobalt-60	0.0600	PCI/G	0.0600	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Cobalt-60	0.0700	PCI/G	0.0700	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Cobalt-60	0.0900	PCI/G	0.0900	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Cobalt-60	0.1100	PCI/G	0.1100	RAD	0.00	4.00	U		PRS4164417	Soil
MO52002	MO520024	19870730	Dibenz(a,h)anthracene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Dibromochloromethane	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Dichloromethane (Methylene Chloride)	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Dimethyl Phthalate	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Ethylbenzene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Fluorene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Hexachlorobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Hexachlorobutadiene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Hexachlorocyclopentadiene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Hexachloroethane	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Isophorone	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
B075	000093	20021120	Lead-210	0.5700	PCI/G	0.5700	RAD	0.00	4.00	U		PRS4164417	Soil
B073	000094	20021120	Lead-210	0.7900	PCI/G	0.7900	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Lead-210	0.8100	PCI/G	0.8100	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Lead-210	0.9400	PCI/G	0.9400	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Lead-210	0.9600	PCI/G	0.9600	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Lead-210	1.2300	PCI/G	1.2300	RAD	0.00	4.00	U		PRS4164417	Soil
MO52002	MO520024	19870730	Naphthalene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Nitrobenzene	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	N-Nitroso-di-n-propylamine	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	N-Nitrosodiphenylamine	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Pentachlorophenol	1800.0000	UG/KG	1800.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Phenol	360.0000	UG/KG	360.0000	ORSVO	0.00	0.00	U		DOEES	Sediment
SCR27	9012185	19901217	Plutonium-238	0.0000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
SCR27	9012051-B	19901205	Plutonium-238	0.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012052-K	19901205	Plutonium-238	0.0000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR27	9012064	19901206	Plutonium-238	0.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012212	19901221	Plutonium-238	1.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012053-K	19901205	Plutonium-238	1.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012065	19901206	Plutonium-238	3.0000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR27	9012213	19901221	Plutonium-238	5.0000	PCI/G		RAD	0.60	0.60	U		SCRDATA	Soil
SCR27	9012214	19901221	Plutonium-238	6.0000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil

Location_ name	Sample_id	Collection_ date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_cla ss	Start_ depth	End_ depth	Lab_	Data_	Project_code	Media
SCR27	9012211	19901221	Plutonium-238	7.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012067-K	19901206	Plutonium-238	9.0000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012187	19901217	Plutonium-238	10.0000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
SCR27	9012184	19901217	Plutonium-238	12.0000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
3J10	3J10	19940815	Plutonium-238	13.0000	PCI/G	13.0000	RAD	0.00	1.50		U	2680	Soil
3K10	3K10	19940810	Plutonium-238	14.0000	PCI/G	14.0000	RAD	0.00	1.50		U	2680	Soil
SCR27	9012066	19901206	Plutonium-238	14.0000	PCI/G		RAD	2.00	3.00	U		SCRDATA	Soil
3M09	3M09	19940810	Plutonium-238	15.0000	PCI/G	15.0000	RAD	0.00	1.50		U	2680	Soil
B071	000097	20021120	Plutonium-238	15.6900	PCI/G	15.6900	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Plutonium-238	17.9300	PCI/G	17.9300	RAD	0.00	4.00	U		PRS4164417	Soil
SCR27	9012188	19901217	Plutonium-238	20.0000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
SCR27	9012186	19901217	Plutonium-238	21.0000	PCI/G		RAD	12.00	12.00	U		SCRDATA	Soil
B073	000094	20021120	Plutonium-238	21.6900	PCI/G	21.6900	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Plutonium-238	23.2300	PCI/G	23.2300	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Plutonium-238	23.6100	PCI/G	23.6100	RAD	0.00	4.00	U		PRS4164417	Soil
B075	000093	20021120	Plutonium-238	30.6100	PCI/G	30.6100	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Radium-226	0.9500	PCI/G	0.9500	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Radium-226	0.9900	PCI/G	0.9900	RAD	0.00	4.00	U		PRS4164417	Soil
MO52002	MO520024	19870730	Styrene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Tetrachloroethene	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
B075	000093	20021120	Thorium-230	4.6300	PCI/G	4.6300	RAD	0.00	4.00	U		PRS4164417	Soil
B071	000097	20021120	Thorium-230	6.2300	PCI/G	6.2300	RAD	0.00	4.00	U		PRS4164417	Soil
B073	000094	20021120	Thorium-230	7.1600	PCI/G	7.1600	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000091	20021120	Thorium-230	7.5200	PCI/G	7.5200	RAD	0.00	4.00	U		PRS4164417	Soil
B072	000095	20021120	Thorium-230	8.6800	PCI/G	8.6800	RAD	0.00	4.00	U		PRS4164417	Soil
B074	000092	20021120	Thorium-230	9.9500	PCI/G	9.9500	RAD	0.00	4.00	U		PRS4164417	Soil
SCR27	9012053-K	19901205	Thorium-232	0.1000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012051-B	19901205	Thorium-232	0.2000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012214	19901221	Thorium-232	0.4000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR27	9012064	19901206	Thorium-232	0.5000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012213	19901221	Thorium-232	0.6000	PCI/G		RAD	0.60	0.60	U		SCRDATA	Soil
SCR27	9012184	19901217	Thorium-232	0.6000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
SCR27	9012185	19901217	Thorium-232	0.6000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
3M09	3M09	19940810	Thorium-232	0.7000	PCI/G	0.7000	RAD	0.00	1.50		U	2680	Soil
SCR27	9012188	19901217	Thorium-232	0.8000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
SCR27	9012067-K	19901206	Thorium-232	0.8000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012066	19901206	Thorium-232	0.9000	PCI/G		RAD	2.00	3.00	U		SCRDATA	Soil
SCR27	9012186	19901217	Thorium-232	1.0000	PCI/G		RAD	12.00	12.00	U		SCRDATA	Soil

Location_ name	Sample_id	Collection_ date	Value_name	Measured _value	Value_ units	Detection _limit	Chem_cla ss	Start_ depth	End_ depth	Lab_	Data_	Project_code	Media
SCR27	9012052-K	19901205	Thorium-232	1.0000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR27	9012211	19901221	Thorium-232	1.1000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012065	19901206	Thorium-232	1.1000	PCI/G		RAD	1.00	1.00	U		SCRDATA	Soil
SCR27	9012212	19901221	Thorium-232	1.2000	PCI/G		RAD	0.50	0.50	U		SCRDATA	Soil
SCR27	9012187	19901217	Thorium-232	1.2000	PCI/G		RAD	6.00	6.00	U		SCRDATA	Soil
3K10	3K10	19940810	Thorium-232	1.4000	PCI/G	1.4000	RAD	0.00	1.50		U	2680	Soil
S0541	2688	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.00	0.00	U		RSS	Soil
C0103	1625	19830401	Thorium-232	2.0000	PCI/G	2.0000	RAD	3.00	3.00	U		RSS	Soil
3K10	3K10	19940810	Total Aromatic Hydrocarbons	378671.0000	IC*	378671.0000	GENERA	0.00	1.50		U	2680	Soil
3M09	3M09	19940810	Total Aromatic Hydrocarbons	1725780.0000	IC*	1725780.0000	GENERA	0.00	1.50		U	2680	Soil
3J10	3J10	19940815	Total Aromatic Hydrocarbons	5182715.0000	IC*	5182715.0000	GENERA	0.00	1.50		U	2680	Soil
3K10	3K10	19940810	Total C5 TO C11 Petroleum Hydrocarbons	898803.0000	IC*	898803.0000	GENERA	0.00	1.50		U	2680	Soil
3M09	3M09	19940810	Total C5 TO C11 Petroleum Hydrocarbons	4770233.0000	IC*	4770233.0000	GENERA	0.00	1.50		U	2680	Soil
3J10	3J10	19940815	Total C5 TO C11 Petroleum Hydrocarbons	15150924.0000	IC*	15150924.0000	GENERA	0.00	1.50		U	2680	Soil
3K10	3K10	19940810	Total Halogenated Hydrocarbons	125018.0000	IC*	125018.0000	GENERA	0.00	1.50		U	2680	Soil
3M09	3M09	19940810	Total Halogenated Hydrocarbons	644946.0000	IC*	644946.0000	GENERA	0.00	1.50		U	2680	Soil
3J10	3J10	19940815	Total Halogenated Hydrocarbons	1267283.0000	IC*	1267283.0000	GENERA	0.00	1.50		U	2680	Soil
3M09	3M09	19940810	Total Semivolatile Hydrocarbons	17200.0000	IC*	17200.0000	GENERA	0.00	1.50		U	2680	Soil
3K10	3K10	19940810	Total Semivolatile Hydrocarbons	24260.0000	IC*	24260.0000	GENERA	0.00	1.50		U	2680	Soil
3J10	3J10	19940815	Total Semivolatile Hydrocarbons	119254.0000	IC*	119254.0000	GENERA	0.00	1.50		U	2680	Soil
MO52002	MO520024	19870730	Trichloroethylene (TCE)	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Vinyl Acetate	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Vinyl Chloride	53.0000	UG/KG	53.0000	ORVOA	0.00	0.00	U		DOEES	Sediment
MO52002	MO520024	19870730	Xylenes, Total	26.0000	UG/KG	26.0000	ORVOA	0.00	0.00	U		DOEES	Sediment

*Units IC are ion counts (IC). Results are quatitative and only releative to each other. Samples collectd as part of the OU5 Operatonal Area Investigation.

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

DATA QUALIFIER CODES (DATAQUAL)

ORGANICS AND INORGANICS

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

SUB-QUALIFIER CODES

ORGANICS

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

INORGANICS

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

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

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

Comparison for Soil Analytical Results

		Screening Level (RBGV 10-6 + background, or as agreed)	
7440-38-2	Arsenic	1.06E+01	MG/KG
7440-41-7	Beryllium	2.25E+03	MG/KG
7440-43-9	Cadmium	3.00E+03	MG/KG
18540-29-9	Chromium VI	4.50E+02	MG/KG
7440-02-0	Nickel	1.13E+04	MG/KG
55684-94-1	1,2,3,6,7,8-HxCDF	1.99E-04	MG/KG
19408-74-3	1,2,3,7,8,9-HxCDD	4.81E-04	MG/KG
57117-41-6	1,2,3,7,8-PeCDF	3.97E-05	MG/KG
57117-31-4	2,3,4,7,8-PeCDF	3.97E-04	MG/KG
1746-01-6	2,3,7,8-TCDD	1.99E-05	MG/KG
51207-31-9	2,3,7,8-TCDF	1.99E-04	MG/KG
37871-00-4	HpCDD	1.99E-03	MG/KG
38998-75-3	HpCDF	1.99E-03	MG/KG
34465-46-8	HxCDD	1.99E-04	MG/KG
3268-87-9	OCDD	1.99E-02	MG/KG
39001-02-0	OCDF	1.99E-02	MG/KG
36088-22-9	PeCDD	3.97E-05	MG/KG
118-96-7	2,4,6-Trinitrotoluene	9.94E+01	MG/KG
121-82-4	RDX	2.71E+01	MG/KG
72-54-8	4,4'-DDD	1.66E+01	MG/KG
72-55-9	4,4'-DDE	1.31E+01	MG/KG
50-29-3	4,4'-DDT	2.18E+01	MG/KG
309-00-2	Aldrin	1.75E-01	MG/KG
319-84-6	Alpha-BHC	4.73E-01	MG/KG
12674-11-2	Aroclor-1016	1.49E+00	MG/KG
11104-28-2	Aroclor-1221	1.49E+00	MG/KG
11141-16-5	Aroclor-1232	1.49E+00	MG/KG
53469-21-9	Aroclor-1242	1.49E+00	MG/KG
12672-29-6	Aroclor-1248	1.49E+00	MG/KG
11097-69-1	Aroclor-1254	5.95E+01	MG/KG
11096-82-5	Aroclor-1260	1.49E+00	MG/KG
319-85-7	Beta-BHC	1.66E+00	MG/KG
60-57-1	Dieldrin	1.86E-01	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.29E+00	MG/KG
76-44-8	Heptachlor	6.62E-01	MG/KG
1024-57-3	Heptachlor Epoxide	3.28E-01	MG/KG
1336-36-3	Polychlorinated Biphenyls (PCBs)	1.49E+00	MG/KG
8001-35-2	Toxaphene	2.71E+00	MG/KG
122-66-7	1,2-Diphenylhydrazine	3.73E+00	MG/KG
106-46-7	1,4-Dichlorobenzene	1.24E+02	MG/KG
108-60-1	2,2'-oxybis(1-chloropropane)	4.26E+01	MG/KG
88-06-2	2,4,6-Trichlorophenol	2.71E+02	MG/KG
121-14-2	2,4-Dinitrotoluene	4.38E+00	MG/KG
606-20-2	2,6-Dinitrotoluene	4.38E+00	MG/KG

91-94-1	3,3'-Dichlorobenzidine	6.62E+00	MG/KG
99-09-2	3-Nitroaniline	7.84E+01	MG/KG
100-01-6	4-Nitroaniline	7.84E+01	MG/KG
92-87-5	Benzidine	1.30E-02	MG/KG
56-55-3	Benzo(a)anthracene	4.08E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.08E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.08E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.08E+01	MG/KG
111-44-4	Bis(2-chloroethyl)ether	2.71E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.13E+02	MG/KG
86-74-8	Carbazole	1.49E+02	MG/KG
218-01-9	Chrysene	4.08E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-01	MG/KG
118-74-1	Hexachlorobenzene	1.86E+00	MG/KG
87-68-3	Hexachlorobutadiene	3.82E+01	MG/KG
67-72-1	Hexachloroethane	2.13E+02	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E+00	MG/KG
78-59-1	Isophorone	3.14E+03	MG/KG
621-64-7	N-Nitroso-di-n-propylamine	4.26E-01	MG/KG
62-75-9	N-Nitrosodimethylamine	5.84E-02	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.08E+02	MG/KG
87-86-5	Pentachlorophenol	2.48E+01	MG/KG
630-20-6	1,1,1,2-Tetrachloroethane	6.95E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.88E-01	MG/KG
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
96-18-4	1,2,3-Trichloropropane	4.26E-01	MG/KG
96-12-8	1,2-Dibromo-3-Chloropropane	2.12E+00	MG/KG
107-06-2	1,2-Dichloroethane	7.61E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
107-13-1	Acrylonitrile	5.15E-01	MG/KG
71-43-2	Benzene	5.42E+01	MG/KG
100-44-7	Benzyl Chloride	1.75E+01	MG/KG
75-27-4	Bromodichloromethane	4.81E+01	MG/KG
75-25-2	Bromoform	3.77E+02	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform (Trichloromethane)	5.15E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane (Methylene Chloride)	2.03E+01	MG/KG
106-93-4	Ethylene Dibromide (1,2-Dibromoethane)	3.37E-02	MG/KG
127-18-4	Tetrachloroethene	1.87E+01	MG/KG
79-01-6	Trichloroethene	5.25E+00	MG/KG
75-01-4	Vinyl Chloride	4.14E-01	MG/KG
14952-40-0	Actinium-227	4.48E+00	PCI/G
14952-40-0	Actinium-227+D	5.63E-01	PCI/G
14952-40-0	Actinium-227 long lived decay	5.63E-01	PCI/G
14331-83-0	Actinium-228	1.93E-01	PCI/G
14596-10-2	Americium-241	6.31E+00	PCI/G
14683-10-4	Antimony-124	9.84E-02	PCI/G

14234-35-6	Antimony-125	4.83E-01	PCI/G
14234-35-6	Antimony-125+D	4.83E-01	PCI/G
13981-41-4	Barium-133	6.07E-01	PCI/G
13981-41-4	Barium-133m	4.41E+00	PCI/G
14798-08-4	Barium-140	1.13E+00	PCI/G
13966-02-4	Beryllium-7	4.11E+00	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
14331-79-4	Bismuth-210	5.51E+01	PCI/G
14331-79-4	Bismuth-210m	1.00E+00	PCI/G
15229-37-5	Bismuth-211	4.66E+00	PCI/G
14913-49-6	Bismuth-212	9.87E-01	PCI/G
14733-03-0	Bismuth-214	1.17E-01	PCI/G
13967-74-3	Cerium-141	3.80E+00	PCI/G
14762-78-8	Cerium-144	8.87E+00	PCI/G
14762-78-8	Cerium-144+D	3.21E+00	PCI/G
13967-70-9	Cesium-134	1.23E-01	PCI/G
13967-70-9	Cesium-134m	1.74E+01	PCI/G
10045-97-3	Cesium-137	3.81E+01	PCI/G
10045-97-3	Cesium-137 +D	7.62E-01	PCI/G
10045-97-3	Cesium-137 long lived decay	7.62E-01	PCI/G
14392-02-0	Chromium-51	6.89E+00	PCI/G
13981-50-5	Cobalt-57	2.46E+00	PCI/G
13981-38-9	Cobalt-58	1.95E-01	PCI/G
13981-38-9	Cobalt-58m	4.78E+03	PCI/G
10198-40-0	Cobalt-60	7.06E-02	PCI/G
10198-40-0	Cobalt-60m	4.71E+01	PCI/G
13981-15-2	Curium-244	9.20E+00	PCI/G
14683-23-9	Europium-152	1.65E-01	PCI/G
14683-23-9	Europium-152m	6.57E-01	PCI/G
15585-10-1	Europium-154	1.50E-01	PCI/G
14391-16-3	Europium-155	6.98E+00	PCI/G
14596-12-4	Iron-59	1.50E-01	PCI/G
13981-28-7	Lanthanum-140	7.61E-02	PCI/G
14255-04-0	Lead-210	2.10E+00	PCI/G
14255-04-0	Lead-210+D	1.80E+00	PCI/G
14255-04-0	Lead-210 long lived decay	1.82E+00	PCI/G
15092-94-1	Lead-212	1.66E+00	PCI/G
15067-28-4	Lead-214	8.92E-01	PCI/G
13966-31-9	Manganese-54	2.25E-01	PCI/G
13982-78-0	Mercury-203	9.47E-01	PCI/G
13994-20-2	Neptunium-237	7.01E+00	PCI/G
13994-20-2	Neptunium-237+D	1.04E+00	PCI/G
13967-76-5	Niobium-95	2.48E-01	PCI/G
13967-76-5	Niobium-95m	3.73E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
PU-238/239	Plutonium-238/239	6.21E+00	PCI/G
15117-48-3	Plutonium-239	6.21E+00	PCI/G
PU-239/240	Plutonium-239/240	6.21E+00	PCI/G
14119-32-5	Plutonium-241	5.06E+02	PCI/G

13982-10-0	Plutonium-242	6.33E+00	PCI/G
13981-52-7	Polonium-210	2.09E+00	PCI/G
13966-00-2	Potassium-40	3.81E+01	PCI/G
14331-85-2	Protactinium-231	2.83E+00	PCI/G
14331-85-2	Protactinium-231+D	4.00E+00	PCI/G
14331-85-2	Protactinium-231 long lived decay	1.28E+00	PCI/G
13981-14-1	Protactinium-233	1.01E-01	PCI/G
15100-28-4	Protactinium-234	1.27E+01	PCI/G
15100-28-4	Protactinium-234m	1.20E+00	PCI/G
15623-45-7	Radium-223	3.24E+00	PCI/G
13233-32-4	Radium-224	5.91E+00	PCI/G
13981-53-8	Radium-225	2.17E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
13982-63-3	Radium-226+D	2.09E+00	PCI/G
13982-63-3	Radium-226 long lived decay	2.73E+00	PCI/G
15262-20-1	Radium-228	1.47E+00	PCI/G
15262-20-1	Radium-228+D	1.47E+00	PCI/G
15262-20-1	Radium-228 long lived decay	1.83E+00	PCI/G
13968-53-1	Ruthenium-103	1.40E+01	PCI/G
13967-48-1	Ruthenium-106	8.77E-01	PCI/G
13967-48-1	Ruthenium-106+D	9.09E-02	PCI/G
13967-63-0	Scandium-46	1.22E-01	PCI/G
14391-65-2	Silver-108m	1.14E+02	PCI/G
14378-38-2	Silver-109m	8.50E-02	PCI/G
13966-32-0	Sodium-22	3.98E-01	PCI/G
13967-73-2	Strontium-85	1.07E+00	PCI/G
13967-73-2	Strontium-85m	3.55E+01	PCI/G
14158-27-1	Strontium-89	1.80E+01	PCI/G
10098-97-2	Strontium-90	1.01E+01	PCI/G
10098-97-2	Strontium-90+D	7.70E-01	PCI/G
14133-76-7	Technetium-99	2.14E+02	PCI/G
14913-50-9	Thallium-208	4.98E-02	PCI/G
15623-47-9	Thorium-227	2.09E+00	PCI/G
14274-82-9	Thorium-228	7.08E+00	PCI/G
14274-82-9	Thorium-228+D	1.61E+00	PCI/G
14274-82-9	Thorium-228 long lived decay	1.61E+00	PCI/G
15594-54-4	Thorium-229	1.89E+00	PCI/G
15594-54-4	Thorium-229+D	5.06E-01	PCI/G
15594-54-4	Thorium-229 long lived decay	5.06E-01	PCI/G
14269-63-7	Thorium-230	1.01E+01	PCI/G
14269-63-7	Thorium-230+D	2.00E+00	PCI/G
14269-63-7	Thorium-230 long lived decay	1.99E+00	PCI/G
7440-29-1	Thorium-232	8.60E+00	PCI/G
7440-29-1	Thorium-232+D	1.47E+00	PCI/G
15065-10-8	Thorium-234	1.76E+01	PCI/G
13966-06-8	Tin-113	3.56E+01	PCI/G
15832-50-5	Tin-126	6.91E+00	PCI/G
10028-17-8	Tritium	7.58E+03	PCI/G
14158-29-3	Uranium-232	2.90E+00	PCI/G

13968-55-3	Uranium-233	1.03E+01	PCI/G
13968-55-3	Uranium-233+D	4.80E-01	PCI/G
13968-55-3	Uranium-233 long lived decay	4.82E-01	PCI/G
U-233/234	Uranium-233/234	4.82E-01	PCI/G
13966-29-5	Uranium-234	1.16E+01	PCI/G
13966-29-5	Uranium-234+D	1.20E+00	PCI/G
15117-96-1	Uranium-235	1.67E+00	PCI/G
15117-96-1	Uranium-235+D	1.60E+00	PCI/G
15117-96-1	Uranium-235 long lived decay	4.20E-01	PCI/G
U-235/236	Uranium-235/236	3.10E-01	PCI/G
7440-61-1	Uranium-238	1.28E+01	PCI/G
7440-61-1	Uranium-238+D	5.31E+00	PCI/G
7440-61-1	Uranium-238 long lived decay	1.29E+00	PCI/G
13982-39-3	Zinc-65	3.11E-01	PCI/G
13967-71-0	Zirconium-95	2.57E-01	PCI/G

Appendix M

Occurrence Reports

A search of the occurrence reporting system revealed no occurrence reports for Building 72

Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that are unbinned. Accordingly, there are no recommendation pages included for PRSs 7, 60, 61, and 62 included herein.

MIAMISBURG CLOSURE PROJECT
PRS 41

RECOMMENDATION:

Potential Release Site (PRS) 41 is located on the western portion of the site (Figure 1) and was binned Further Assessment by the Core Team on 2 October 1996. PRS 41 was identified based on potential impacts from historic thorium staging and re-drumming operations. Based on elevated historic soil sample results for plutonium-238, a portion of a small drainage feature within PRS 41 (41 Ditch) was also assessed. Further Assessment was performed and confirmed that thorium-232 (at PRS 41) and plutonium-238 (at 41 Ditch) exceed the cleanup objectives of 2.1 pCi/g and 55 pCi/g respectively. The cleanup objective is the 10^{-5} RBGV plus background.

Therefore, the Core Team recommends a **Removal Action** for PRS 41 and 41 Ditch.

This Removal Action will be performed under a specific Action Memorandum or under the Action Memorandum for Contingent Removal Actions. Successful completion of the Removal Action will be documented via an On-Scene Coordinator (OSC) Report signed by the Core Team, which will be placed in the Public Reading Room.

CONCURRENCE:

DOE/MCP: _____ 2/19/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 2/19/03
David P. Seely, Remedial Project Manager (date)

OEPA: _____ 2/19/03
Brian K. Nickel, Project Manager (date)

MOUND PLANT
PRS 63
Soil Contamination – Building 29

RECOMMENDATION:

This site became a PRS because of potential Cobalt-60 and Cesium-137 contamination. On May 31, 1984, a drainpipe, contaminated with these radionuclides, was removed from T Building and placed in a salvage area near Building 19. Contamination from the pipe was spread over a two square foot area of pavement outside Building 19. The pavement was decontaminated the following day.

In October 1996, a FIDLER detector indicated elevated gamma ray emissions. Subsequent measurements using a germanium detector confirmed these elevated readings, but could not confirm which isotopes were present.

The Core Team originally recommended Further Assessment for PRS 63. Subsequently, the cost of further investigation versus the cost of removing the potentially contaminated soils was evaluated. Cost estimates indicate that the cost of removal is not significantly greater than the cost of further assessment at PRS 63. Additionally Further Assessment findings may indicate the need for a Response (removal) Action, resulting in costs associated with both Further Assessment and Response Action. Therefore, the Core Team recommends a <u>RESPONSE ACTION</u> as a more cost-effective course of action for PRS 63.

CONCURRENCE:

DOE/MEMP: Arthur W Kleinrath 8/13/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 8/18/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 8/13/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 9/15/97 to 10/15/97

☐ No comments were received during the comment period.

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

Recommendation for PRS 63

Potential Release Site (PRS) 63 is an approximately two square foot area located on pavement. This site became a PRS due to "minor" unquantified cobalt-60 and cesium-137 contamination resulting from the inadvertent staging of a contaminated drainpipe that was removed from T Building and temporarily placed on the pavement in the salvage area east of Building 19.

The location and some of the data that was previously reported were incorrect. Based on the incorrect information, the Core Team recommended Further Assessment for PRS 63 and subsequently a Response Action (RA) in lieu of additional characterization.

In the process of preparing for a RA, the correct location and associated data surfaced and is the basis for this addendum. Data included herein supports that PRS 63 (the 1984 pipe incident) was not the source for the contaminated soil that was removed prior to the construction of Building 124. Survey and soil data from the removal activity did document that cobalt-60 and cesium-137 were not present (or not present above background) and not the activity causing the removal.

Therefore, the Core Team recommends **No Further Assessment** for PRS 63.

Confirmation under a regulator-approved Sampling & Analysis Plan that the soil (currently under the west end of Building 124) does not exhibit contamination above cleanup objectives will be performed following the demolition of Building 124 per the PRS 41 Public Fact Sheet. If contamination greater than cleanup objectives is found, a removal and verification will be performed.

A PRS Package with an NFA recommendation signed by the Core Team will be placed in the Public Reading Room for a 30-day review period. Upon closure of the public review comments, if any, the PRS Package will be issued as a final document and made available in the Public Reading Room.

CONCURRENCE:

DOE/MCP:	Paul Lucas Paul Lucas, Remedial Project Manager	9/24/03 (date)
USEPA:	David P. Seely David P. Seely, Remedial Project Manager	9/19/03 (date)
OEPA:	[illegible] Brian K. Nickel, Project Manager	9/24/03 (date)

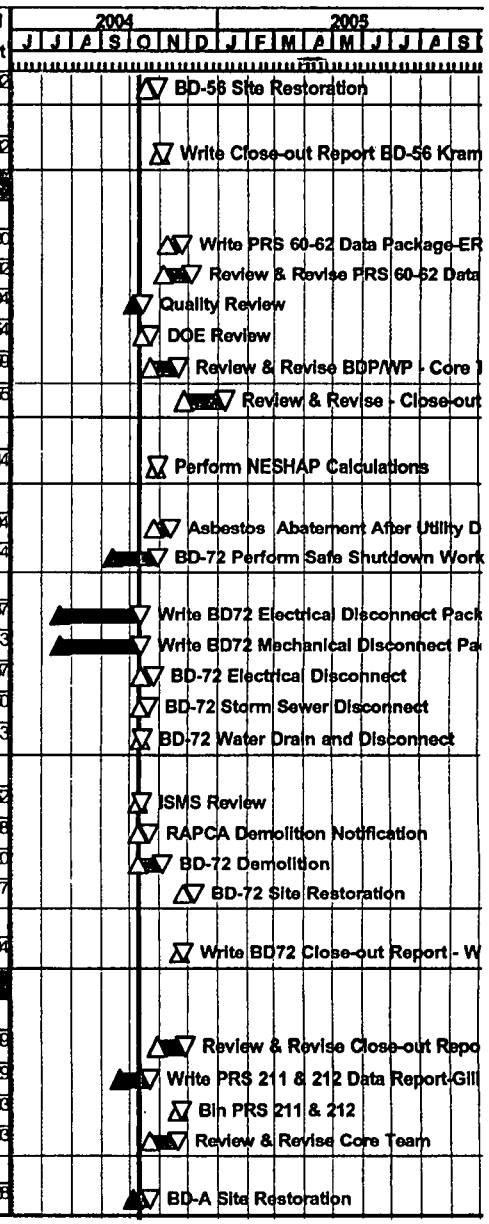
Appendix O

Work Plan (Draft)

The drawings listed on the flysheet for Appendix C of the Work Plan are oversized and therefore are not included in the Work Plan in this appendix (Appendix O). However, the oversized drawings are included in field and record copies of the Work Plan.

Copies of the oversized drawings are available upon request.

Activity ID	Activity Description	Orig Dur	Rem Dur	Cal ID	%	Early Start	Early Finish	Target 1 Early Start	Target 1 Early Finish	Variance 1 Early Start	Total Float
BD068975	BD-56 Site Restoration	8	8	1	0	18OCT04	28OCT04	30DEC04	12JAN05	43	232
Closeout											
BD056325	Write Close-out Report BD-56 Kramer	4	4	1	0	01NOV04	04NOV04	13JAN05	19JAN05	43	232
Building 72 - Cluster 124											
Regulatory											
BD072135	Write PRS 60-62 Data Package-ER	10	10	1	0	08NOV04	23NOV04			0	230
BD072145	Review & Revise PRS 60-62 Data Package	30	30	2	0	05NOV04	04DEC04			0	392
BD072175	Quality Review	8	4	1	50	05OCT04A	14OCT04	02NOV04	08NOV04	16	204
BD072225	DOE Review	5	5	3	0	15OCT04	21OCT04	09NOV04	15NOV04	17	254
BD072250	Review & Revise BDP/WP - Core Team/Public	30	30	2	0	22OCT04	20NOV04	16NOV04	15DEC04	25	369
BD072335	Review & Revise - Close-out Report	30	30	3	0	26NOV04	07JAN05	09FEB05	09MAR05	51	255
Radiological											
BD072450	Perform NESHAP Calculations	1	1	1	0	28OCT04	28OCT04	30NOV04	30NOV04	18	244
Safe Shutdown											
BD072550	Asbestos Abatement After Utility Disconnect	12	12	3	0	27OCT04	11NOV04	07DEC04	22DEC04	28	294
BD072800	BD-72 Perform Safe Shutdown Work	12	12	1	0	13SEP04A	28OCT04	02NOV04	22NOV04	29	244
Utilities											
BD072625	Write BD72 Electrical Disconnect Package	16	2	1	90	20JUL04A	12OCT04	05OCT04	01NOV04	44	237
BD072635	Write BD72 Mechanical Disconnect Package	16	2	1	90	20JUL04A	12OCT04	05OCT04	01NOV04	44	243
BD072850	BD-72 Electrical Disconnect	8	8	1	0	13OCT04	26OCT04	23NOV04	06DEC04	23	237
BD072725	BD-72 Storm Sewer Disconnect	4	4	1	0	13OCT04	19OCT04	02NOV04	08NOV04	11	250
BD072775	BD-72 Water Drain and Disconnect	2	2	1	0	13OCT04	14OCT04	02NOV04	03NOV04	11	243
Demolition											
BD072910	ISMS Review	4	4	1	0	11OCT04	14OCT04	02NOV04	08NOV04	13	252
BD072925	RAPCA Demolition Notification	10	10	3	0	11OCT04	22OCT04	02NOV04	15NOV04	16	308
BD072950	BD-72 Demolition	16	16	1	0	11OCT04	04NOV04	04JAN05	31JAN05	49	120
BD072975	BD-72 Site Restoration	8	8	3	0	26NOV04	07DEC04	09FEB05	17FEB05	51	277
Closeout											
BD072325	Write BD72 Close-out Report - Wier	4	4	1	0	22NOV04	25NOV04	01FEB05	07FEB05	41	204
A Building											
Regulatory											
BD00A440	Review & Revise Close-out Report	30	30	2	0	29OCT04	27NOV04	28SEP04	27OCT04	-31	399
BD00A460	Write PRS 211 & 212 Data Report-Gill	12	8	1	33	21SEP04A	21OCT04			0	229
BD00A470	Bin PRS 211 & 212	3	3	2	0	21NOV04	23NOV04			0	403
BD00A480	Review & Revise Core Team	30	30	2	0	22OCT04	20NOV04			0	403
Demolition											
BD00A420	BD-A Site Restoration	20	8	1	60	05OCT04A	21OCT04	17AUG04	20SEP04	-28	226



Start Date	05FEB04
Finish Date	24APR06
Data Date	11OCT04
Run Date	13OCT04 07:33

Early Bar
Progress Bar
Critical Activity

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ERST

Sheet 6 of 16

CH2MHILL

Integrated Status Schedule

BOSS Activities - <100% Complete

Date	Revision	Checked	Approved

A 2 of 59

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Standard

WORK PLAN

In accordance with Mound 2000

Demolition of Building 72

Draft

July 2004

Includes

PRSs:	60, 61 & 62
Buildings:	72
Parcels:	8
Other:	

Revisions to the Final (if any) are inserted behind this cover

01 of 59

Table of Contents

	Pages
Work Plan	3-14
Appendix A PHA & JSHA	
Appendix B Pre-Job Briefing and Job Status Log	
Appendix C Drawings/Sketches	
Appendix D Miscellaneous (USQ, RWP, etc.)	
Appendix E Post-Job Conference/Lessons Learned	

WORK PACKAGE / PRELIMINARY HAZARD ANALYSIS

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

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

1. WORK PACKAGE TITLE: **Demolition of Building 72**

2. WORK PACKAGE NUMBER. **BOSS-38226 - 00.** **REQUESTOR: Greg Balint**

3. WORK PACKAGE SCOPE: The purpose of this effort is to use heavy equipment to demolish Building 72 and the Water Sampling Station (including concrete block & steel structure, safety shower enclosure, slab, foundation, concrete driveways, asphalt, fencing, secondary curb and utility poles), and remove and dispose of the debris. Since no radiological work was performed in these buildings/structures, this is a non-radiological demolition project with no RWP required unless Radiological survey data indicates otherwise. Safe shutdown and utility isolation activities will have already been completed prior to demolition.

4. WORK LOCATION:

Building 72 – Test Fire Valley

1. WORK PACKAGE PHASES:

1. Site information
2. Site Preparation and Mobilization
3. Building Demolition Sequence of Work
4. Demobilization

A – PHA/JSHA

B – Pre-Job Briefings/Job Status Log

C – Drawings/Sketches

D – Miscellaneous (RWP, USQ, etc.)

E – Post-Job Conference

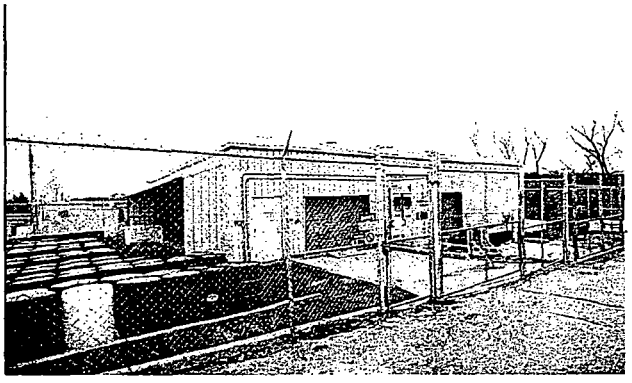
Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

1. 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
4. Fog Cannon
5. Aerial lift/manlift

Note: Insert any materials that require long lead procurement or special order. Don't list common items such as PPE.
See Appendix D for Work Package Material List

Building 72 Viewed From North East



DETAILED WORK STEPS:

7.1 SITE INFORMATION

7.1.1 Building 72 Construction

Building 72, a Hazardous Waste Storage Unit constructed in 1984, is a 40-foot (ft) x 60-ft pre-engineered building constructed over an 8-inch (in.) thick concrete base.

The concrete slab was developed from a series of crack-free, monolithic pours to form three 20-ft x 40-ft diked areas. The concrete base of each bay is sloped to a catch basin (sump) located in the center of the area. The floor has no drains to the outside of the building. A 24 in. x 24 in. x 32 inches deep dura-crete catch basin lined with stainless steel is located in the center of each bay to collect any container leaks or spills. The concrete walls of the catch basin are 4.5 inches thick and the floor of the catch basin is 3 inches thick with a 3-inch concrete fill slab that was poured after the catch basin was placed. There is no piping or drains associated with the catch basins. The storage area was separated into three bays in order to separate incompatible wastes. Bays 1, 2, and 3 stored flammable liquids, corrosive alkalis, and corrosive acids, respectively. A fourth (5 ft X 16 ft) diked bay was placed inside the west edge of the west bay. It has a separate catch basin constructed in a manner similar to the three others in its lowest corner. Additionally, masonry block walls built on the dikes surround the bay with an entry opening on the east side.

The base of the structure was developed on a modified fill sub base compacted to >95% with a minimum load-bearing capacity of >4,000 pounds per square foot (psf) (see Drawings 307 201-01002 and 307 201-01004). The floor slab was developed from a series of 8-in. thick monolithic pours to form three separate storage cells separated by curbing. The base and curbs were constructed from Type I Portland cement reinforced with 6 x 6, W4 x W4 welded wire mat. The 28-day compressive strength for this concrete was specified as 4,000 pounds per square inch (psi) and verified by an ASTM C39 and C873 compressive test as >4,200 psi." Pea gravel and a plastic membrane liner were placed below the concrete floor

Building foundations consist of 4 ft x 4 ft x 12 inches thick footings reinforced with #5 rebar. The footings are tied to vertical 12-in. x 12-in. column piers with #6 rebar, and the piers are reinforced with rebar cage consisting of #6 and #3 reinforcing bars. The column piers were not developed as part of the monolithic slab and are isolated from the slab with 0.5 inches of expansion joint material.

Vertical steel I beams, anchored at the base, support a standing seam steel roof & 4 inch fiberglass roof insulation with plastic bottom face. The roof is sloped for drainage. The entire structure is electrically grounded. Each piece of the footing's reinforcing steel was welded at one point to make it electrically continuous. Each #6 vertical reinforcing steel was then welded to the bottom reinforcing steel and one anchor bolt. As an alternate, one length of 2/0 bare stranded copper could be laid in the column footer and brazed to an anchor bolt for the corner columns only. Explosion-proof overhead lighting and electrical outlets are provided as safety features. The east side of the building is open to the outside, but is fitted with a weather-protective canopy. To provide natural ventilation, the three remaining walls have screened openings near the top and bottom. Six ventilators are located on the roof to increase the air circulation in the facility. Two I-beams run east-west attached below the roof's structural steel and serve as the support rails for a bridge-mounted 1000 pound capacity hoist that provides coverage to the majority of the building.

After completion of the monolithic slab and curbing, the base of the unit was sealed with an ASTM C309 Type I membrane-forming compound. This sealant is designed to enhance concrete curing and does not provide chemical resistance. The floor was coated with a glass-filled floor topping to enhance the resistance of the base to the wastes noted. The selected floor topping for the bays is a high molecular weight vinyl ester resin with glass-flake filling that is applied with a trowel, such as Dudick Protecto-line 900 or equivalent. This floor coating is a multilayered topping consisting of a primer applied to the surface, a silica-filled vinyl ester base coat, a fiberglass reinforcing mat, and a silica-filled topcoat to provide a total coating thickness of 125 mils. This floor topping was applied to the floor slab, sumps, and interior curbing of each bay to enhance the chemical resistance of these containment members

Containers were stored on galvanized, mild steel grating that is supported above the base of the containment system by 4-in. x 4-in. and 6-in. x 3-in. tubular steel framing that spans the length of each bay. The tubular steel framing is supported above the base by 3-in. x 3-in. tubular steel supports so that the grating is elevated above the lowest slab elevation by 18 in. The 2-in. steel grate is also isolated from the monolithic curb; therefore, the stored containers did not come into

contact with the base. Most of the steel grating has been taken up and stacked inside the building.

7.1.2 ADDITIONAL INFORMATION

The Water Sampling Station is a 5 ft X 6 ft, factory assembled, PAR-KUT Model 65 booth that was manufactured in December 1984. The booth is a single unit of welded 14 & 18 gage galvanized steel construction. The walls contain 2-inches of rigid fiberglass insulation and the cavity between the ceiling & roof is insulated with rock wool. The window frames were fabricated using anodized aluminum and the glass has safety glazing. An aluminum sliding door provides access to the booth. The booth is currently sitting on top of an open manhole. Two holes have been cut into the tile floor for access to the outflow sewer to the river below. One hole is approximately 15 inches X 19 inches covered by a 1/8th inch thick aluminum plate that is piano hinged on one side. The second hole is about 4 inches in diameter. One window is broken at this time.

The construction drawings show the west driveway as a 6-inch thick ramp sloping downward from the secondary curb to the building foundation wall approximately 3 feet below grade. A slotted drain is located adjacent to the building. Current site conditions suggest that the ramp was filled in and leveled. The east driveway has a hydraulic lift to bring drums from truck bed height to the building's deck level. The hydraulic pump and sump are mounted inside Building 72. The Thermaflow plus Freeze Protected Safety Shower Enclosure is constructed of with fire-retardant fiberglass & urethane foam walls, with a yellow chemical-resistant UV inhibited Gelcote finish. Windows are lexan. The galvanized steel piping in the showers is heat taped and fiberglass insulated. Pipe insulation outside the enclosure is covered with aluminum flashing. Four storm drains are located within the secondary curb with the northeast one tied into the site's storm sewer system. Additionally, two downspouts on the building's south side area tied into the storm sewer. The interconnecting storm sewer piping is located 1 to 3 feet below grade. The area between the secondary curb and the building's foundation wall was paved with 2 inches of asphalt concrete.

Potential Release Sites

There are three potential release sites associated with Building 72 and it's associated outside storage area. Potential Release Site (PRS) 60 is Building 72 a former hazardous waste storage facility that completed RCRA closure when the *Building 72 Hazardous Waste Storage Unit Closure Report* was issued November 19, 2003. PRS 61 is an outdoor hazardous waste storage area where waste oils were stored. PRS 62 is an outdoor empty drum storage area. This work plan removes Building 72 including the slab and removes the asphalt surrounding the facility where the outdoor storage was located. A PRS package will be prepared to disposition these three PRSs.

The Building 72 demolition site occupies a portion of PRS 41, Area 3, Thorium Drum Storage and Redrumming Area. These activities predate the construction of Building 72. After demolition and removal of the building to at least three feet below grade, the work site will be turned over to the PRS 41 Removal Action project. Historic sample locations C0103 and 3J10 will be removed and verified as part of the PRS 41 Removal Action activities. Following the removal and verification activities, the area will be graded, seeded, and mulched.

Material Disposition

Based on a review of the work to be performed, the Waste Generator and Waste Coordinator determine types (sanitary, hazardous, LLW, LLMW, TRU) and estimated amounts of waste prior to generation. An evaluation of the physical, radiological and chemical properties is made to determine a disposal path for each type of waste. The proposed disposal facility, waste profile, and knowledge of the waste generating process will determine the characterization methodology required for each waste type.

Process knowledge will generally be sufficient to characterize sanitary and hazardous waste for disposal. Sampling and analysis for radiological characterization of radioactive waste will be determined based on process knowledge of the source of the waste. Analytical methods employed include surface contamination measurements, air concentration measurements and calorimetry (tritium), alpha spectroscopy and gamma spectroscopy. All characterization determinations are documented and peer reviewed prior to waste shipment. Material Safety Data Sheets (MSDS) are used to supplement process knowledge of chemical properties of the waste. Where process knowledge is not sufficient to provide a RCRA determination, analysis of waste will be accomplished through the Toxicity Characteristic Leaching Procedure (TCLP) performed by an offsite laboratory.

Procedures controlling waste characterization are contained in Mound Technical Manuals MD-10167, *Radioactive Waste Procedures,* Operations 420: *Waste Stream Characterization* and 428: *Waste Radionuclide Identification and Quantification*, and MD-70523, *Management of Hazardous Waste, Trash, and Recyclable Materials*, Operation 001: *Waste Verification Sampling and Analysis*. Additional direction is contained in these manuals in operations specific to the waste type and container being used.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 72 and the Water Sampling Station are not listed as historic structures with the Ohio of Historic Preservation Office (OHPO). No mitigative documentation package is required.

IMPORTANT: However, if any items or artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. If necessary, work will be suspended until which time the items or artifacts have been recovered.

7.3 SITE PREPARATION & MOBILIZATION

NOTE: Review the following Lessons Learned prior to starting work. The full Lessons Learned may be found in the Appendix E.

- Indoor Heat Issues Raise Work Planning Issues
- Keeping a focus on safety during contract transition and site closure

WARNING

WARNING: Most deck grates in Building 72 have been removed exposing:

- Open sumps (the sump grates may have been reinstalled during Safe Shutdown activities)
- Curbs & Tube steel deck support structure
- Sloping floor and terrain

Use **CAUTION** when traversing this area to prevent ankle twists, slips trips and falls.

Wear Level D PPE to minimize injuries.

WARNING: Lifting/twisting strains. Use proper lifting techniques.

7.3.1 Site Access Control

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

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

7.3.2 Sediment/Storm Water Control

7.3.2.1 Cover field grates with covers/sheeting for silt protection (See maps Appendix C) and install sediment/storm water control silt fences around designated construction area, as needed. Protect storm sewer and utility access manholes with steel plates, as needed. Coordinate and evaluate effectiveness of controls periodically throughout demolition activities with Environmental Compliance PoC.

7.3.2.2 Ensure spill kit is available in the area and adequate to prevent contaminants from entering storm drains.

7.3.3 Clear Area and Mark/Protect Utilities and monitoring wells.

7.3.3.1 The area around the building will be cleared of obstacles and unnecessary equipment as appropriate. Coordinate with site Safety & Health and Environmental Compliance.

7.3.3.2 Mark (with visible stakes) and/or construct barriers to protect utility equipment, as needed:

- Monitoring wells 0122, 0312 and 0385 (See Vistamap in Appendix C).
- Site boundary fence
- Manholes & Storm sewers
- Storm drain channel (west of Building 72)

7.3.4 Temporary Utilities

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

7.3.5 Temporary Facilities

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

7.3.6 Temporary Communications

Temporary communications such as cell phones or radios are required at the job site in order to receive plant announcements and emergency notifications. NOTE: The plant paging system has been deactivated.

7.3.7 Staging Areas

The project site is of sufficient size to be used as a staging area for materials needed/generated.

7.4 PRELIMINARY ACTIVITIES AND VERIFICATIONS

IMPORTANT

7.4.1 Verify all Building Safe Shutdown Activities have been completed per work package BOSS-38224

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

7.4.2 Verify all Building Mechanical and Electrical Utility Isolation Activities have been completed per work packages FTS-38228 and FTS-38227, respectively.

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

7.4.3 Verify the Radiological Final Status Survey Report complete, by contacting Bob Coblentz (608-8206). Ascertain if any area in the building constitutes a Radiological Hazard. If any area constitutes a Radiological Hazard, coordinate with Radiological Controls for RWP/PPE/work controls and determine if separate Radiological Demolition Package is required. If there is not any Radiological Hazard, continue with this work package.

HOLD POINT: Radiological Final Status Survey Report complete verification: Radiological Hazard exists ☐ Yes ☐ No

verified by_____ date _____
Rad PoC or email

verified by_____ date _____
Bill Wahler or designee/email

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

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

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

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

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

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

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

7.5.1 Structural Demolition

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

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

HOLD POINT: Regulatory requirements met.

Verified by:_____ Date and Time_____
Robert Ransbottom or designee

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

Project Manager:_____ Date and Time:_____

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

IMPORTANT

All workers have Stop Work Authority. Situations where stop work authority is to be exercised are:
To stop unsafe work.
To stop unauthorized work, i.e., work outside the scope of this work package.

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

NOTE: The progression of the building demolition and selection/sizing of demolition equipment will ultimately be determined in the field. However, when a decision is made in the field to deviate from the work plan, the deviation will be discussed with and approved by the Job Supervisor and the Job Status Log will be filled out to document the change. Changes will be evaluated for any increased collapse potential.

NOTE: Demolition preparation is defined in 29CFR1926.850; workers not familiar with construction standards must meet with Project Supervision and/or Project Health & Safety personnel

NOTE: If any material is encountered that is suspected of being Asbestos Containing Material, **STOP** work immediately and contact IH or Safety to determine the proper course of action.

NOTE: Utilize fall protection in accordance with Op M8 MD-10286 when required.

NOTE: Request RCTs perform a thorough evaluation of all excess materials prior to beginning cleanup or disposal.

NOTE: If traffic must be rerouted, please fill out the Road Closure Checklist in Appendix C and contact Site Supervisor (Jeff Lentz at 865-4047 or 608-8293), Building Manager (Gary Weidenbach at 608-8207) and Site Announcement Coordinator (Marsha McDougal at 865-3028 or Wanda Webb at 865-3416) in advance.

NOTE: If required, contact Steve King on Nextel 673-5796 to remove semi vans on east side of Building 72.

CAUTION: Ensure spill kit is available to prevent contaminants from entering storm drains.

CAUTION: Utilize misting & fogging during demolition & road wetting during waste hauling for dust control. The goal is no visible dust emissions. Periodically evaluate control methods to determine their effectiveness.

WARNING

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

WARNING: Struck by moving equipment/debris.

Establish construction boundary. Wear hardhat, safety glasses, safety shoes, (Level D PPE) and high visibility clothing (i.e. highway reflective vest; fluorescent shirt) inside construction area.

Ensure equipment is in safe working order.
Use a spotter if vision is obstructed.
Maintain the following distances from operating equipment:

- Shear – 75 feet
- Hoe Ram – 50 feet
- Other heavy duty equipment – 30 feet
- Bobcat – 15 feet

WARNING: Breaking through and into pit below the Water Sampling Station. Identify and mark hazard areas during walkdown of area with work crew. Use spotter if vision is obstructed.

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

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

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

WARNING: Most deck grates in Building 72 have been removed exposing:

- Open sumps (the sump grates may have been reinstalled during Safe Shutdown activities)
- Curbs & Tube steel deck support structure
- Sloping floor and terrain
- Open manhole after Water Sampling Station removal.

Use **CAUTION** when traversing this area to

prevent ankle twists, trips and falls.

Wear Level D PPE to minimize injuries.

7.5.1.1 Using heavy equipment, demolish and remove the fencing and secondary curb from around the perimeter as needed for access to the building.

7.5.1.2 Using heavy equipment, working from the north and east sides of the structure, demolish and remove the safety shower enclosure, dock lift, exterior walls, roof, tube-steel deck supports and masonry block interior walls.

7.5.1.3 Remove and demolish the Water Sampling Station.

7.5.1.3.1 Using heavy Equipment, remove the Water Sampling Station from on top of the manhole.

7.5.1.3.2 Cover the manhole or barricade per Op M9 MD-10286. Install construction protection/mark with visible stakes/cover with steel plate as required.

7.5.1.3.3 Using heavy equipment, demolish and remove the Water Sampling Station.

7.5.1.4 Use the slab for load out surface for loading debris and placing into appropriate hauling containers or trucks.

7.5.1.5 Utility pole Removal

7.5.1.5.1 Contact Allen Upshaw 865-4894 or Nextel 673-2874 to verify all conductors on the utility poles to be removed have de-energized, disconnected/air-gapped and removed.

7.5.1.5.2 Using heavy equipment, remove the designated utility poles.

7.5.2 Slab and Foundation Demolition

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

NOTE: The progression of the slab and foundation demolition and selection/sizing of demolition equipment will ultimately be determined in the field. However, when a decision is made in the field to deviate from the work plan, the deviation will be discussed with and approved by the Job Supervisor and the Job Status Log will be filled out to document the change. Changes will be evaluated for any increased collapse potential.

IMPORTANT

Exercise caution when demolishing and removing slab and foundation/footers to not damage underground utilities. Be alert to and reference Underground Utilities Vista Maps in Appendix C for the following utility system lines running near the foundation/slab of Building 72. Obtain Excavation permit and follow its requirements per Op O5 MD-10286.

- Outfall sewer to river east of Building 72 (ran under the Water Sampling Station).
- Storm drains and storm sewer lines around Building 72.
- Storm sewer line under storm sewer northwest storm drain.

NOTE: During the concrete and asphalt demolition, use heavy equipment to assist radiological control personnel to perform radiological screening of ground contact concrete surfaces. Based on radiological screening results, transport to designated disposal area as directed by Waste Management PoC.

NOTE: If soil staining or unusual fumes/odors are noted during slab and catch basin excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008) and Environmental Compliance (Ron Paulick X4080 or 608-8227).

CAUTION: Utilize misting & fogging during demolition & road wetting during waste hauling for dust control. The Goal is no visible dust emissions.

WARNING

WARNING: Personnel entry into excavation/trench 4' or greater in depth. Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary.

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

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

WARNING: Heat/Cold Stress. Follow the requirements Op D13/D16 MD-10286.

WARNING: Struck by flying debris. Establish construction boundary. Wear hard hat, safety glasses, safety shoes, and high visibility clothing (i.e.; highway reflective vests; fluorescent shirts) inside construction area.

WARNING: Struck by moving equipment.

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

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

WARNING: Sloping terrain, loose footing and tripping hazards

Use **CAUTION** when traversing this area to prevent ankle twists, slips trips and falls.

Wear Level D PPE to minimize injuries.

WARNING: Lifting/twisting strains. Use proper lifting techniques.

7.5.2.1 Obtain Excavation permit and follow its requirements per Op O5 MD-10286.

7.5.2.2 Using heavy equipment, break apart the concrete slab, foundation, catch basins, dock pad, sidewalks, asphalt, concrete pier footings, torch cut the rebar if required (Hot Work Permit is required) to support demolition and downsizing.

7.5.2.3 Using heavy equipment, demolish and remove all remaining perimeter fence, asphalt, secondary curb and fencing.

NOTE: Contact Denny Gault (608-8224) to turn the work site over to Environmental Restoration for PRS 41 remediation and VSAP. Environmental Restoration Group will also perform site restoration of the area (grading and seeding/mulching) after PRS 41 remediation and verification activities are completed.

7.5.2.4 Replace any site boundary fencing, as required, that was removed to facilitate demolition activities.

7.6 DEMOBILIZATION

WARNING

WARNING: Heat/Cold Stress. Follow the requirements of Op D13/D16 MD-10286

WARNING: Utilize fall protection, barricades, or man-lifts as required.

WARNING: Struck by moving equipment.

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

WARNING: Sloping terrain, loose footing and tripping hazards

Use **CAUTION** when traversing this area to

prevent ankle twists, slips trips and falls.

Wear Level D PPE to minimize injuries.

WARNING: Lifting/twisting strains. Use proper lifting techniques.

7.6.1 Remove any temporary protection/structures used to protect utility equipment, Sanitary /Storm Sewer grates and manholes, and utility access manholes.

7.6.2 Remove silt protection covers from field grates and any remaining sediment/storm water control fences, straw bales and sand bags, unless it is beneficial to keep silt/sediment control devices in-place for further demolition/remediation work.

7.6.3 Remove sediment and debris that has collected at the storm sewer gratings and along roadways and curbing.

7.6.4 Demobilize Construction Equipment

7.6.4.1 Remove dust control water distribution system, temporary power (if used), temporary fencing and any traffic control. Scan equipment for radiological contamination prior to leaving area, as required, dependent upon in-process Rad surveys.

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

8.COMMENTS:

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

9. REVIEW SIGNATURES:

Written by: _____ Date: ___/___/___ Phone _____

Superintendent: _____ Date: ___/___/___ Phone _____

Foreman: _____ Date: ___/___/___ Phone _____

Project Eng. Mgr: _____ Date: ___/___/___ Phone _____

Industrial Safety & Hygiene: _____ Date: ___/___/___ Phone _____

Rad. Controls: _____ Date: ___/___/___ Phone _____

ES&C: _____ Date: ___/___/___ Phone _____

Waste Mgmt: _____ Date: ___/___/___ Phone _____

Bldg. Mgmt: _____ Date: ___/___/___ Phone _____

Classification: : _____ Date: ___/___/___ Phone _____

Other: _____ Date: ___/___/___ Phone _____

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

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

Brief Explaination: Building is not a Nuclear or Radiological Building

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

11. AUTHORIZATION SIGNATURE:

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

12. WORK PACKAGE CLOSURE:

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

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

RETURN PHA TO IS&H AT JOB COMPLETION.

APPROVAL CONTINUATION SHEET

Reviews:

Name	Signature	Date	Department

Reference Drawings	Rev.	Reference Procedures	Rev.

Appendix A

PHA/JSHA

APPENDIX A

Preliminary Hazard Analysis (PHA)For Work Package Activities

SECTION A, INDUSTRIAL SAFETY - TO BE COMPLETED BY THE INDUSTRIAL SAFETY AND HEALTH REPRESENTATIVE
Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.), Including any notations for future Hazard Analyses. Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards, that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Access/Blockage:			
Blockage of exits or means of egress	Yes	All	[EGRESS] Install construction protection such that emergency egress is provided.
Blockages/obstructions (Identify)	Yes	All	Install construction protection such that emergency egress is provided.
Confined space entry (**permit**)	N/A	N/A	[CONFINE]
Emergency alarms or evacuation plans required	Yes	All	[EMERG] Temporary communications such as cell phones or radios are required at the job site in order to receive plant announcements and emergency notifications. NOTE: The plant paging system has been deactivated.
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	N/A	N/A	
Traffic control/flagman	N/A	N/A	[TRAFIC]
Flammable/Explosive:			
Burning, welding, hot-work (Fire Watch) (**permit**)	Yes	2,3	[BURN] Obtain and follow Hot Work Permit. Paint may contain lead, do not torch cut painted surfaces without verification by IH or Safety.
Chemical compatibility of corrosives/flammables	N/A	N/A	
Explosive/flammable atmosphere	N/A	N/A	
Explosives	N/A	N/A	
Fire protection system/equipment outage	N/A	N/A	[FIRE/EFIRE]
Fire Hazards Analysis/Fire Engineer Approval	N/A	N/A	[FHA/ADJA]
Flammable liquids/gases	N/A	N/A	[FLAM]
Powder-actuated tools (**permit**)	N/A	N/A	
Special Fire Protection Equipment Required	N/A	N/A	[FIREQU]
Chemicals:			
Chemical process safety	N/A	N/A	
Compressed gas cylinders	Yes	2,3,4	Use of cutting torch during safe shutdown. Obtain and follow Hot Work Permit. All compress gas cylinders will be stored, transported and used per Op H-1 MD-10286.
Emergency eyewash/shower available	N/A	N/A	[EWASH]
Elevated/Aerial Work:			
Crane operations, overhead or mobile	N/A	N/A	
Critical lifts (heavy or high value loads)	N/A	N/A	[CLIFT]
Elevated work/fall protection	Yes	2,3,4	[ELEV] Utilize fall protection, as necessary, per Op M8 of MD 10286.
Forklifts, aerial lifts or material handling equipment	Yes	2,3,4	
Hoisting and rigging	No	N/A	[HOIST]
Overhead utilities (Identify)	Yes	2,3,4	[UITL] See Vista Maps in Appendix C.

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APPENDIX A

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

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Lockout/tagout, outages, disconnects (permit)			[LOTO/ISO]
• Electrical	Yes	2,3,4	Electrical isolation of facility is accomplished during Utilities Isolation activities. Street light circuit to be LO/TO as needed.
• Mechanical (steam, hydraulic, pneumatic, gravity)	Yes	2,3,4	Mechanical isolation of facility is accomplished during Utilities Isolation activities.
• Interlocks	N/A	N/A	[ILOCK]
• Chemical	N/A	N/A	
• Radiological	N/A	N/A	
Outages of the plant public announcement (PA) system or the emergency notification system	Yes	All	[OUTAGE]
Building Systems Alarms - Ensure systems are not functional by contacting: Fire Department Security Facilities Services.	N/A	N/A	
Alarm Disable/Disconnect	N/A	N/A	
Structure Related:			
Modification to Fire Wall/Door	N/A	N/A	[FIREWAL]
Penetrations into walls, floors, etc. (permit)	N/A	N/A	[PENETR]
Plastic sheeting or wood framing/enclosures	N/A	N/A	
Structural Modification	N/A	N/A	[STRUCT]
Work impacting adjacent normally occupied areas	N/A	N/A	[ADJAC/BMAPP/SIGNS/NOTIF]
Temporary Requirements:			
Temporary heating facilities	N/A	N/A	
Temporary/portable buildings or structures	N/A	N/A	[FACIL]
Temporary service hook-ups (Identify)	Yes	2,3,4	Temporary electrical power and water hookups as needed.
Public utilities (Identify)	N/A	N/A	[WATER]
Lighting/illumination/adequacy	N/A	N/A	[MLITE] Temporary lighting installation as needed.
Miscellaneous:			
Machine guards	N/A	N/A	
Off-shift work	Yes	All	As needed
Repetitive work	N/A	N/A	[ERGO]
Other (Specify) Sloped floor.	N/A	N/A	
Work in attics, ceilings, chases, or crawlspaces	N/A	N/A	
Work Requiring Scaffolding (inspection required)	N/A	N/A	[SCAFF]
Electrical:			
Electrical hazards	yes	2,3,4	[LIVEL] Electrical Isolation of facility is accomplished during Utilities Isolation activities. LO/TO overhead and underground utilities as needed.

APPENDIX A

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

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 F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Grounding of electrical equipment	N/A	N/A	
Soils/Excavation:			
Underground utilities (Identify)	Yes	2,3,4	[UITL] Isolation of utilities is accomplished during Utilities Isolation activities.
Trenching/Shoring (permit)	Yes	2,3,4	[DIG]
Hazards due to condition of facility or terrain (Identify) Fall into open sumps Bldg 72.	N/A	N/A	
Hazards due to condition of facility or terrain (Identify) Tripping over deck support tube steel (deck grates have been removed), open sumps, and sloped/uneven (curbs/berms) floors.	Yes	2,3,4	Use caution when traversing building interior.
Any soil disturbance	N/A	N/A	[DIG] (Note: Check for URMAs)

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 Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Asbestos/Fibers:			
Asbestos	N/A	N/A	[ASBEST]
Removal of ceiling tiles*	N/A	N/A	
Insulation/man-made mineral fibers (☐ MSDS available)*	Yes	2,3	Fiberglass roof and pipe insulation in Building 72. Fiberglass in wall & floor and rock wool in ceiling cavity of water monitoring station. Contact IH for work controls and PPE requirements.
Hazardous Materials:			
Beryllium	N/A	N/A	
Cadmium	N/A	N/A	
Chlorofluorcarbon (CFC)	N/A	N/A	[CFC]
Coal, tar or asphalt products	Yes	2,3	Asphalt concrete around the building.
Lead	N/A	N/A	
Mercury	N/A	N/A	
Polychlorinated biphenyls (PCBs)	N/A	N/A	
Carcinogens (☐ MSDS available)*	N/A	N/A	[CARC]
Chemical/Corrosives:			
Chemicals/solvents (☐ MSDS available)*	N/A	N/A	[CHEM/MSDS]
Corrosives/acids/caustics (☐ MSDS available)*	N/A	N/A	

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

APPENDIX A

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

FOR Work Packages

SECTION B, INDUSTRIAL HYGIENE - TO BE COMPLETED BY INDUSTRIAL HYGIENE REPRESENTATIVE
Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. lead compliance plans, confined space plans, hearing conservation programs, etc.), Including any notations for future Job Safety and Health Analysis (JSHA). Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)

Item	Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Ventilation/Air:			
Abrasive blast (☐ MSDS available)*	N/A	N/A	
Coating/painting (☐ MSDS available)*	N/A	N/A	
Dusty operations	Yes	2,3,4	[POWDER] Potential dust generation controlled via water misting during demolition and road wetting during waste hauling per OPA 980014.
Foam in Place Operations	N/A	N/A	
Spraying/generation of mists*	Yes	2,3,4	Potential dust generation controlled via water misting during demolition and road wetting during waste hauling per OPA 980014.
Ventilation or Air Monitoring requirements	Yes	2,3,4	[VENTIL/IH] Air monitoring for potential silica during demolition activities will be performed as needed for site annual assessment.
Miscellaneous:			
High Pressure systems	N/A	N/A	[HIPRES]
Lasers	N/A	N/A	
Noise in excess of 85 dBA	Yes	2,3,4	[NOISE] Use hearing protection when required
Blood-borne pathogens*	N/A	N/A	
Temperature extremes (heat or cold stress)	Yes	2,3,4	[CRYRO/COLD/HEAT] Discuss in Pre-job/daily briefings and monitor work.
Welding, brazing, or thermal cutting operations (permit)	Yes	2,3	[BURN] Hot Work Permit Required. Paint may contain lead. Do not torch cut painted surfaces without verification from IH or Safety . All compressed gas cylinders will be stored, transported and used in accordance with Op H1 MD-10286.
Hazardous Waste Operations (HAZWOPER)*	N/A	N/A	
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.

APPENDIX A

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

FOR Work Packages

SECTION C, RADIOLOGICAL PROTECTION - TO BE COMPLETED BY RADIOLOGICAL CONTROLS REPRESENTATIVE
Identify engineering/administrative controls or PPE as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard (i.e. RWP, ALARA Plan, etc.), Additionally, identify any activities which DOE prescribed Occupational Safety and Health standards that require protective measures be designed, inspected, or approved by a professional engineer or other competent person. (Use Section F if additional space is needed.)

Item		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Location:	Controlled Areas (Specify)	N/A	N/A	
	Other (Specify)	N/A	N/A	
Activities:	Digging/Soil Removal (permit)	Yes	2,3,4	[DIG] Survey soils and concrete (soil contact side) following slab removal. Excavation Permit required. Flip slab sections to survey before release.
	• URMA	N/A	N/A	
	Welding, burning, grinding, hammering, chipping, or scraping of contaminated materials	N/A	N/A	
	Decontamination	N/A	N/A	
	Other (Specify)	N/A	N/A	
Sources:	X-Ray equipment, sealed, or unsealed sources	N/A	N/A	
Controls:	Radiological Work Permit	N/A	N/A	[RWP/RWP=JS/RWP=N/R/RPGEN]
	ALARA Plan	N/A	N/A	[ALARA]
	Other	N/A	N/A	

APPENDIX A

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

SECTION D, ENVIRONMENTAL COMPLIANCE- TO BE COMPLETED BY ENVIRONMENTAL COMPLIANCE REPRESENTATIVE
Identify engineering/administrative controls as required, keyed to the following checklist items. Insert any required and/or other special actions to be taken because of the particular hazard. Additionally, identify any activities which are DOE or EPA prescribed protective requirements. (Use Section F if additional space is needed.)

		Exist	Work Package Phase	Comments, Controls, Methods of Compliance
Conditions:	Fugitive Dust (refer to Table 1 below)	Yes	2,3,4	OPA 980014 Section 2.11; Use water misting during demolition & road wetting during waste hauling.
	Storm Water Runoff	Yes	1,2	Cover field grates/drains with covers/sheeting. Install storm water control barriers, straw bales, and silt fences, as needed. Reference latest issue of OPA980099, *Storm Water Pollution Prevention Plan*
	Erosion Control	Yes	3,4	Cover field grates/drains with covers/sheeting. Install storm water control barriers, straw bales, and silt fences, as needed. Reference latest issue of OPA980099, *Storm Water Pollution Prevention Plan*
	NESHAPS Calculation	Yes	2,3,4	Emissions level expected to be below requirement. No US EPA approval required for this building.
	National Historic Preservation	No	N/A	
	• Artifacts found			•
	Safe Drinking Water Act			
	• Potable water	Yes	2,3,4	Potable water will be disconnected from Bldg 72 during Utilities Isolation activities.
	• Backflow preventers for misting	Yes	2,3,4	Install backflow preventers if potable water used for misting water source.
	Emergency Spill Response Materials (Confirm process lines are drained)	Yes	2,3,4	Ensure spill kits are available.
	Locate Monitoring Wells	Yes	2, 3, 4	See Vistamaps in Appendix C.
Notifications:	RAPCA Notification for Asbestos	N/A	N/A	
	RAPCA Notification for Demolition	Yes	3	Requires 10 business days before demolition activity.
	Emergency Spill Response Notification	Yes	2,3,4	911 or 865-4040
	Other	N/A	N/A	

APPENDIX A

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

SECTION E, WASTE MANAGEMENT- TO BE COMPLETED BY WASTE MANAGEMENT REPRESENTATIVE *Include any required and/or other special actions to be taken because of the particular hazard. Additionally, identify any activities which are required by DOE, Nevada Test Site, Envirocare or other waste site.* (Use Section F if additional space is needed.)

	Quantity Expected	Work Package Phase	Radiological Characterization	Packaging Requirements	Mode of Disposal
Types:					
Sanitary Landfill Waste: • Concrete • Steel & Copper Piping • Metal Roofing • PVC • Electrical Wiring • Fiberglass Insulation • Wood	634 Cyds	2.3			
Hazardous Waste: • RCRA Hazardous Waste • Asbestos • Other	No	N/A			
Mixed Waste	No	N/A			
Low Level Radiological Waste: • Building Debris • Below grade	No	N/A			
Transuranic (TRU) Waste	No	N/A			
NOTE: 1. Sealed pressure vessels will need to be at <1.5 atmosphere if present. 2. Any items not previously evaluated are to be set aside for evaluation by Waste Management prior to disposal.					
Other:					
Material sent off-site Fill out MD-200180 Attachment 1 (see below)					
Material sent to concrete crusher Fill out MD-200180 Attachments 1 & 2 (see below)					

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

EMERGENCY PREPAREDNESS

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

- **Evacuation Route/Assembly Areas**
  Assembly area is north of Buildings 72 in the parking lot west of Building 124. See map in Appendix C.

- **Take Shelter Area** (Be aware of threatening weather and take shelter when life-threatening storms are imminent)
  The take shelter area is Building 104. See map per Appendix C.

APPLICABLE LESSONS LEARNED – See Appendix E

Table 1 Airborne Contaminant Protection Methods

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Building Demolition	• Applying dust control materials such as water and surfactants
Hauling Material and Equipment	• Reducing vehicle speeds (<20 mph) • When transporting materials that may become airborne, such as soils, wet the materials or cover the truck beds. • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Vehicle and Equipment Traffic	• Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Wetting roads used for transport • Minimizing unnecessary traffic on roadways, parking areas, and areas around field activities
Excavation	• Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides • Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Trenching	• Applying dust control materials water and surfactants • Covering storage piles with a tarpaulin, plastic, etc. • Keeping soil levels in vehicles below the vehicle sides

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Table 1 Airborne Contaminant Protection Methods (continued)

Dust Generating Activities	Administrative and Engineering Dust Control Measures
Trenching (Continued)	• Minimizing the material drop height during excavation and loading operations • Compacting soils in work areas and in stockpiles at the end of each workday • Changing excavation and transportation method(s) when feasible • Applying vegetative cover or asphalt to project work area at completion of project • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks
Material Loading and Unloading	• Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Storage Piles	• Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover to storage pile areas at completion of project
Wind Erosion from Work Sites	• Compacting soils in work areas and in stockpiles at the end of each workday • Sealing off work areas, stockpiles, etc., before the workday and during lunch breaks • Covering storage piles with a tarpaulin, plastic, etc. • Applying vegetative cover or asphalt to project work area at completion of project

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Project/Activity:

Name:

JSHA CRITERIA CHECKLIST	YES	NO	N/A
1. Work performed with an unprotected 6 ft. or greater fall hazard, excluding portable ladders. See Item 14 of this checklist for further requirements.		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 greater 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 non-ionizing 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 trama/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)

JSHA MASTER DOCUMENT CONTROL NO: BOSS-72-38226

SIGNATURES

ORIGINATOR:	
REVIEW/REV:	
REVIEW/REV:	
APPROVED:	
APPROVED:	

DATE: 6/23/04	_X_ NEW __ REV	**BUILDING:** 72	**JOB:** Demolish Building 72 MSR # 38226
DEPARTMENT/COMPANY: BOSS – CH2M HILL Mound			**SECTION:** N/A

OCCUPATIONS:
Heavy Duty Operators, Demolition Craft, Electricians and Demolition Technicians supported by project personnel e.g. Supervision, Engineering, Radiological Controls, Industrial Hygiene and Safety.

{PRIVATE }REQUIRED PERSONAL PROTECTIVE EQUIPMENT:

Safety glasses with side shields, safety shoes, hearing protection, hard hats, splash guards, gloves as needed.

MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:

None

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 1B - 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.	N/A	This project engages in Enhanced Work Planning (EWP), a ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
1. Site Preparation & Mobilization	Standard construction hazards Poor footing/slipping/tripping.	Demolition preparation is defined in 29CFR1926.850; workers not familiar with construction standards must meet with project supervision and/or project health and safety personnel. Terrain in and around Building 72 slopes, and has curb & tube-steel tripping hazards. Use caution when traversing the area.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1a. Site Access Control	Struck by equipment/debris	Once the work area is defined, only authorized personnel are permitted in the construction perimeter. Unescorted, non-project and non-emergency personnel must have permission of the BOSS Project Manager for entry
1b. Clear area mark/protect utilities	Running in to utilities, grates over field drains and manhole covers. Slip – trip – fall Lifting/twisting strain Cut and abrasions	Mark/protect utilities etc. with wooden boxes, visible stakes and/or colored flags. Cover field grates with steel plates. Uneven surfaces/work area. Use caution when traversing the area. Use proper lifting techniques. Use Proper PPE.
2. Demolish building structure and slab using excavator mounted shear, hoe ram, grapple, loader and bobcat.	Struck by moving equipment Noise hazard Electric Shock	Wear hardhat, 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. Wear hearing protection per requirements of Op D9 MD 10286. 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 a spotter if vision is obstructed. Wear hearing protection while running heavy per requirements of Op D9 MD10286. All building utilities including electrical will be disconnected prior to building demolition. Identify sources outside the building such as the street lighting circuits that need to be LO/TOed to prevent contact between heavy equipment and live electrical.
2a. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint, hazardous fumes.	Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. Test for lead paint; coordinate with site Safety and Health for PPE/work controls before torch-cutting due to possible toxic/hazardous fumes (i.e., lead pa1 1a. Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone.
2b. Working in excessive heat/cold	Heat Stress/Cold Stress	Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings.
2c. Slab removal	Radiological contamination Electrical Shock	Coordinate in-process surveys with Radiological Control Technicians. All building utilities including electrical will be disconnected prior to building demolition. Identify sources outside the building such as the street lighting circuits that need to be LO/TOed to prevent contact between heavy

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

		equipment and live electrical.
2d. Pit soil surveys – Personnel entering excavations/trenches 4' or greater in depth.	Trench collapse/entrapment of personnel (asphyxiation, cuts, abrasions)	Obtain Excavation Permit and follow its requirements per Op O5, M10 & M11 MD-10286. Operators must be trained to OSHA requirements of 29 CFR 1926 Subpart P. Erect soil barricade and use Personnel Retrieval Equipment as necessary.
3. Working in the vicinity of heavy-duty equipment	Struck by moving equipment	Wear hard hat, safety glasses, safety shoes, and high visibility clothing inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. Wear hearing protection per requirements of Op D9 MD 10286. Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet
3a. Remove temporary barriers, construction protection, electrical power, dust control water barriers, fencing and unneeded silt/sediment control fences etc.	Slip – trip – fall Lifting/twisting strain Cut and abrasions	Uneven surfaces/work area. Use caution when traversing the area. Use proper lifting techniques. Use Proper PPE.
4. Work from elevated surfaces (manlift, bucket truck, etc.)	Fall Hazard	Wear proper PPE restraints, harnesses and other fall protection as required by Op m8 MD 10286.

SIGN-OFF SHEET

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

Signature	Date	Department

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: Demolition of Building 72
2. WORK PACKAGE NUMBER. BOSS - 38226 - 00

[Note: Mark this section in color]

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

Revision Description: (attach page revisions to form)

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

Approved by:

CH2M Hill Project Manager _____

Name Signature Date

REVISION LOG

1. WORK PACKAGE TITLE: Demolition of Building 72

2. WORK PACKAGE NUMBER. BOSS - 38226 - 00

Revision	Reason	By	Date

Appendix B

PRE-JOB BRIEFING

AND

JOB STATUS LOG

PRE-JOB BRIEFING RECORD

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

BRIEFING CHECK OFF LIST

JOB SUPERVISOR:	**Check When Completed***
1. Scope of work reviewed:	
a. The assignments and responsibilities of each individual were specifically identified.	Done ☐ N/A☐
b. The current facility conditions, tagouts, valve lineups, and work permits relating to this job have been discussed.	Done ☐ N/A☐
c. The precautions, limitations, initial conditions, and prerequisites were adequately reviewed.	Done ☐ N/A☐
d. Potential hazards associated with the job have been discussed (JSHA).	Done ☐ N/A☐
e. Specific work covered by RWP (any limitations).	Done ☐ N/A☐
2. All necessary safety equipment and PPE is available.	Done ☐ N/A☐
3. All required personnel have satisfied initial and continuing training requirements to perform the job including training specified on the RWP.	Done ☐ N/A☐
4. All required personnel have reviewed the applicable documentation listed in B above as it applied to their part of the job.	Done ☐ N/A☐
5. Reliable and adequate communications are available.	Done ☐ N/A☐
6. The required tools and equipment are available.	Done ☐ N/A☐
7. Appropriate lob sheets, material transfer, and data recording forms are available.	Done ☐ N/A☐
8. All required documents available at the PJB are approved and current.	Done ☐ N/A☐

*For items not applicable, write in N/A.

PRE-JOB BRIEFING RECORD (Page 2)

9. Related past problems, unusual events, and occurrences were discussed. Done ☐ N/A☐
10. All personnel understand egress procedures and egress areas. Done ☐ N/A☐
11. RWP requirements:
    a. Radiological conditions of the workplace. This should include a review of the most recent survey of the area. It is important to ensure that the survey is specific to the work area. In cases where a system of unquantified activity will be breached, discuss the "anticipated activity" to be expected after the breech. Done ☐ N/A☐
    b. Dosimetry requirements. Done ☐ N/A☐
    c. Protective clothing and respiratory protection requirements (cite location of doffing instructions). Done ☐ N/A☐
    d. Job coverage requirements (continuous vs. intermittent). Explain that continuous means "within line of sight and field of control of RCT at all times." Done ☐ N/A☐
    e. Stop Work Levels (SWLs) and other applicable limitations. Done ☐ N/A☐
    f. POC's/RCT's must discuss the type of radiological monitoring to be employed at the job site during and subsequent to the work. Personnel assigned to do the work MUST EXPRESS THEIR FULL UNDERSTANDING of the monitoring to be employed and of the alarm signals if applicable. Workers MUST CONCUR in the type and scope of monitoring planned at the job site before work can begin. Done ☐ N/A☐
    g. Dose reduction/contamination control techniques (e.g., use of; shielding, capture velocity, containment devices). Done ☐ N/A☐
    h. Personnel and equipment monitoring requirements (including control point locations). Done ☐ N/A☐
    i. Bioassay requirements. Discuss; isotopes to be encountered, proper use of the bioassay information form, use of nosewipes as appropriate (and disposition of nosewipe results), and bioassay frequency if this will be a long term task. Done ☐ N/A☐
    j. Effective date and expiration date of RWP reviewed. Done ☐ N/A☐
    k. Briefly cover WORKER RESPONSIBILITIES (Article 123 of the DOE RADCON MANUAL) Done ☐ N/A☐
12. Necessary instrumentation is adequately tested and calibrated. Done ☐ N/A☐
13. Key task steps in which radiological conditions may change and where the RCT will perform in-process surveys to assess radiological conditions. Done ☐ N/A☐
14. If an ALARA Job Review was required, then this would be an appropriate time for the review. Done ☐ N/A☐
15. Radiological hold points, if any. Done ☐ N/A☐
16. Discuss any appropriate response actions to emergencies, such as CAM, alarms, criticality alarms, or increasing radiation levels. Done ☐ N/A☐
17. When nonradiological health monitoring (e.g. asbestos) is to be employed at the job site during and subsequent to the work, the personnel assigned to do the work MUST EXPRESS THEIR FULL UNDERSTANDING of the monitoring to be employed and of the alarm signals if applicable. Workers MUST CONCUR in the type and scope of the monitoring planned at the job site before work can begin. Done ☐ N/A☐
18. Communications and coordination with other groups. Done ☐ N/A☐
19. Provisions for waste management and job cleanup. Done ☐ N/A☐
20. Open floor to questions. Done ☐ N/A☐

The above minimum requirements have been met; this PJB has been conducted in sufficient detail to ensure save conduct of the job.

_____

Job Supervisor/Foreman Date

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

CAUTION: Working on or Near Live, Active Lines/Utilities

Consider Alternative Means of Protection (Blocking, Shielding, etc.)
And Alternative Manual Methods for Removal

PRE-JOB UPDATE RECORD

MSR/PROCEDURE (if applicable):	JOB SUPERVISOR:

A	Time, Date and Location of PJU:
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 floor to questions

The above minimum requirements have been met; this PJU 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.

CAUTION: Working on or Near Live, Active Lines/Utilities

Consider Alternative Means of Protection (Blocking, Shielding, etc.)
And Alternative Manual Methods for Removal

JOB STATUS LOG

1. WORK PACKAGE TITLE: Demolition of Building 72

2. WORK PACKAGE NUMBER. BOSS - 38226 - 00

DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

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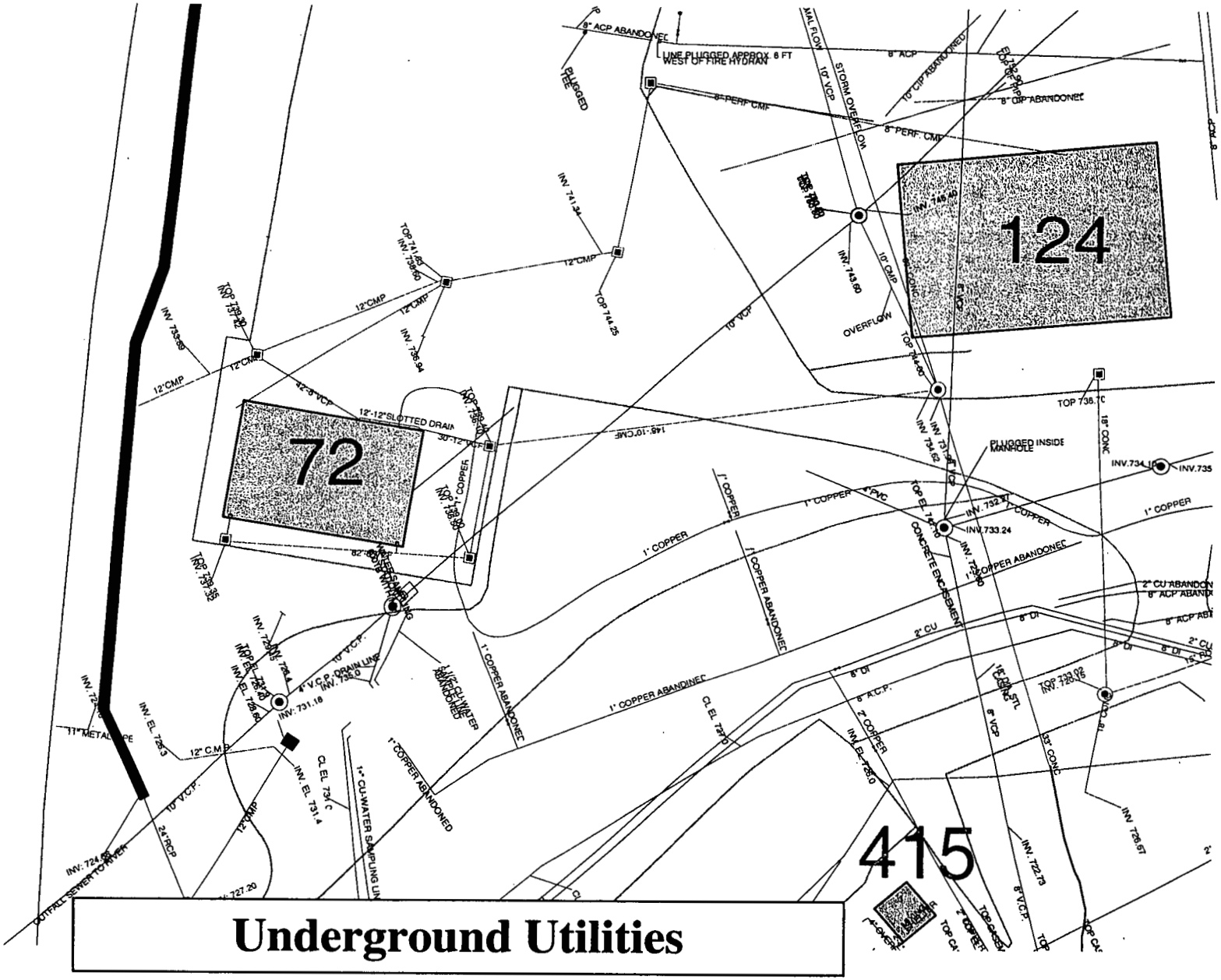
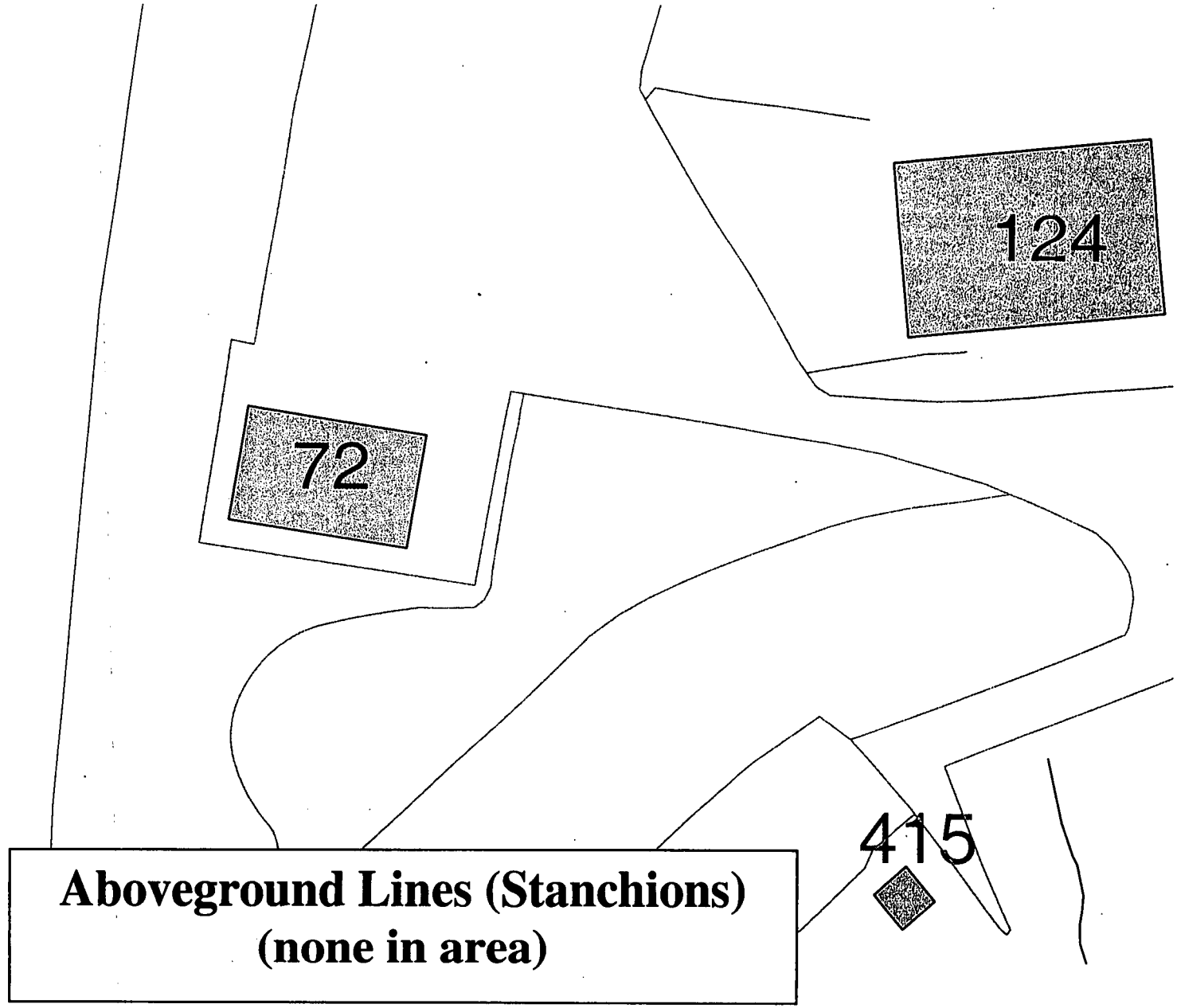
Appendix C

DRAWINGS/SKETCHES

- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Details
    - Building 72 Facility Construction Drawings
- Building 72 Surrounding Underground Utilities Vista Maps
- Evacuation Assembly Area/Take Shelter Area Sketch
- Road Closure/Blockage Checklist
- Other Vista Maps
    - Above Ground Lines
    - Monitoring Wells
    - PRSs
    - URMAs
    - Power & Light Poles
    - Tanks
    - Contour Lines
    - Aerial View
    - Photograph of Building 72
    - Photograph of Water Sampling Station
    - Photograph of Safety Shower Enclosure and Dock Lift
    - Photograph of Building 72 Interior
    - Assembly and Take Shelter Areas


124
72
415
8" ACP ABANDONED
LINE PLUGGED APPROX. 8 FT WEST OF FIRE HYDRAN
PLUGGED FIRE
8" PERF CMP
STORM OVERFLOW
10" VCP
8" ACP
10" CIP ABANDONED
8" CIP ABANDONED
8" PERF. CMP
INV. 741.34
12" CMP
TOP 744.25
INV. 743.60
10" CMP
OVERFLOW
10" VCP
12" CMP
INV. 735.94
12" CMP
12" CMP
12"-12" SLOTTED DRAIN
30"-12" VCP
148'-10" CMP
TOP 738.70
18" CONC
PLUGGED INSIDE MANHOLE
INV. 734.62
INV. 735
1" COPPER
1" COPPER
1" COPPER
1" COPPER
INV. 733.24
1" COPPER ABANDONED
CONCRETE ENCASEMENT
2" CU ABANDON
8" ACP ABAND
2" CU
8" DI
8" A.C.P.
1" COPPER ABANDONED
1" COPPER ABANDONED
1" COPPER ABANDONED
1" COPPER ABANDONED
4" V.C.P. DRAIN LINE
INV. 731.18
INV. EL 731.4
CL EL 731.0
1" CU-WATER SAMPLING LINE
12" C.M.P.
10" V.C.P.
24" RCP
11" METAL PIPE
OUTFALL SEWER TO RIVER
8" VCP
33" CONC
INV. 722.73
8" V.C.P.
INV. 726.67
Underground Utilities

038-7-59



Aboveground Lines (Stanchions)
(none in area)

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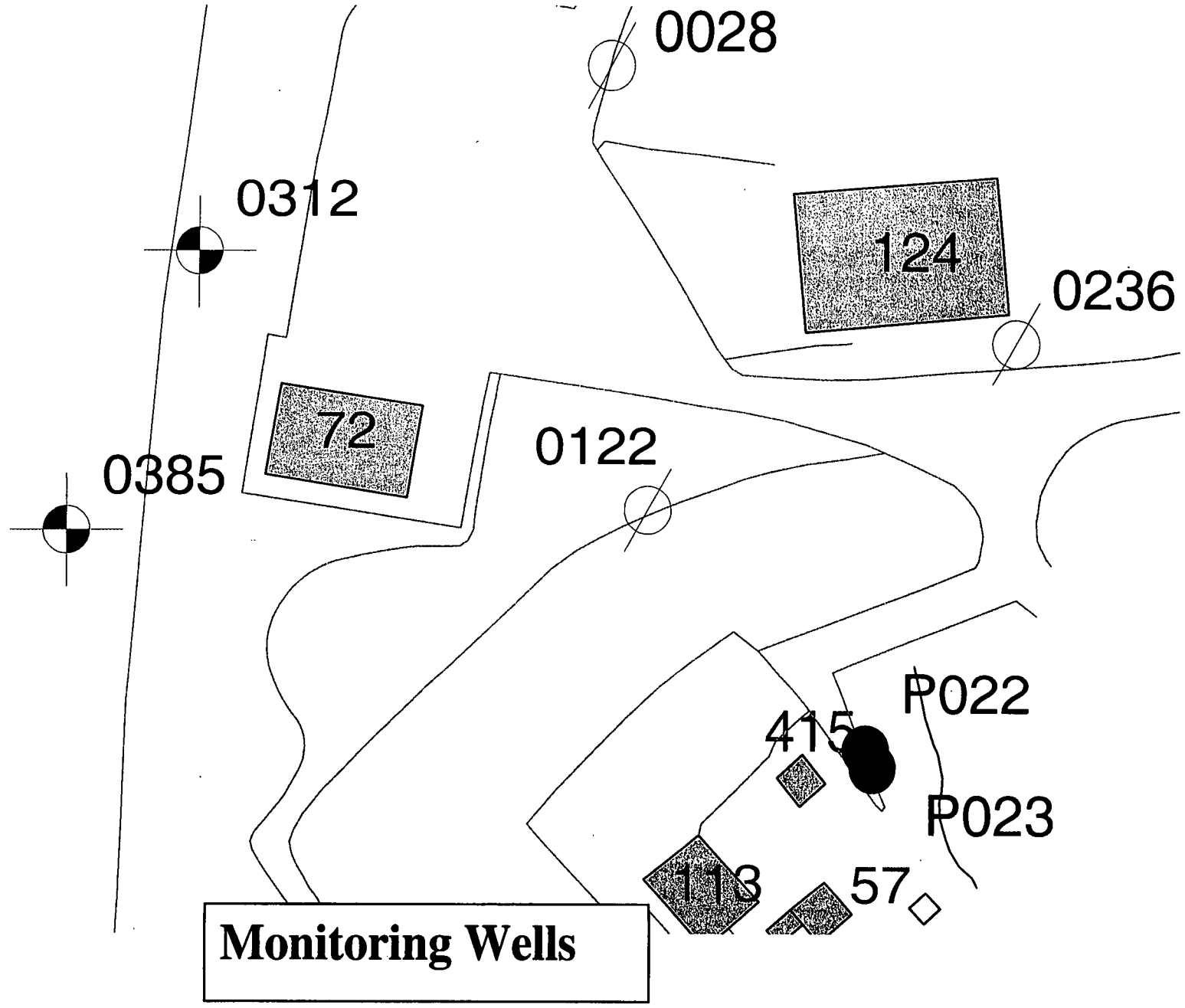
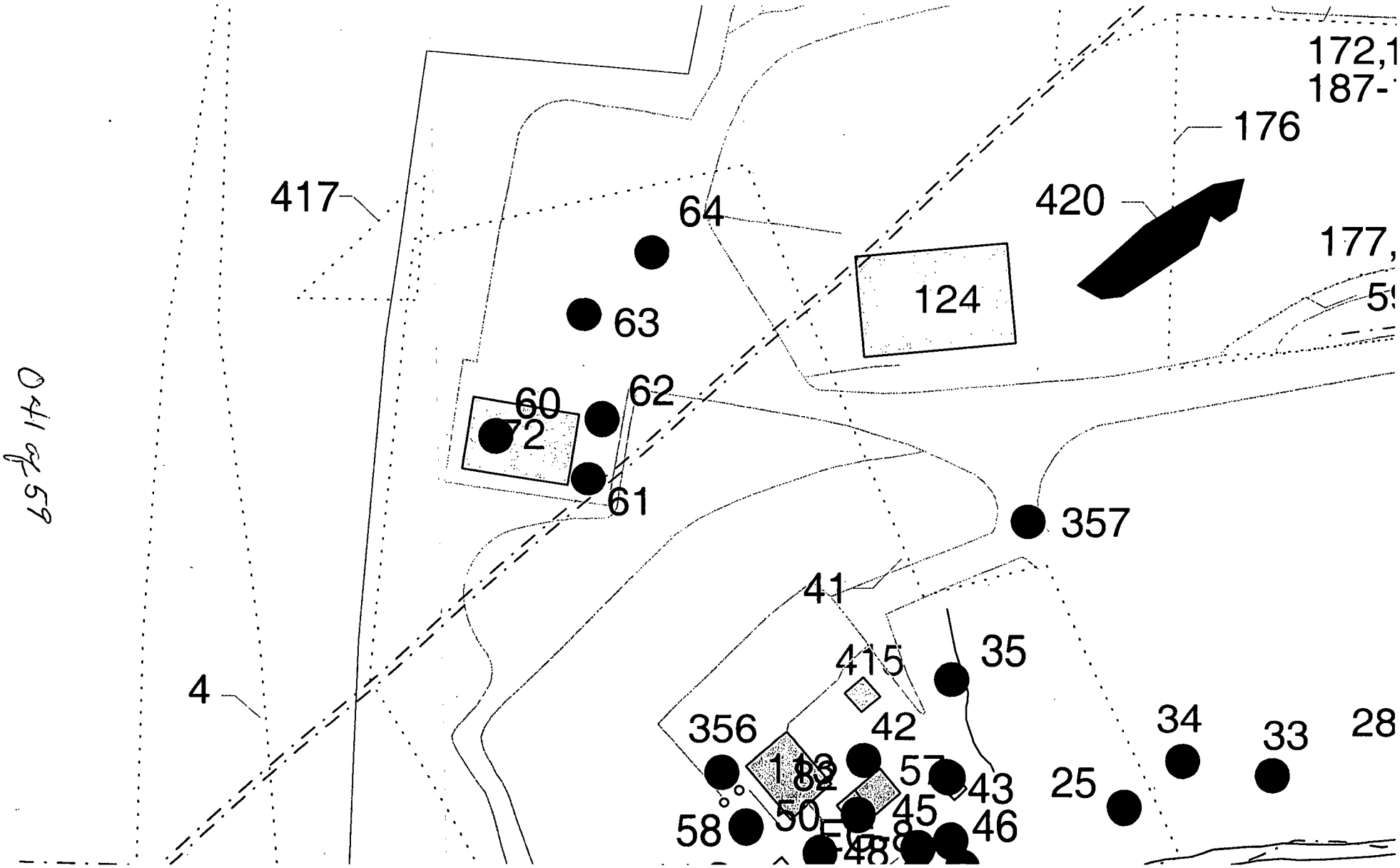


Monitoring Wells



PRSs

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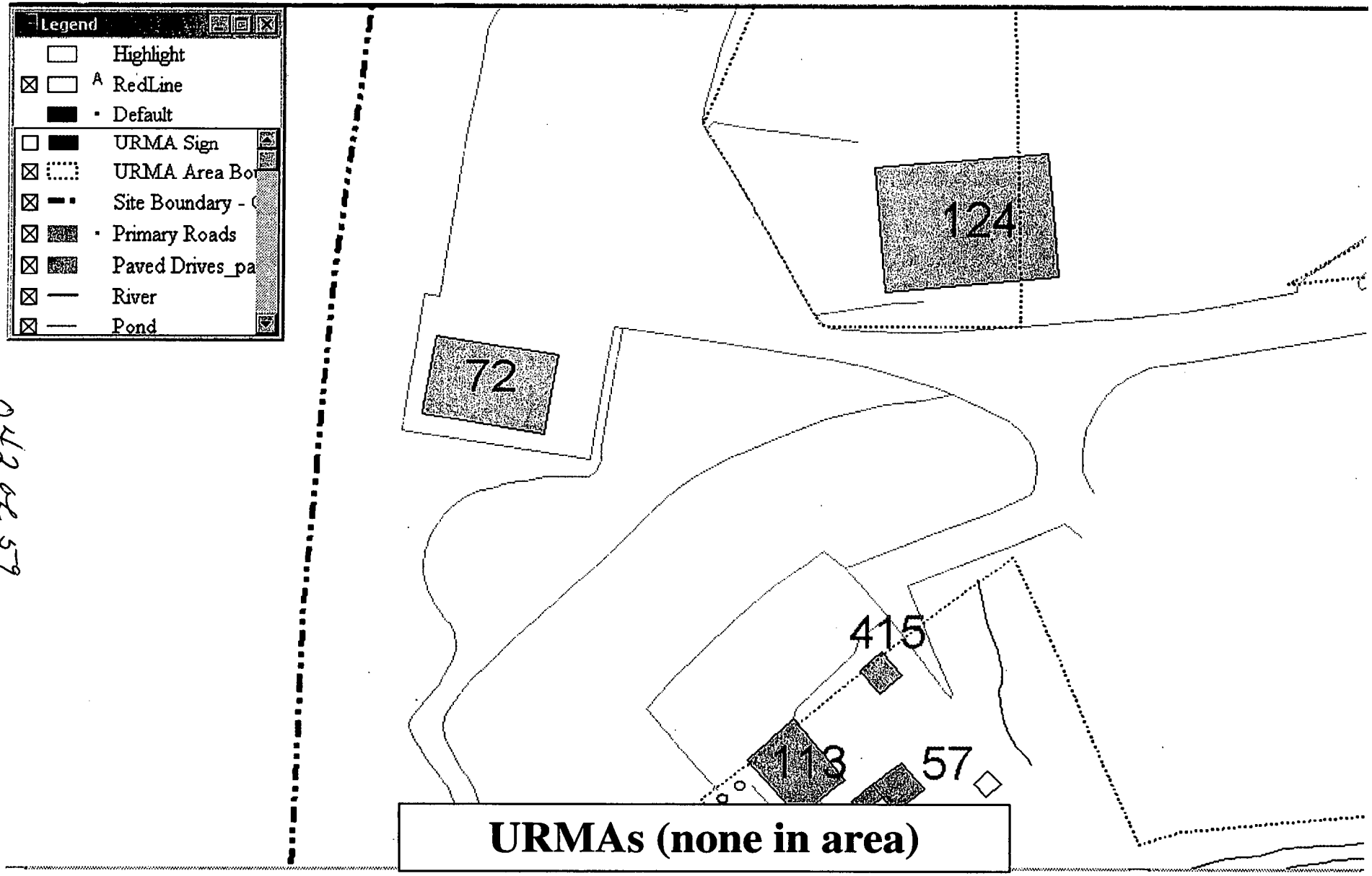

URMAs (none in area)

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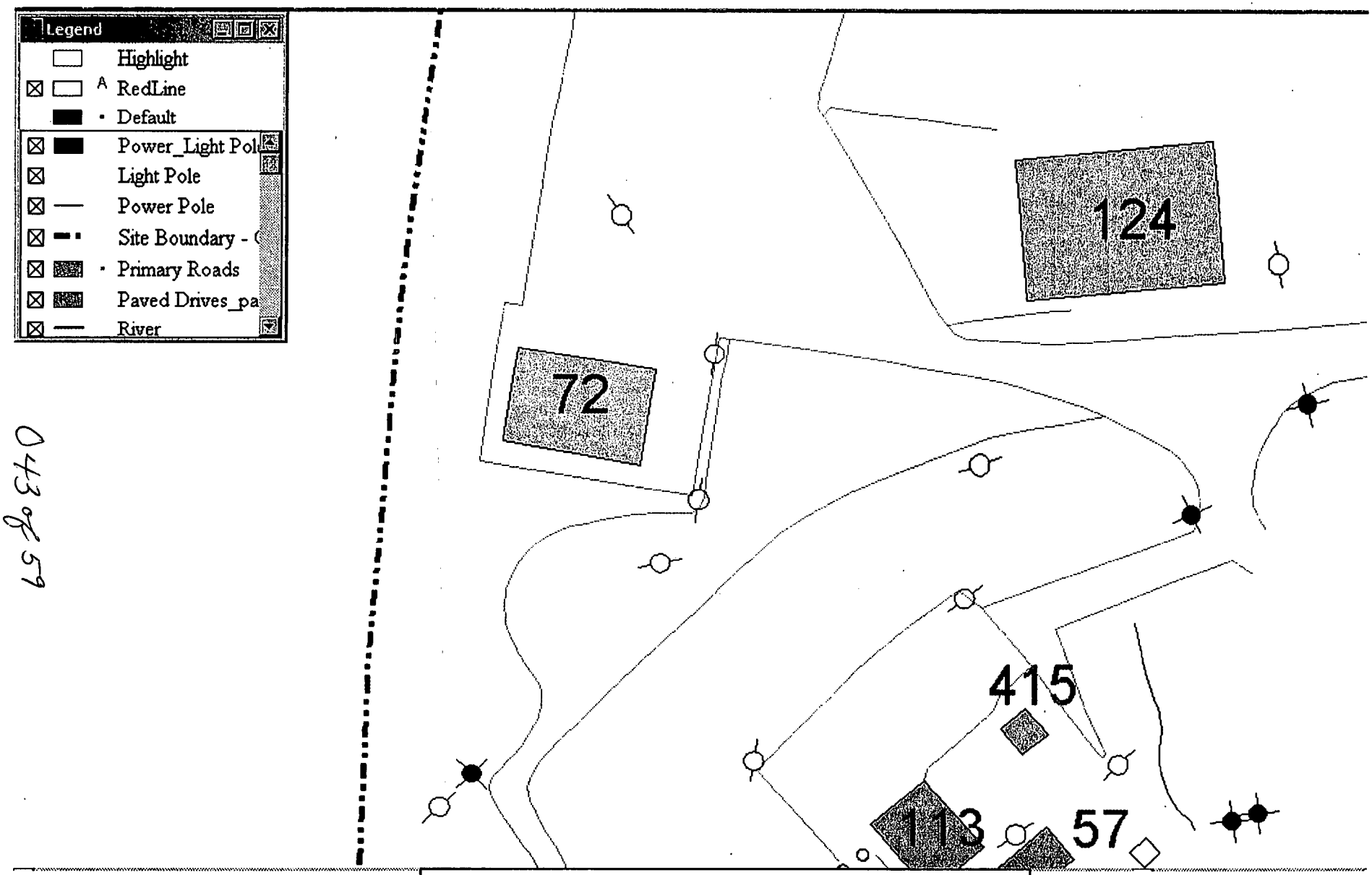

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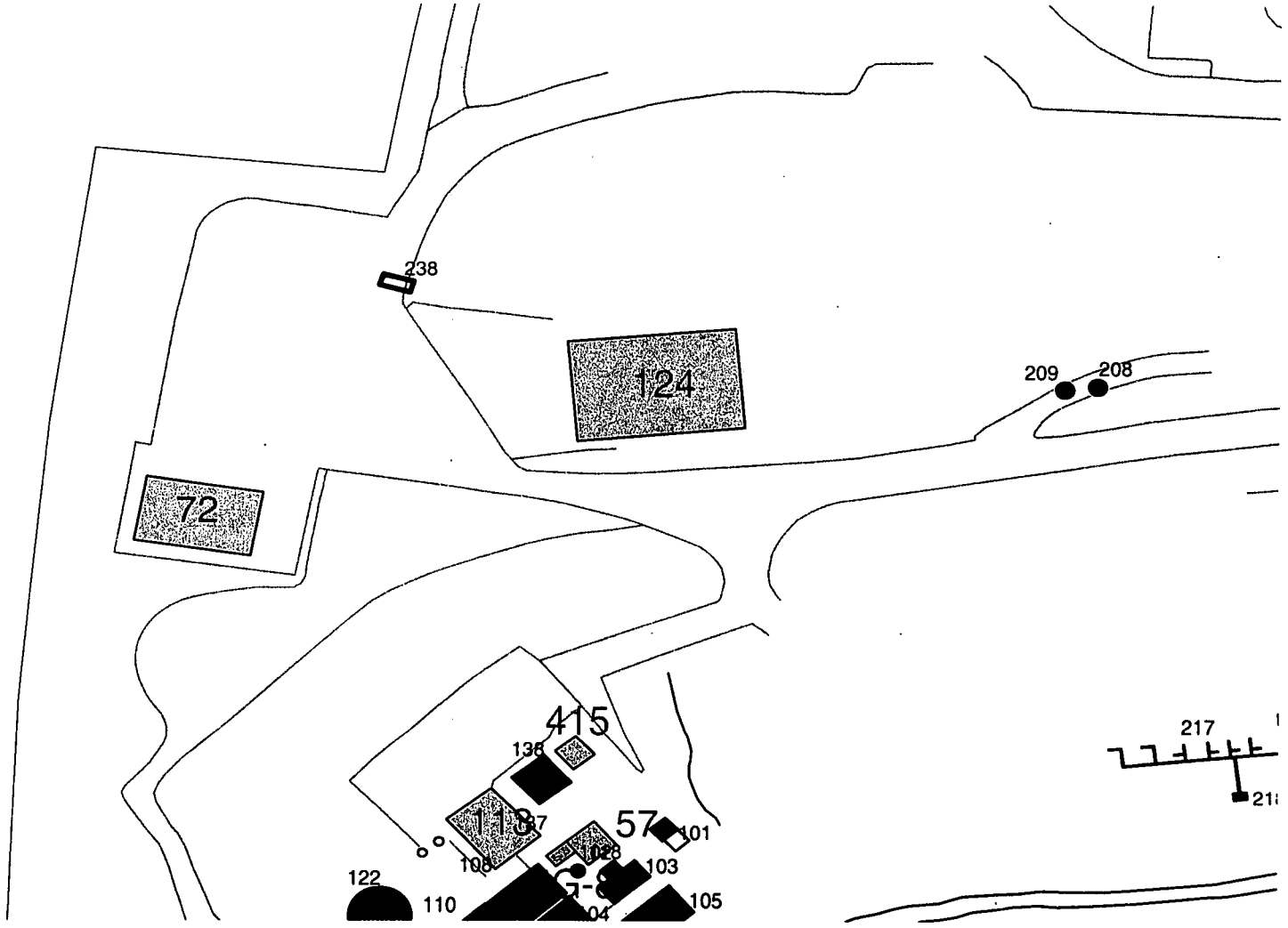
Power & Light Poles



Tanks (none in area)

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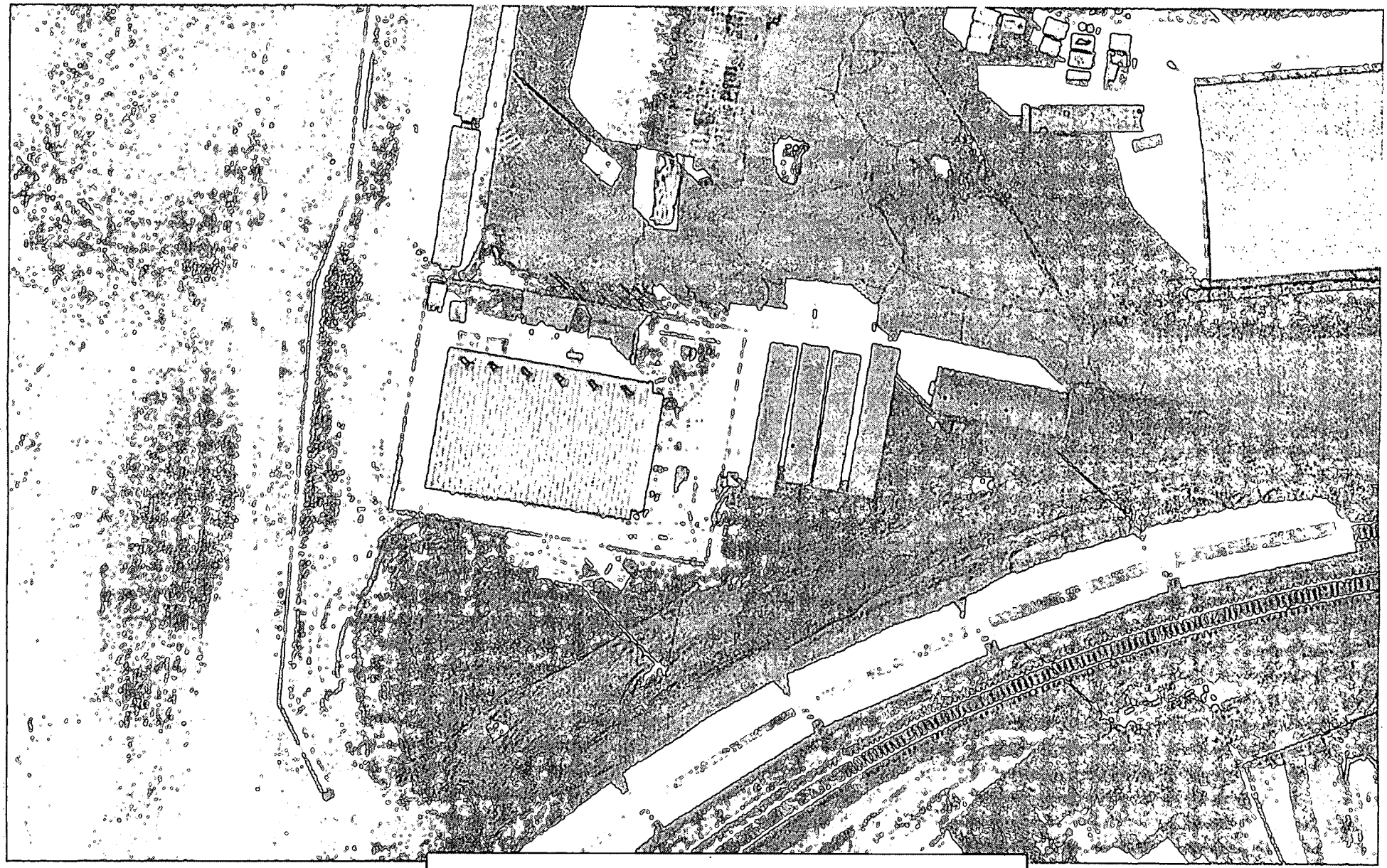
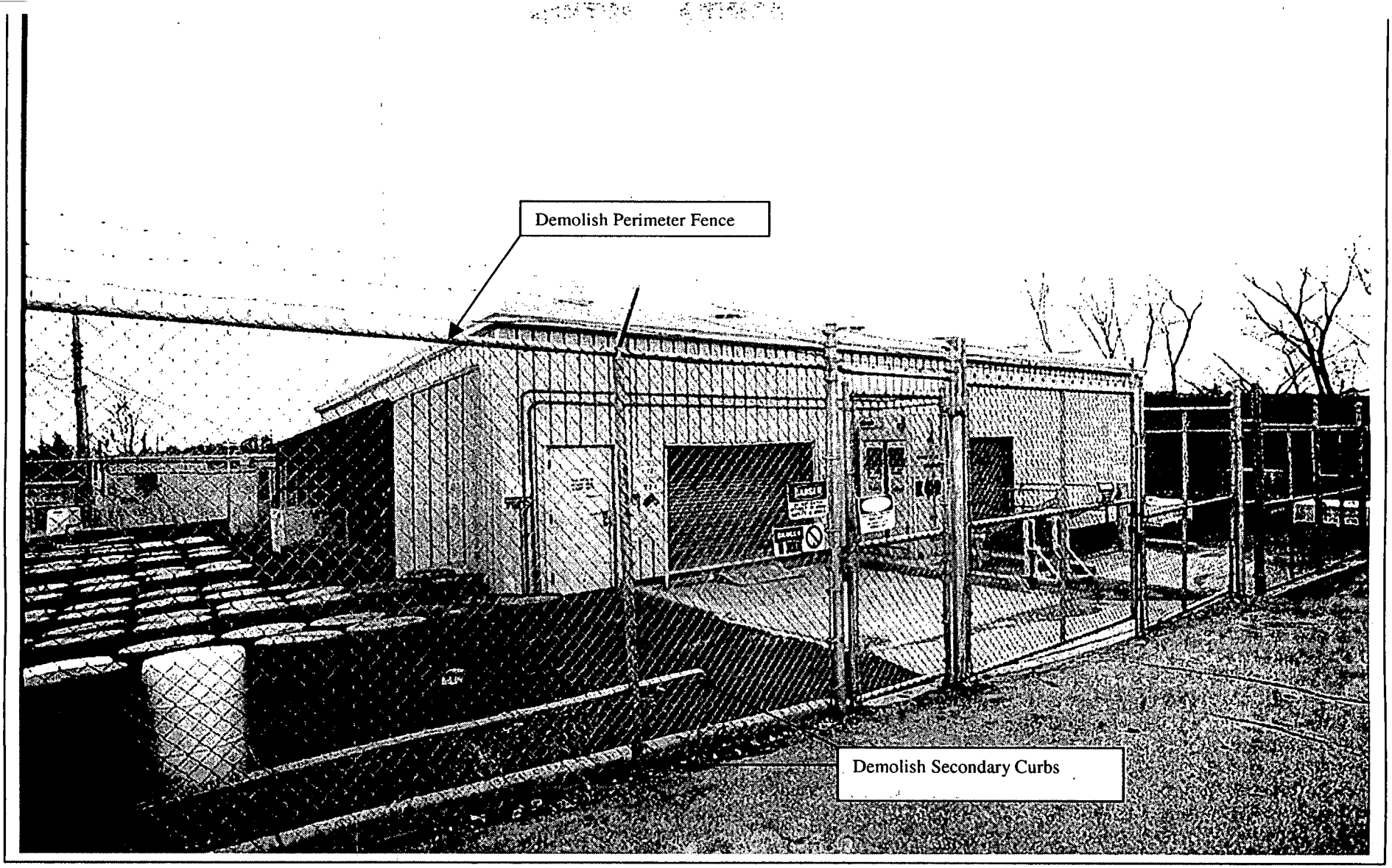
Contour Lines

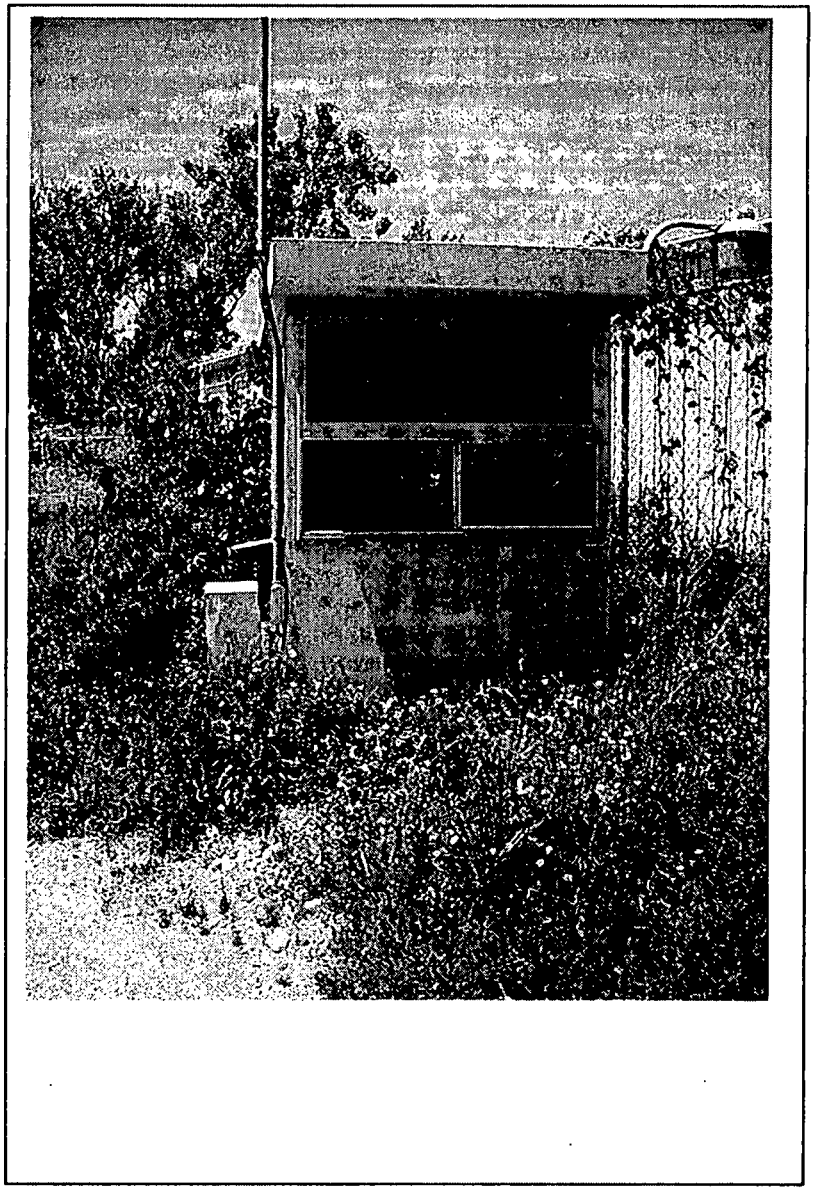


Aerial Photo

0 of 59



Demolish Building 72 Perimeter fence and Secondary Curbs



Remove & Demolish Water Sampling Station

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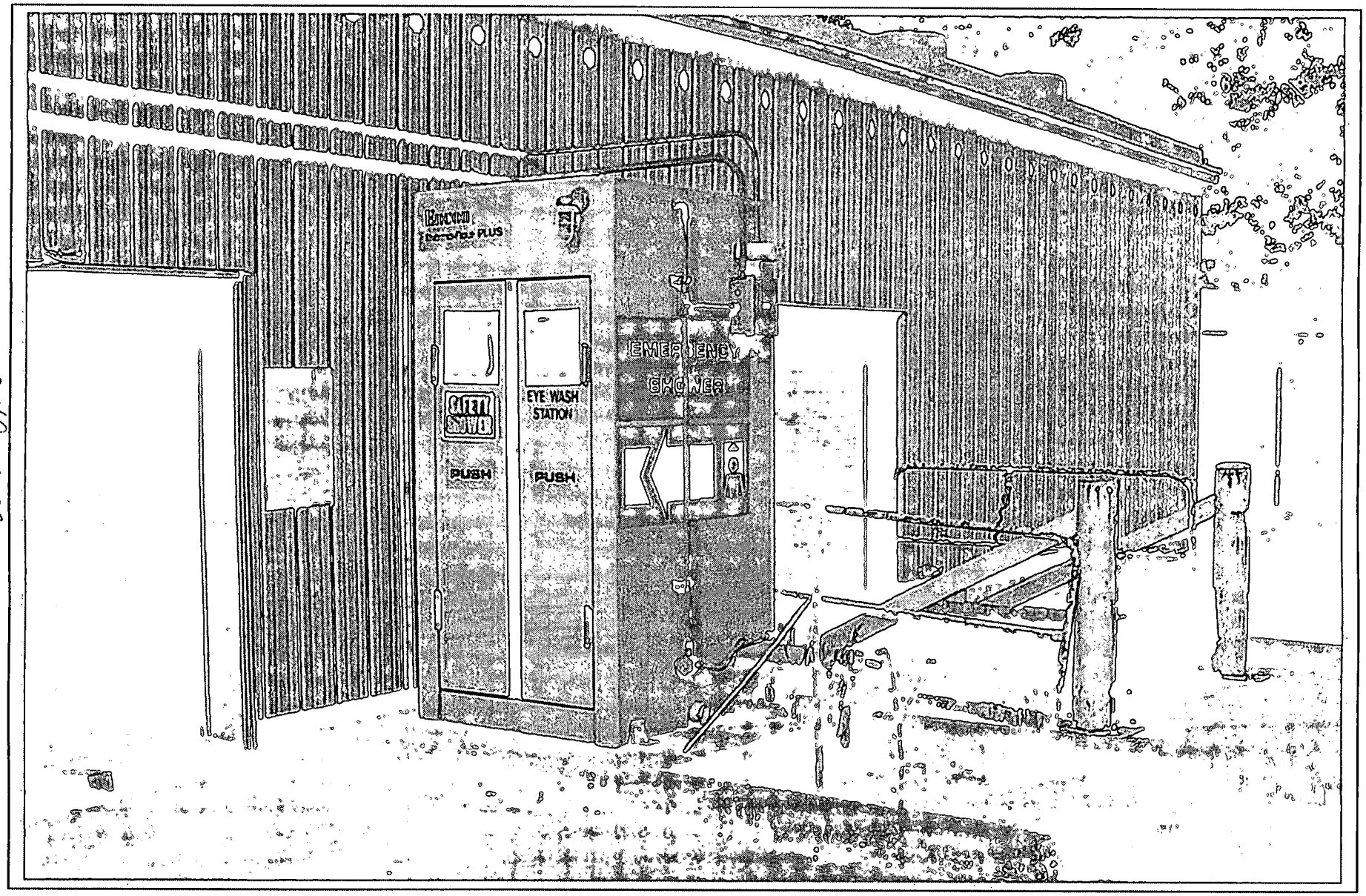
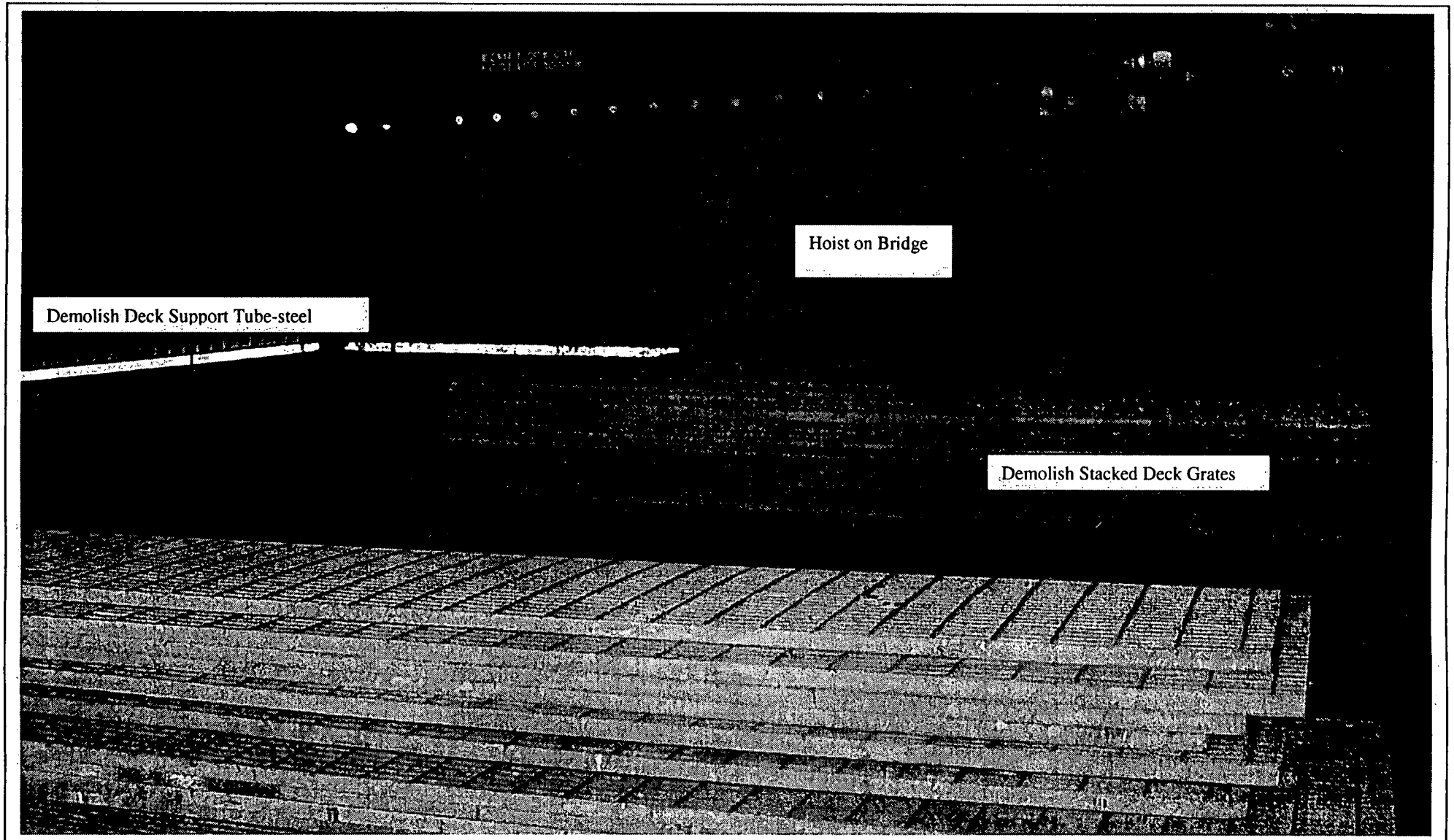
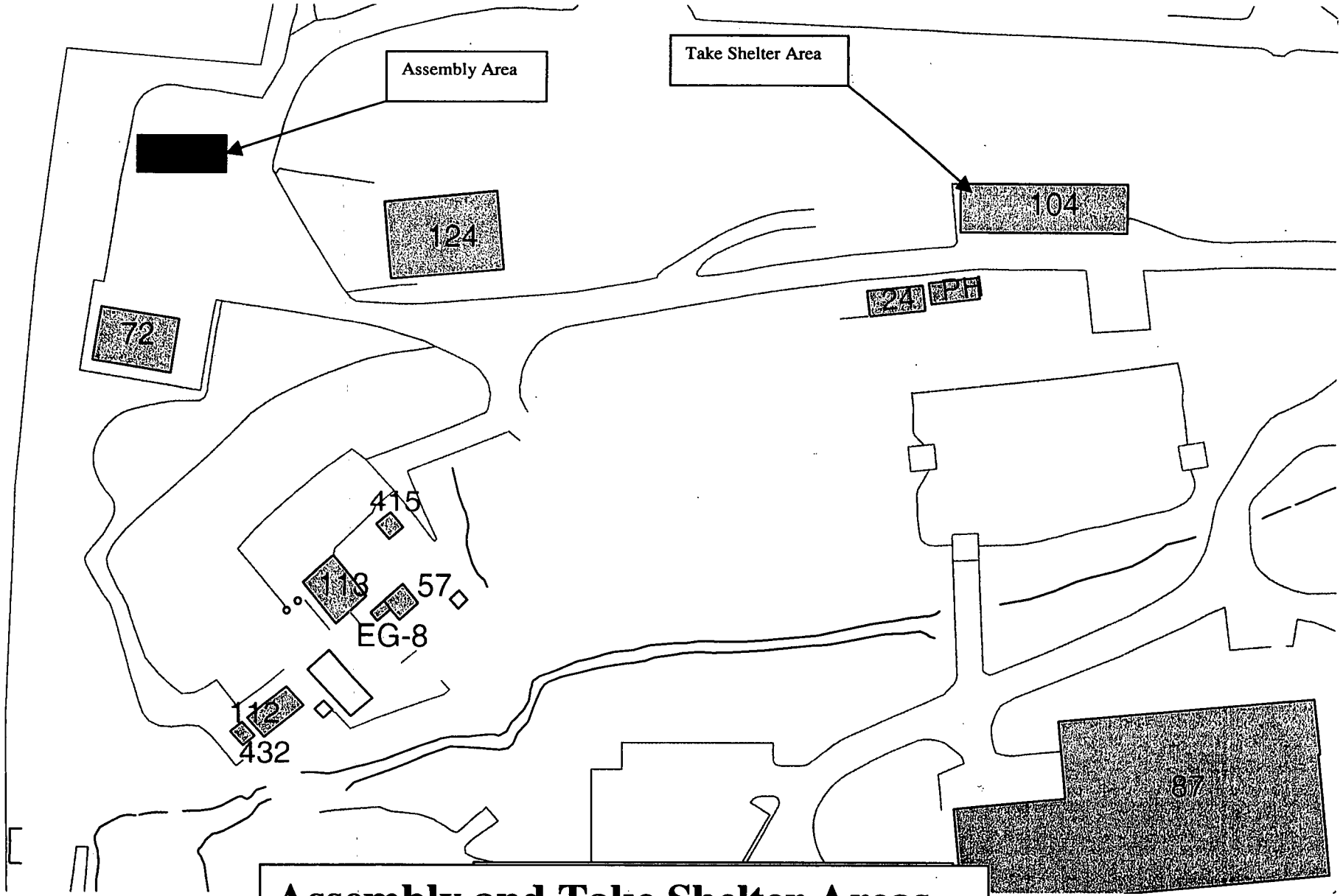


Demolish and Remove Safety Shower Enclosure and Dock Lift



Demolish Deck Grates, Deck Support Tube-steel and Building Structure



Assembly and Take Shelter Areas

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Road Closure/Blockage Checklist

	Yes	N/A
1. Determine location and length of time for road closure.		
2. Notify Security for possible site access changes as needed and for emergency access.		
3. Inspect re-route traffic pattern for overhead obstacles, pavement condition and narrow passageway.		
4. Determine one-way or two-way traffic pattern, assign flag personnel, utilize cones, barricades and appropriate signage.		
5. Assure clear distance from permanent structures (sidewalks, fences, building, stanchions, etc.).		
6. Issue plant notification (include subcontractors, MMCIC, etc.) and include location, length of closure, alternate route, identify clearances, blind spots and remind site supervision to discuss in daily briefings.		
7. List and notify Buildings/Projects Impacted:		
8. Notify MMCIC.		

Project Safety POC Review _____ Date _____

Project Manager Approval _____ Date _____

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

- No USQ required for this Work Package
- No RWP required for this Work Package
- Work Package Material List
- Structural Engineering Survey Letter, per 29 CFR 1926.850

WORK PACKAGE MATERIAL LIST

Work Package # Boss – 38226 - 00 Page ___ of ____

Work Package Description Demolition of Building 72

Item #	Qty.	Units	Material Description	Used For	Suggested Supplier

Structural Engineering Survey Letter will go here

Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

POST JOB CONFERENCE

1. WORK PACKAGE TITLE: Demolition of Building 72
2. WORK PACKAGE NUMBER. Boss – 38226 - 00

What went well?

What could be improved?

Other Comments:

Items Requiring Further Action:

POST-JOB CONFERENCE ATTENDEES

NAME	HP	NAME	HP

LESSONS LEARNED INPUT FORM

(This is a brief descriptive title)

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

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

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

nmended Actions: (Identify specific corrective actions)

itted by: _____ Date: _____

ONAL

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

Appendix P

Final Facility Closure Letter

OhioEPA
State of Ohio Environmental Protection Agency
Southwest District

401 East Fifth Street
Dayton, Ohio 45402-2911

TELE: (937) 285-6357
FAX: (937) 285-6249

cc: Bradford Carson Fulton Gallaher Kennedy Lee Lehew Stanerton DOE

CERTIFIED MAIL

May 19, 2004

Mr. John Fulton
U.S. DOE Mound
P.O. Box 66
Miamisburg, Ohio 45342

Re: Final Facility Closure; Miamisburg Environmental Management Project; OH6890008984/05-57-0677

Dear Mr. Fulton:

On March 22, 2002, Ohio EPA approved a closure plan for a hazardous waste container storage unit associated with Building 72 which is located at the Miamisburg Environmental Management Project (MEMP) at One Mound Road, Miamisburg, Ohio 45342. On November 25, 2003, the Director received final certification documents for this unit. Within these documents you and Mr. Micheal D. Giordano, P.E., have certified that the container storage unit within Building 72 has been closed according to the specifications in the approved closure plan.

To verify MEMP closure activities, Jeff Smith from Ohio EPA's Southwest District Office conducted a final inspection of Building 72 on December 15, 2003. He also reviewed documents pertaining to the closure of the unit and determined that the activities proposed in the closure plan were conducted adequately. Based on this inspection and review, Ohio EPA has determined that MEMP has closed the unit in accordance with the approved closure plan and Ohio Administrative Code (OAC) rules 3745-55-11 through 3745-55-15. This area is the last remaining unit authorized by the facility's Ohio Hazardous Waste Installation & Operation Permit for conducting long-term storage of hazardous wastes. Therefore, closure of this unit constitutes full facility closure.

Although MEMP has now satisfactorily addressed the facility closure requirements under Ohio's hazardous waste laws, MEMP will remain subject to permitted facility requirements for the purpose of addressing RCRA Corrective Actions obligations, as required by OAC 3745-55-011. Therefore, in accordance with OAC 3745-50-51, in order to update the facility's permit and corresponding information within the permit application, MEMP officials are currently in the process of pursuing the appropriate permit modification.

Please contact Jeff Smith by phone at (937) 285-6070 if you have any questions concerning either the closure or permit-related issues that are addressed within this correspondence.

Sincerely,

Harold O'Connell, Supervisor
Division of Hazardous Waste Management

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